



THE UNIVERSITY  
OF THE  
WEST INDIES



Barbados and the  
Eastern Caribbean



# Barbados Blue Economy Scoping Study

## Initial Action Plan

July 2020





# Barbados Blue Economy Scoping Study:

## Initial Action Plan

Prepared for the Ministry of Maritime Affairs and the Blue Economy

Under the UWI-UNDP Blue Economists Programme



DATE	VERSION
July 2020	Final version for submission to MMABE



# 1 BACKGROUND

The economy of Barbados is highly dependent on the ocean and the activities and resources it supports. Like many Caribbean islands, Barbados is exploring opportunities to diversify and strengthen its economy through *inter alia* strategies linked to the “blue economy” - an evolving development approach centred on creating greater value through sustainable utilisation of ocean resources.

The Government of Barbados clearly recognises the importance of a sustainable blue economy as a critical element in building a climate resilient economy and has articulated its aspiration:

*to maximise access to and use of the marine resources that fall under its jurisdiction, such that this becomes a significant contributor to the national economy, without jeopardising the health of the ecosystems that the marine environment protects.*

A development strategy grounded in the blue economy will enable Barbados to promote the growth of existing productive sectors, expand into emerging blue industries, improve food security and potentially reduce dependence on imported fossil fuels.

The concept of the blue economy is not new to Barbados, which already derives significant benefits from its extensive maritime waters. If managed effectively, these waters offer Barbados new opportunities for realising sustained blue growth. Notwithstanding this potential, however, Barbados’ maritime waters are under increasing pressure from many uses and threats resulting from overexploitation and multi-user conflict, as well as existential threats such as climate change. If Barbados is to effectively develop its maritime waters in a sustainable way, an approach is needed that integrates environmental management directly with economic development, fiscal policy and social goals; and which secures the support of international development partners to build the enabling environment for a national blue economy.

In order to develop a long-term strategy aimed at achieving blue growth, however, Barbados requires comprehensive, robust and consistent analysis of possible future scenarios and policy options to support sustainable and inclusive blue growth from its ocean space. To this end, UNDP, through the joint *UWI-UNDP Think Tank on Public Policy for a Blue Economy*, is supporting Barbados to evaluate the potential ocean-based development opportunities that could be pursued as a mechanism to integrate the blue economy into its broader resilience building activities. To date, this support has resulted in the completion of a *Blue Economy Scoping Study* that presented:

- a) an assessment of the range of activities currently undertaken in Barbados and the range of resources utilised; and
- b) a diagnostic analysis setting out a range of development options that could be pursued by the Government of Barbados as an initial step to implementing a blue economy development strategy at the national level.

Through the *Blue Economy Scoping Study* a total of **eight (8) critical enablers** (encompassing a total of 21 enabling policy interventions) and **thirteen (13) development opportunities** addressing strategies that respectively:

1. Strengthen the management and protection of Barbados’ maritime waters and the activities supported therein;
2. Further support and develop the following existing sectors: tourism and leisure; marine capture fisheries; and ports and shipping; and

3. Explore the potential opportunities to promote investment and innovation to support the development of new sectors.

While some of these opportunities are sector-specific, others create synergies and linkages across the different functions.

This **Initial Action Plan** therefore provides a framework for the development of the range of opportunities identified. It should be recognised that this is by no means exhaustive, but captures the key issues and opportunities that were identified during the *Blue Economy Scoping Study* and consultation with stakeholders. The Action Plan identifies development pathways for future investment in and development of a sustainable ocean-based economy in Barbados, with UNDP providing policy and implementation support.

## 1.1 Overall Objective

The overall objective of this Initial Action Plan is to provide a set of actions that, if enacted, would enable Barbados to develop its ocean-based economic sectors in a more integrated manner thereby contributing to inclusive, environmentally sustainable, economic growth in Barbados. Specifically, the plan aims to illustrate a revitalisation process that results in healthy ecosystems that are able to sustain growth in a number of economic sectors. Over time this revitalisation will support the development of new sectors attracting greater investment and financial support to the blue economy, resulting in a greater number of businesses supported by the blue economy.

