Working paper

# Climate-resilient strategies for revitalising diversification in Small Island Developing States

**Preeya S. Mohan | SIDS Future Forum 2024**
**April 2024**

## Abstract

Small Island Developing States (SIDS) are disproportionately impacted by the negative consequences of climate change, hindering their economic growth and diversification. Over-reliance on tourism, agriculture and natural resource extraction has left many SIDS vulnerable to external shocks and environmental degradation, negatively impacting economic growth. In order for SIDS to meet the challenges and uncertainties of climate change, their growth processes must be diversified towards climate-resilient sectors. The objective of this policy-focused research paper is to explore SIDS' ability to leverage technologies and climate finance in order to exploit new opportunities in climate-resilient sectors. It provides a framework for the selection of these sectors – renewable energy and energy efficiency, sustainable transport, climate-resilient infrastructure, blue economy and ocean-based sectors, land and forestry, knowledge-based economies, and circular economies – taking into account the unique challenges faced by SIDS which act as barriers to diversification and increase their exposure to climate risk. The paper then provides a mapping of detailed diversification strategies within each sector. Case studies are used to demonstrate where progress has been made in overcoming financial, technical and institutional barriers and where policy solutions have been effective in particular islands or contexts. Finally, the paper concludes with recommendations on how climate-resilient growth strategies can be replicated and scaled up across island states.

RESILIENT SUSTAINABLE ISLANDS




How to cite: Mohan, P.S. (2024) Climate-resilient strategies for revitalising diversification in Small Island Developing States. Working Paper. London: ODI (www.odi.org/en/publications/climate-resilient-growth-and-diversification)

# Acknowledgements

The author would like to thank Resilient and Sustainable Islands Initiative (RESI) for supporting this work.

**About this paper**

This is one of 12 papers commissioned for the Small Island Developing States (SIDS) Future Forum, co-hosted by RESI and Island Innovation, alongside partners UN-OHRLLS, UNDESA, UKAid and AOSIS.

In each paper, a leading expert analyses one of five themes identified in the preparatory documents for the UN's Fourth International Conference on Small Island Developing States (SIDS4) in May 2024. The papers will contribute to SIDS4 as supporting material/annexes to the next 10-year roadmap for SIDS, the Antigua and Barbua Agendafor SIDS.

This paper was commissioned under the theme of 'Resilient economies: New strategies for diversification and growth.'

# Contents

# Display items

## Tables

# Acronyms/Glossary

| | |
|---|---|
| **ACEF** | Aruba Circular Economy Foundation |
| **BNEP** | Barbados National Energy Policy |
| **GDP** | gross domestic product |
| **LULUCF** | land use, land use change and forest |
| **NDCs** | nationally determined contributions |
| **ODA** | official development assistance |
| **ProMEC** | Project Promoting Electric Mobility |
| **REDD+** | Reducing Emissions from Deforestation and Forest Degradation and the conservation and sustainable management of forests and enhancement of forest carbon stocks |
| **RESI** | Resilient and Sustainable Islands Initiative |
| **SDGs** | Sustainable Development Goals |
| **SIDS** | Small Island Developing States |

# 1 Introduction

Small Island Developing States (SIDS) are a heterogeneous group of countries that share the twin challenges of volatile economic growth and vulnerability to climate change. Climate change is a major threat to the economic development of these countries. Rising sea levels, extreme weather events, and changing weather patterns are already impacting key sectors and disrupting livelihoods. The IPCC's Sixth Assessment Report states that SIDS are particularly vulnerable to climate change not just because of their geographic location and high level of exposure to climate impacts, but also because of their low levels of economic diversification and technological development (IPCC, 2022). Further, these economies are still recovering from the back-to-back shocks of the 2008/2009 global financial crisis and the COVID-19 pandemic (Bishop et al., 2023). As SIDS' economic structures tend to be concentrated in climate-exposed industries such as tourism, agriculture and extractive sectors, they suffer significant losses from climate impacts. Diversification into climate-resilient industries represents a way to empower SIDS to increase economic growth while also tackling climate challenges and promoting social equity. The objective of this paper is to explore the ability of SIDS to leverage technologies and climate finance in order to exploit new opportunities in climate-sensitive sectors in ways that can deliver climate-resilient diversification.

# 2 Diversification and climate-resilient growth in SIDS

Economic volatility from external shocks – in particular, climatic shocks – affects economic growth in SIDS (Mohan et al., 2018; Dell et al., 2012). It is therefore not surprising that SIDS governments have long targeted diversification to reduce such risks, though with little success to date. Economic activity continues to be concentrated in sectors that are susceptible to climate impacts. Climate events (for instance, disasters) have been shown to have short-term negative impacts on economic growth given their significant destruction of infrastructure and human life (Mohan et al., 2018), although, at the same time, recovery from these events can have small positive impacts through clean-up and recovery efforts and expansion into new sectors (Mohan et al., 2019). The Paris Agreement strongly emphasises the need for a deep structural transformation of the global economy towards a low-emission and climate-resilient future, which inevitably involves diversification into climate-resilient sectors. Since the signing of the Agreement there has been a shift in economic activity towards climate-resilient industries, and a ramping up of climate finance to invest in them. This presents an opportunity for small states to revitalise their attempts at diversification, with special emphasis on climate-related sectors. Moreover, it is imperative that SIDS participate in these sectors as producers, and not simply as exporters of raw materials or passive recipients of imported technologies – as seen in earlier industrial revolutions.

SIDS require substantial financial resources to diversify their economies away from climate-exposed sectors. Given generally low domestic resources and high debt, they remain dependent on external finance for climate investment (Lindsay et al., 2023; Mohan, 2022a). The international financial system has been criticised for not adequately catering to the needs of SIDS, given the unique challenges they face in accessing and utilising such finance (Lindsay et al., 2023). Nonetheless, SIDS remain heavily dependent on external finance to implement climate-resilient projects, and it continues to fall significantly short of their financing needs (Mohan, 2023a; 2022a). High-income SIDS, particularly those in the Caribbean, are ineligible for ODA; even for countries that are eligible, the level of finance received is disproportionately lower than their vulnerability demands. Similarly, in the case of climate finance, the majority has been channelled to middle-income countries, with lower sums going to SIDS. Furthermore, in instances where SIDS are able to access international finance, they remain disadvantaged due to their size, capacity constraints, vulnerability and perceived high risk. Hence, it is imperative that SIDS move into climate-resilient sectors that are able to attract and generate significant amounts of finance.

# 3 Framework for the selection of sectors for diversification

Table 1 provides a framework for the selection of sectors for diversification to build climate resilience in SIDS. The framework begins by recognising the unique challenges faced by SIDS which act as barriers to diversification and increase their exposure to climate risk. These include their limited land size and domestic resources, economic and environmental vulnerability, exposure to disasters and limited access to finance. The formulation of climate-resilient growth strategies must take these barriers into consideration, and the selection of sectors must empower SIDS to overcome them. In addition to having high mitigation and adaptation potential, the sectors must increase innovation, skills and knowledge along with investments in new and upgraded infrastructure and technology to allow SIDS to be internationally competitive. Additionally, the sectors must increase collaboration and knowledge sharing, and build social support networks which can enhance social capital and community resilience. The sectors must have significant alignment with national development plans and be able to contribute to economic growth and sustainable development. They must also align with international agreements such as the Sustainable Development Goals (SDGs) and the Paris Agreement and international climate finance mechanisms.

The selected sectors are energy and energy efficiency, clean transport, resilient infrastructure, ocean-based sectors, land and forestry, knowledge-based economies and circular economies. Focusing on these sectors can help SIDS build climate resilience and access international funding and technical assistance for climate action. SIDS should prioritise these sectors based on their vulnerability to climate change, their mitigation and adaptation potential, and their ability to attract international support.

**Table 1** Framework for selecting climate-resilient sectors

| Challenges → | Sectors → | Outcomes |
|---|---|---|
| Limited land and resources | Renewable energy | Redcue vulnerability to climate change |
| Economic vulnerability | Clean transport | Economic growth and development |
| Envitonmental vulnerability | Climate-resilient infrastructure | Improved infrastructure and technology |
| Limited access to finance | Ocean-bassed sectors | Increase inovation, skills and knowledge |
| | Land use and forestry | Social inclusion and community resilience |
| | Knowledge-based economies | International support and collaboration |
| | Circular economy | |

Source: Author's compilation

Table 2 provides a mapping of the selected sectors along with their detailed diversification strategies.