This notwithstanding, this Initial Action Plan should not be considered in isolation, but rather as one element of a broader set of activities being undertaken in Barbados to strengthen and support the management of Barbados' maritime space. These include but are not necessarily limited to: the Inter-American Development Bank-funded Strategic Roadmap for the Blue Economy in Barbados; the Barbados Debt Conversion project being supported by TNC; and fishery improvement activities being supported by organisations such as the FAO, UNCTAD and IDB. If effectively coordinated, these various activities will combine to create a strong enabling environment within which a blue economy-based development framework can be developed in Barbados.

## 1.2 Structure and Approach

This Initial Action Plan focusses on five thematic areas mirroring the key themes presented in the *Blue Economy Scoping Study* report:

- 1) **Enabling environment** - the conditions and activities that are needed to support a well-functioning blue economy, including good governance, innovation, and capacity-building.
- 2) **Tourism and leisure** - including all forms of maritime tourism, recreation and amenity use.
- 3) **Harvesting of marine living resources** - including capture fisheries, aquaculture and a broad range of applications under the heading of "biotechnology" relating to nutrition, health and well-being.
- 4) **Ports and shipping** - including international and domestic shipping and port infrastructure.
- 5) **Extraction of non-living resources and energy generation** - including petroleum, mineral resources and ocean-based renewable energy.

For each of these five themes a series of "Action Areas" have been identified, that are fulfilled by specific activities. The five thematic areas and corresponding Action Areas are summarised in Table 1 below and are elaborated more fully in the subsequent Action Plan tables.



Table 1: Initial Action Plan elements and actions

THEMATIC AREA	ACTION AREAS
1. Enabling Environment	<b>Action Areas:</b>
	1.1 Integrated approaches to ocean governance
	1.2 A healthy, resilient & productive marine environment
	1.3 Sustainable finance & investment
	1.4 Business development
	1.5 Human capacity development
	1.6 Research & marine information
	1.7 Public awareness & engagement
	1.8 Maritime surveillance, monitoring & enforcement
2. Tourism & Leisure	<b>Action Areas:</b>
	2.1 Create linkages between the tourism sector and marine conservation
	2.2 Further develop the cruise sector to account for its long-term risks and impacts to the marine environment and other users as well as its direct economic contribution
	2.3 Undertake an assessment, in conjunction with the yachting sector, to determine the potential opportunity and feasibility of expanding the existing leisure yacht facilities to cater for more recreation (cruising) yachts
3. Marine Living Resources	<b>Action Areas:</b>
	3.1 Improve the understanding of fishery management requirements undertaking future climate change projections for the Caribbean
	3.2 Review existing and develop new metrics for recording and reporting landings of marine fish in Barbados
	3.3 Develop 'Fisheries Management Plans' for key reef fish species
	3.4 Develop strategies to better utilise existing fish stocks and to diversify the existing fisheries to include new or underutilised fish species
	3.5 Expand the current focus on fish silage to determine other options for creating value from the waste generated from fish processing and other biological material
4. Ports & Shipping	<b>Action Areas:</b>
	4.1 Specifically include an assessment of the Maritime Affairs function under Component 2 of the IADB blue economy initiative, taking into account Flag, Coastal and Port state rights and obligations
	4.2 Prepare and implement a Port Safety Management System for the Port of Bridgetown
	4.3 Invest in renewable energy sources to provide low carbon shore-based power for visiting ships
5. Non-living Resources & Energy	<b>Action Areas:</b>
	5.1 Undertake a comprehensive review of the existing environmental regulatory functions that relate to the offshore petroleum sector with a view to developing a new set of Offshore Petroleum (Environmental Management) Regulations
	5.2 Ensure the security of future desalination capacity



## 2 ACTION PLAN TABLES

### THEMATIC AREA 1: ENABLING ENVIRONMENT

#### Action Area 1.1: Integrated approaches to ocean governance

##### Desired Outcomes:

- A single multi-agency function to coordinate implementation of the blue economy in Barbados.
- Greater focus on integrated marine planning and management across all sectors.
- Agreement of an overarching national policy, providing a common basis for detailed future policies, strategies and action plans.
- Updated and strengthened legal framework addressing and providing for the full range of maritime activities.
- A comprehensive, EEZ-wide spatial planning framework to inform and support marine planning decision making.