**Table 2** Mapping climate-resilient growth strategies for diversification in SIDS

| Sector | Strategies |
|---|---|
| **Energy** | • **Renewable energy (solar, wind, biomass, hydroelectric, geothermal, ocean-based):** installing solar panels on homes and businesses, investing in wind farms, and developing geothermal energy projects<br>• **Energy efficiency:** upgrading to more efficient appliances and LED lighting, weatherizing homes and businesses, and adopting smart grid technologies |
| **Transport** | • **Low/zero emission vehicles:** electric vehicles, electric ferries and boats and bicycles<br>• Alternative fuels: biofuel, hydrogen, compressed natural gas and liquefied natural gas |
| **Infrastructure** | • **Climate resilient infrastructure:** building seawalls and other coastal defences, elevating infrastructure above sea level, using durable construction materials and techniques, and early warning systems<br>• **Eco-system-based adaptation:** use of natural environment to protect against climate change such as mangroves, vetiver grass, coral reefs and forests |
| **Blue/ ocean economy** | • **Sustainable fisheries and aquaculture:** develop sustainable fishing practices, invest in aquaculture production of resilient species and establish marine protected areas<br>• **Ocean renewable energy:** harness ocean energy sources like waves, tides and currents<br>• **Blue/coastal tourism:** develop sustainable tourism models that minimise environmental impact and support local communities<br>• **Blue carbon initiatives:** protect and restore coastal ecosystems like mangroves and seagrass meadows that store carbon and provide coastal protection |
| **Land use, land use change and forest** | • **Sustainable forest management:** implement practices that conserve and enhance forest resources- selective logging, enrichment planting, and improved fire management<br>• **Protect and restore natural ecosystems and forest finance:** establishing protected areas, planting trees, restoring wetlands, and combating invasive species<br>• **Ecotourism:** offer unique nature-based experiences that protect ecosystems.<br>• **Agroforestry and integrated farming systems:** combine crop production with tree planting and livestock rearing to create diverse and resilient ecosystems |
| **Knowledge economies** | • **Logistics and value chain management:** utilising data analytics, cloud platforms, and automation to optimise logistic processes and communication between stakeholders along the value chain<br>• **E-commerce, online marketplaces and digital marketing:** use of online platforms for businesses to sell directly to consumers and use of social media, analytics, and personalised marketing to engage customers<br>• **Fintech and digital payments:** use of mobile wallets and cashless transactions |
| **Circular economies** | • **Waste management and reduction:** minimise waste generation through composting, recycling, and upcycling<br>• **Resource conservation:** implement product life extension schemes and extended producer responsibility schemes |

Source: Author's compilation

# 4 Renewable energy, energy efficiency and sustainable transport

The energy and transport sectors in SIDS are generally the largest emitters of greenhouse gases. Island states are also reliant on imported fossil fuels. This leaves them exposed to high energy prices and price fluctuations, which can present a drain on government budgets and current accounts in already highly indebted countries. Blechinger et al. (2016) estimate that SIDS would save around $3.3 billion annually if they switch to renewable energy – equivalent to 3.3% of their GDP. SIDS have significant potential for solar, wind and geothermal energy production relative to their electricity demand, enabling them to transition to clean energy sources and improve energy security. Further, they can implement energy-efficiency measures such as moving to efficient appliances and LED lighting, weatherising homes and businesses, and using smart grid technologies. Sustainable transport solutions such as electric vehicles and low-emission fuels can also reduce energy consumption. High upfront costs and a lack of financial resources are, however, a primary barrier to renewable energy adoption in SIDS. Mohan (2022c) examines six Caribbean small states and estimates that, based on their nationally determined contributions (NDCs), the climate financing needs for their electricity and transport sectors amounts to $11 billion. Other barriers include a lack of technical capacity in designing and implementing renewable energy projects, monopolistic utility structures, fossil fuel lock-in, and limited supportive policies and regulatory frameworks (Betzold, 2016; Dornan and Shah, 2016).

## 4.1 Case study: Barbados to become 100% renewable by 2030

The Barbados National Energy Policy (BNEP) 2019–2030 states an overarching goal to achieve 100% renewable energy generation by 2030, with a focus on expanding beyond solar into wind, ocean, and biomass energy.[1]

### Government support

#### Policies and frameworks

- Barbados National Energy Policy (BNEP) 2019–2030 and Implementation Plan

#### Fiscal incentives

- Encouraging investment and consumption of renewable energy and sustainable transport (e.g. tax breaks on electric vehicles)
- Householders' Right to Renewable Energy Policy (2022): financing for solar panel installation and selling excess electricity

1 https://www.smartenergybarbados.com/wp-content/uploads/2021/03/BNEP-summary-b.pdf

### Investment in electric buses

- Reduced fuel costs and increased electric vehicle share in public transportation

### Energy Smart Fund

- Financial and technical support for businesses entering the renewable energy market

### Challenges

- Small size of projects and domestic market, hindering private sector participation
- Upgrading battery storage and grid infrastructure: high upfront costs and difficulty attracting investors
- Lack of capacity and skills for operating large renewable energy systems

## 4.2 Case study: Completely electric mobility fleet by 2050 in Cabo Verde

Cabo Verde plans to switch its entire vehicle fleet to electric by 2050 through Project Promoting Electric Mobility (ProMEC). This project will replace imported fossil fuels with locally generated renewable electricity. Germany is providing financial and technical support.

### Challenges

- High cost of electric vehicles
- Limited access to financing
- Scarcity of charging stations
- Uneven electricity grid
- Lack of regulations and skilled workers

### Government support

- Setting up a fund to help citizens buy electric vehicles and charging stations
- Seeking an investor to build a public charging network
- Developing regulations, training programmes, and public awareness campaigns to support the switch to electric vehicles

# 5 Climate-resilient infrastructure

Climate-resilient infrastructure refers to the planning, design, construction, operation, and maintenance of infrastructure that can withstand and adapt to the impacts of climate change and extreme weather events. This minimises damage to critical structures like ports, energy grids, and transportation and communication networks, which reduces economic losses, boosts business continuity and facilitates trade. Building sustainable infrastructure creates opportunities for local businesses and entrepreneurs in areas like design, engineering and construction. Innovative funding models such as public–private partnerships and green bonds are critical given the high capital cost involved. The Caribbean Development Bank estimates that the Caribbean requires $30 billion over the next decade for its green infrastructure needs (CDB, 2014). Ecosystem-based adaptation, such as restoring mangrove and coastal ecosystems, can provide alternative cost-effective protection measures. Engaging local communities and disadvantaged groups in the design and management of such projects ensures that they meet the needs of the community while also creating jobs.

## 5.1 Case study: Grenada's climate-resilient cities

Grenada is making its two major cities, St. George's and Grenville, more resilient to climate change through a project called Climate Resilient Cities. This project will involve building seawalls, storm-resistant buildings and drainage systems, and will create jobs in the process.

### Government support

- Working with international partners (International Monetary Fund, World Bank) to secure funding
- Partnering with a New York university to gain necessary expertise

# 6 The blue economy, ocean-based sectors and blue finance

The blue economy is defined by the World Bank as 'the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem' (World Bank, 2017). For islands, ocean resources are on average more than 2,000 times the size of their land masses, and traditional ocean-based sectors such as tourism and fisheries are already important economic activities (ibid.).[2] The blue economy in SIDS can drive diversification by strengthening existing sectors such as tourism and aquaculture and expanding into new ones including ocean and wind energy, marine biotechnology, seabed mining and maritime transport. It also allows for nature-based solutions through the protection and sustainable management of blue carbon ecosystems, which protect coastlines from climate change impacts and which are ranked as the most intense carbon sink on the planet (Clegg et al., 2020; Rustomjee, 2016; Herr and Landis, 2016). To finance ocean-based sectors, SIDS can tap into blue finance such as the Blue Natural Capital Financing Facility, the Blue Carbon Accelerator Fund, the Blue Carbon Initiative, debt for climate swaps, blue carbon markets and blue bonds (Mohan, 2023a). However, SIDS need support in building knowledge, research, data handling and the measurement of ocean-based economic activity. In addition, infrastructure and technology for emerging blue economy sectors are lacking. SIDS must also adapt existing frameworks and develop policies for conserving and managing ocean resources sustainably.

## 6.1 Case study: The Bahamas – first in the world in the blue carbon credit market

The Bahamas is a pioneer in developing a blue carbon credit market to financially benefit from protecting its mangroves and seagrass meadows. These ecosystems store large amounts of carbon dioxide and the Bahamas aims to get paid for keeping them healthy.