#### Recommended Actions

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
1.1.1 Establish a single <i>Blue Economy Advisory Committee</i> that oversees all future maritime activities and decision making providing a coordinated institutional mechanism for integrated marine management across all relevant sectors.	<ul style="list-style-type: none"> <li>• Mandate the Minister for Maritime Affairs and the Blue Economy to establish and coordinate a single inter-departmental marine coordination group (Blue Economy Advisory Committee) to function as the sole high-level government advisory committee.</li> <li>• Develop a Terms of Reference for the new Advisory Committee that reflects the broad scope of its mandate.</li> <li>• Undertake a mapping and review of all known initiatives relevant to the development of the blue economy in Barbados to identify synergies, gaps and possible areas of duplication.</li> <li>• Promote a shift across government from the traditional sector-specific management approaches to a more</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Secretariat</li> <li>• UNDP</li> <li>• CLME+</li> </ul>	<ul style="list-style-type: none"> <li>• UNDP – Technical Assistance.</li> <li>• Commonwealth Fund for Technical Cooperation</li> <li>• CLME+/ GEF</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of an integrated blue economy will require, and lead to, institutional changes. An important first step will be the establishment of an effective multi-sectoral coordination mechanism to coordinate the numerous activities and initiatives being undertaken and proposed within Barbados.</li> <li>• Bringing together existing marine coordination and advisory functions into a single, consolidated Blue Economy Advisory Committee will provide an important multi-sector focal group through which to engage with all existing and planned activities, include the IDB Blue Economy Initiative.</li> </ul>



## THEMATIC AREA 1: ENABLING ENVIRONMENT

	integrated 'whole of government' approach.			
1.1.2. Develop a National Ocean Policy (NOP) to establish a strategic framework for integrated marine planning and management of a nation's marine space and the activities that occur within it.	<ul style="list-style-type: none"> <li>• Agree on priorities and trade-offs for the development of Barbados' maritime space with wide stakeholder consultation.</li> <li>• Prepare a draft multi-use National Ocean Policy.</li> <li>• Undertake consultation with stakeholders.</li> <li>• Revise and adopt NOP.</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Secretariat</li> <li>• UNDP</li> </ul>	<ul style="list-style-type: none"> <li>• UNDP – Technical Assistance.</li> <li>• Commonwealth Fund for Technical Cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• While not essential, an overarching national ocean policy will provide such a framework defining the policy guidance for the future management of the Barbados' ocean space and marine resources.</li> <li>• It allows the government to broaden its existing policy scope from integrated coastal zone management to an EEZ-wide focus, which would set in place the framework for integrated and ecosystem-based planning and management and defines strategies for achieving the goals and objectives defined in the process.</li> </ul>
1.1.3 Undertake a comprehensive review of the existing legal framework to address gaps, reduce duplication and strengthen the rules for management of the marine environment.	<ul style="list-style-type: none"> <li>• Review and revise the existing legislation addressing management of the coastal and marine environment and resources.</li> <li>• Strengthen planning controls and enforcement for land-based activities that impact the coastal environment (e.g. coastal development, reclamation, earthworks, pollution control).</li> <li>• Prepare a new legal instrument that deals primarily with protection, planning and management of the marine environment.</li> <li>• Develop new regulations under the Petroleum Act.</li> <li>• Introduce new legislation controlling access and benefit sharing (ABS) from the use of marine genetic resources.</li> <li>• Update the Shipping Act to ensure that Barbados can give full effect to</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Secretariat</li> <li>• Blue Finance</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Fund for Technical Cooperation</li> <li>• Blue Finance</li> </ul>	<ul style="list-style-type: none"> <li>• Many existing activities, particularly land-based activities, lack effective controls to avoid adverse effects to the marine environment. There is currently no dedicated and comprehensive legislation dealing with protection of the environment (such as an Environmental Protection Act).</li> <li>• The government needs to focus on strengthening the existing legal framework, better enforcement and greater education of local communities in order to strengthen the overall protection of Barbados' marine environment.</li> <li>• This links to Actions under Action Area 1.8 below.</li> </ul>