### Challenges

- Accurately measuring and monitoring carbon sequestration in marine ecosystems is complex and expensive
- Building trust with buyers
- Raising awareness
- Creating a supportive policy framework

2 In the Caribbean, the ocean economy represents more than 18% of its GDP, and 27% of the global ocean economy (Patil et al., 2016).

### Government support

- Hiring an international think tank to measure and monitor seagrass
- Developing a policy framework to ensure carbon credits are issued accurately and credibly

## 6.2 Case study: Seychelles' Blue Economy for economic diversification

Seychelles is a leader in the concept of the blue economy.

### Government support

- Created a special department of blue economy; plans to manage the ocean economy
- Reduced government fragmentation to streamline ocean-based policies
- Invested in existing ocean sectors like tourism and fisheries
- Developed new ocean industries like aquaculture and marine research
- Sold the world's first 'blue bond' to finance ocean projects
- Launched nature-based solutions to conserve marine protected areas

# 7 Land use and forestry

Although small in land size, SIDS have significant land use, land use change and forest (LULUCF) resources.[3] This provides SIDS with significant opportunities to diversify their economies through sustainable land use practices that promote forestry, agroforestry, community forestry and eco-tourism (Mohan, 2022b). To finance these initiatives, small states could access the Global Forest Finance Pledge, by which $12 billion for forest-related activities has been promised for the period 2021–2025, and REDD+, a programme which pays countries to protect their forests (ibid.).[4] However, diversification in LULUCF in SIDS is challenged by weak land and forest tenure rights, weak land use management and carbon rights, and the absence of forestry laws and technical infrastructure, research and forestry inventory, and data and institutional structures to control deforestation and forest degradation (ibid.). To assure the effectiveness and long-term sustainability of LULUCF initiatives it is vital to involve local communities in LULUCF decision-making, and to ensure that land tenure arrangements are secure and effective governance structures are present.

## 7.1 Case study: REDD+ in Guyana

Guyana is a leader in REDD+.

### Challenges

- Strengthening forest governance and monitoring systems
- Building technical expertise in areas such as data collection, forest monitoring, carbon accounting, and redd+ project design and implementation
- Ensuring everyone benefits

### Government support

- Embedding redd+ into its national development strategy
- Signing a bilateral agreement with norway to establish a framework for performance-related finance

3 Caribbean SIDS, for instance, have forest covering over 50% of their total land area and LULUCF represents a net sink of 19.87 million tonnes of $CO_2$ equivalent (Mohan, 2022b).

4 REDD+ stands for Reducing Emissions from Deforestation and Forest Degradation and the conservation and sustainable management of forests and enhancement of forest carbon stocks (https://unfccc.int/topics/land-use/workstreams/redd/what-is-redd).

# 8 Knowledge-based economies

Knowledge-based economies can lead to the development of industries in SIDS that are less vulnerable to climate shocks, such as sustainable tourism, climate-smart agriculture, marine biotechnology, data management and analytics and professional and financial services. Technologies like AI and big data can be powerful tools for SIDS to manage their resources efficiently, monitor environmental changes, and develop innovative solutions for climate challenges while creating economic opportunities (Stein, 2020). Further, leveraging fintech solutions can improve access to financial services for individuals and businesses, promote financial inclusion, and facilitate investment. However, this requires SIDS to make investments in ICT, digital infrastructure and connectivity to facilitate access to information and services, promote e-commerce, and provide digital platforms for businesses and entrepreneurs. The promotion of digital literacy is essential. There is also a need to build public trust and enforce robust data protection frameworks to ensure the responsible use of AI and the protection of citizens' privacy.

## 8.1 Case study: Digital innovation and sustainable tourism in Maldives

Maldives is using AI and digital tools to grow tourism sustainably. They use AI to monitor and protect ecosystems like coral reefs with remote sensing and automated vehicles. Four Seasons Hotels and Resorts have partnered with an NGO to create the world's largest AI-powered coral reef restoration project. Hotels are using AI to reduce waste and optimise energy use while enhancing the guest experience.

### Challenges

- Data privacy concerns
- Lack of skilled professionals for implementing AI solutions

## 8.2 Case study: Food resilience and e-commerce – BlueFISH Barbados

The BlueFISH initiative in Barbados is a digital tool that connects buyers to fishers so that they can buy local fish online. This eliminates intermediaries, ensures fair prices and increases access to fresh local fish. The programme also aims to empower fisherfolk through training and capacity-building programmes. Partners are contributing finance and technical capacity to develop the online platform.

### Challenges

- Reliable internet
- Technological resources
- data privacy

### Government support

- Partnering with an international organisation to contribute finance and technical capacity in developing the online platform

## 8.3 Case study: Digital tools and agriculture in Fiji

Fiji created a digital platform to connect participants in the agriculture industry and improve information sharing. This platform offers benefits like easier organic certification, international marketing tools, and farm management resources.

### Challenges

- Expensive devices and limited rural internet hinder adoption by small-scale farmers
- Some farmers, particularly older generations, may lack the skills to use the platform
- Farmers may be hesitant to share data due to privacy and security worries

# 9 Circular economy, waste management and resource conservation

The circular economy aims to design-out waste from production and consumption and keeps raw materials and products in use for as long as possible. It looks at the environment as a system to imitate when redesigning production and rests on value creation through restoration, regeneration and reuse of resources and inputs. This is enabled by new types of business models and production and consumption that discard ownership and rely on active 'users' rather than passive 'consumers'. The circular economy can be a powerful tool for diversification in SIDS as it fosters the development of new industries and jobs in areas like waste management, recycling, repair, resource recovery and upcycling. Traditional industries can also be transformed through the adoption of circular economy principles. The creation of circular economy sectors can reduce high imports in SIDS, as they maximise the lifespan and value of existing resources.
A circular economy offers SIDS a sustainable development path by reducing waste generation and protecting fragile biodiversity and ecosystems. However, SIDS lack economies of scale, access to technology, and financial resources, making it hard to implement circular economy solutions. There also needs to be a building of awareness of the benefits of a circular economy, and changes in producer and consumer behaviour.

## 9.1 Case study: Transitioning Aruba to a sustainable circular island economy

In June 2019, Aruba's Ministry of Education, Science and Sustainable Development published its Circular Economy Vision 2050, stating a goal of establishing a circular economy by 2050.

### Challenges

- Lack of adequate waste sorting facilities, collection systems and recycling plants
- Lack of funds for investment in expensive recycling and resource-recovery technologies
- Lack of skilled workers in circular economy principles
- Heavy reliance on imports, making a closed-loop system more difficult

### Government support

- Signed a memorandum of understanding with the aruba circular economy foundation (ACEF) to raise awareness on the circular economy
- Focused on investments that create an ecosystem of circular development by the year 2050

## 9.2 Case study: Plastic upscaling in Samoa

Samoa is tackling plastic waste with a circular economy approach. They are partnering with UNDP and CRDC Global, a company that upcycles plastic into building materials. The first phase focuses on educating young people about waste and segregation.

### Challenges

- Lack of advanced recycling facilities and proper waste collection systems
- Building a plant for upcycling and training workers requires significant investment
- Upscaled plastic products may struggle to compete with cheaper virgin plastic due to market access and production costs

# 10 Recommendations

While SIDS share many common issues, there is no one-size-fits-all approach to diversification into climate-resilient sectors. It is therefore important for SIDS to conduct comprehensive studies to identify and prioritise the climate-resilient sectors with the highest growth potential for them, considering their own natural resource endowments and their skills and capacities, along with market demand. Notably, though, the case studies reveal that capacity building and technology transfer are common barriers for SIDS entering climate-resilient sectors. They also demonstrate that the majority of collaboration is between SIDS and developed countries. The proposed SIDS–SIDS Green-Blue Economy Knowledge Transfer Hub can play a crucial role in replicating and scaling up climate-resilient diversification by sharing best practices and successful initiatives among SIDS, providing capacity building and training programmes on green and blue economy principles and tools, and promoting collaboration and networking among governments, businesses, and civil society.

The Hub can help SIDS conduct the comprehensive studies they need to identify and prioritise the best climate-resilient sectors for them. National Productive Capacities Gap Assessments can be carried out; these would help SIDS identify their productive strengths and weaknesses, their comparative advantages and the key binding constraints to their socioeconomic development. Knowledge and skills areas commonly lacking in SIDS, where the Hub can build capacity, include climate and marine science; market analysis in climate-sensitive sectors; large renewable energy systems and electric vehicles; engineering and urban planning; natural resource monitoring and carbon accounting; carbon project development; big data management and AI and circular economy principles. The Hub can coordinate research and development in innovative climate-resilient technologies and best practices, tailoring them to local contexts and needs. The Hub can raise community awareness on the benefits of developing climate-resilient sectors. This is particularly relevant for circular economy businesses which necessitate changes in consumer behaviour and production practices.

SIDS lack data on their green and blue resources, natural capital accounts and resource utilisation. This makes it difficult to assess their true economic and environmental wealth and to attract climate-resilient investments. Robust data management systems and good monitoring and verification of these resources are paramount. SIDS also need to track their progress and impact as they implement climate-resilient diversification strategies. This requires investing in data collection and analysis, establishing resilience indicators and effective monitoring and evaluation. The proposed SIDS Centre of Excellence, which will include a global SIDS Data Hub, can be useful here. The Data Hub can act as a centralised data repository that gathers and stores data relevant to diversification in SIDS, such as economic indicators, environmental data, and information on existing climate-resilient initiatives. It can ensure that data is accessible, in a user-friendly format, and standardised across different SIDS to facilitate comparisons and analysis. The Data Hub

can provide tools and expertise to analyse data, identify trends, and generate insights related to diversification opportunities. Further, it can share best practice, case studies, and successful diversification strategies with policymakers, practitioners, investors and entrepreneurs in SIDS.

SIDS remain dependent on external finance to diversify into climate-resilient sectors. The case studies demonstrate that grants and loans from bilateral partners, and from multilateral development institutions and international climate finance mechanisms like the GEF and CIF, are common sources of finance. In instances where public sector finance was used, it fell short and had to be complemented with international finance. However, SIDS can lack the capacity to prepare funding proposals to access such external resources. To ameliorate this, SIDS can partner with universities, think tanks and development institutes – as Grenada has done with the Marron Institute. The Knowledge Transfer Hub can also play a role in building capacity in the writing of climate finance proposals.

However, SIDS can also explore innovative financial instruments such as blended finance, debt-for-nature swaps, green and blue bonds and pay-for-performance schemes. The case studies of the blue carbon market in the Bahamas, blue bonds in Seychelles and REDD+ in Guyana showcase some innovative financing mechanisms that can be expanded and adopted by other island states. In addition, the development of the biennial Island Investment Forum at the SIDS Centre of Excellence would help increase access to finance by serving as a dedicated platform for promoting investment, knowledge exchange, and collaborative initiatives.

# References


**Bastian, A.** (2023) 'Beyond Natural Beauty: The Carbon Credits Market & The Bahamas' in *The Bahamas: A Complete And Compelling Choice. Bahamas Financial Services Board* (https://issuu.com/clearviewpublishing/docs/bahamasminiedition2report2023_2_/s/2463241).

**Benn, V., Pham, T.T., Moeliono, M. et al.** (2020) *The context of REDD+ in Guyana: Drivers, agents and institutions.* Center for International Forestry Research (CIFOR) Occasional Paper 201. Bogor, Indonesia: CIFOR (https://doi.org/10.17528/cifor/007627).

**Betzold, C.** (2016) 'Fuelling the Pacific: Aid for renewable energy across Pacific Island countries' *Renewable and Sustainable Energy Reviews* 58: 311–318 (https://doi.org/10.1016/j.rser.2015.12.156).

**Bishop, M., Carter, G., Lindsay, C., Lopes-Valença, H. and Wilkinson, E.** (2023) 'A global bargain for resilient prosperity in Small Island Developing States'. ODI Policy brief. London: ODI (https://odi.org/en/publications/a-global-bargain-for-resilient-prosperity-in-sids).

**Blechinger, P. et al.** (2016) 'Global analysis of the techno-economic potential of renewable energy hybrid systems on small islands' *Energy Policy* 98: 674–687.

**CDB – Caribbean Development Bank** (2014) 'US$30 Billion Needed to Modernise Caribbean Infrastructure over Next Decade' (https://issuu.com/clearviewpublishing/docs/bahamasminiedition2report2023_2_/s/24632412).

**Clegg, P., Mahon, R., McConney, P. and Oxenford, H.A.** (2020) *The Caribbean Blue Economy*, 1st edn. London: Routledge (https://doi.org/10.4324/9780429342233).

**Dell, M., Jones, B.F. and Olken, B.A.** (2012) 'Temperature Shocks and Economic Growth: Evidence from the Last Half Century' *American Economic Journal: Macroeconomics* 4(3): 66–95 (https://doi.org/10.1257/mac.4.3.66).

**Dornan, M. and Shah, K.U.** (2016) 'Energy policy, aid, and the development of renewable energy resources in Small Island Developing States' *Energy Policy* 98: 759–767.

**Herr, D., and Landis, E.** (2016) 'Coastal Blue Carbon Ecosystems. Opportunities for Nationally Determined Contributions'. Policy Brief (www.nature.org/content/dam/tnc/nature/en/documents/BC_NDCs_FINAL.pdf).

**IPCC – Intergovernmental Panel on Climate Change** (2022) *Climate Change 2022: Impacts, Adaptation, and Vulnerability.* Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Pörtner et al. (eds.)]. Cambridge University Press (https://doi.org/10.1017/9781009325844).

**Lindsay, C., Lopes, J.M.G., Carter, G. and Wilkinson, E.** (2023) *Preparatory Meetings for Fourth International Conference on Small Island Developing States.* ODI Meeting report. London: ODI (www.odi.org/en/publications/preparatory-meetings-for-fourth-international-conference-on-sids).

**Mohan, P.** (2022a) 'Implementing nationally determined contributions under the Paris agreement: an assessment of climate finance in Caribbean small island developing states' *Climate Policy* 22(9–10): 1281–1289 (https://doi.org/10.1080/14693062.2022.2101978).

**Mohan, P.** (2022b) 'National REDD+ initiatives in Caribbean SIDS to enhance NDC implementation' *Forest Policy and Economics* 144: 102844.

**Mohan, P.** (2022c) 'Climate finance to support Caribbean Small Island Developing States efforts in achieving their Nationally Determined Contributions in the energy sector." *Energy Policy* 169: 113208.

**Mohan, P.** (2023a) 'Financing climate change mitigation and adaptation in Caribbean SIDS' *PLOS Climate* 2(3): e0000167 (https://doi.org/10.1371/journal.pclm.0000167).

**Mohan, P.** (2023b) 'Implementing nationally determined contributions under the Paris Agreement: An assessment of ocean-based climate action in Caribbean Small Island Developing States' *Marine Policy* 155(2023): 105787.

**Mohan, P., Ouattara B. and Strobl, E.** (2018) 'Decomposing the Macroeconomic Effects of Natural Disasters: A National Income Accounting Perspective' *Ecological Economics* 146(2018): 1–9.

**Mohan, P., Spencer, N. and Strobl, E.** (2019) 'Natural Hazard-Induced Disasters and Production Efficiency: Moving Closer to or Further from the Frontier?' *International Journal of Disaster Risk Science* 10(2): 166–178.

**Panwar, V., Noy, I., Wilkinson, E. and Corbett, J.** (2023) *The Costs of Inaction: Calculating climate change-related loss and damage from extreme weather in Small Island Developing States.* ODI Working Paper. London: ODI (https://odi.org/en/publications/calculating-loss-and-damage-from-extreme-weather-in-sids).

**Patil, P.G., Virdin, J., Diez, S.M., Roberts, J. and Singh, A.** (2016) *Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overview.* Washington, DC: The World Bank.

**Rustomjee, C.** (2016) 'Developing the Blue Economy in Caribbean and Other Small States'. Policy Brief 75. Waterloo, Canada: Centre for International Governance Innovation.

**Stein, A.L.** (2020) 'Artificial intelligence and climate change' *Yale Journal on Regulation* 37: 890.

**Wilkinson, E., Panwar, V., Pettinotti, L., Cao, Y., Corbett, J. and Bouhia, R.** (2023) *A Fair Share of Resilience Finance for Small Island Developing States: Closing the gap between vulnerability and allocation.* ODI Research Report. London: ODI (https://odi.org/en/publications/a-fair-share-of-resilience-finance/).

**World Bank** (2017) *The Potential of the Blue Economy: Increasing Long-Term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries.* Washington, DC: World Bank and United Nations Department of Economic and Social Affairs.