## THEMATIC AREA 1: ENABLING ENVIRONMENT

	<p>Coastal and Port State rights and obligations in addition to their obligations as a Flag State.</p> <ul style="list-style-type: none"> <li>Update the legislation relating to the authorisation of marine scientific research in the EEZ and territorial sea.</li> <li>Update the Fisheries Act in line with the soon to be developed Fisheries Policy.</li> </ul>			
<p>1.1.4. Establish a national marine spatial planning and zoning programme to undertake marine spatial planning and prepare marine plans to provide strategic oversight for future marine uses and activities.</p>	<ul style="list-style-type: none"> <li>Recruit key technical partners/consultants.</li> <li>Agree on MSP methodological approach, in line with regional and international best practice.</li> <li>Undertake initial assessment of stakeholder interests and priorities and key user conflicts.</li> <li>Consultant to prepare draft MSP Framework which should address, as a minimum, the following: <ul style="list-style-type: none"> <li>Overarching Vision and Goals for MSP</li> <li>Principles and approaches to be adopted</li> <li>Institutional arrangements for MSP</li> <li>Legal basis for MSP in Barbados</li> <li>Geographic scope and levels of detail (EEZ versus coastal MSP)</li> <li>Key sectors to be included</li> </ul> </li> <li>Standardisation of approaches for MSP at the coastal level across different Counties.</li> </ul>	<ul style="list-style-type: none"> <li>TNC</li> <li>Wait Foundation</li> <li>CLME+ Project</li> <li>Commonwealth Secretariat</li> <li>UNDP</li> </ul>	<ul style="list-style-type: none"> <li>UNDP – Technical Assistance</li> <li>Commonwealth Fund for Technical Cooperation</li> <li>CLME+/ GEF</li> </ul>	<ul style="list-style-type: none"> <li>While there is a need to assess activities throughout the entire EEZ, it is clear that most activities, and most knowledge, is focussed in the relatively narrow coastal zone. The lack of information for offshore waters makes detailed planning more difficult, and it is clear that those areas that are subject to greater activity, and therefore pressure, warrant greater scrutiny.</li> <li>The undertaking of a national EEZ-scale MSP process would address this gap and provide local communities with an indication of those national development priorities that they must consider at the local planning level.</li> <li>It is understood that MSP is being evaluated as part of the development of the Barbados Debt Conversion Project being supported by TNC.</li> <li>The planned next phase of the CLME+ Project will also include a focus on MSP.</li> </ul>

**THEMATIC AREA 1: ENABLING ENVIRONMENT**

	<ul style="list-style-type: none"> <li>• Prepare initial zoning plans for consultation.</li> <li>• Undertake comprehensive stakeholder consultation.</li> <li>• Develop legal authority to support implementation of the zoning plan.</li> </ul>			
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**Action Area 1.2: A healthy, resilient & productive marine environment**
**Desired Outcomes:**

- Greater protection and sustainable use of Barbados' ocean space and resources through effective cross-sectoral coordination, application of protective measures and greater use of surveillance and enforcement tools.
- The development of a management framework that explicitly reflects the principle that the health of the oceans is inextricably linked to the sustainability of economic livelihoods for coastal communities and the economy generally.
- Better legal protection of marine ecosystems and enforcement of legal measures.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
1.2.1. Conserve and enhance the overall quality of the marine environment through protection, maintenance or restoration of habitats and the sustainable use of marine resources.	<ul style="list-style-type: none"> <li>• Review and update as appropriate, legislation concerning the regulation of activities that affect the marine environment.</li> <li>• Update and expand existing coastal resources mapping with a view to identifying critical habitats and biodiversity sites.</li> <li>• Prioritize specific habitats and locations to be protected, either through MPAs (which have specific ecological conservation objectives) or no take zones (NTZs).</li> <li>• Strengthen the system of environmental compliance monitoring and enforcement.</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Secretariat</li> <li>• UWI</li> <li>• TNC</li> <li>• Wait Foundation</li> <li>• CLME+</li> </ul>	<ul style="list-style-type: none"> <li>• TNC</li> <li>• Wait Foundation</li> <li>• Commonwealth Fund for Technical Cooperation</li> <li>• CLME+/ GEF</li> <li>• GEF-IWEco</li> <li>• Possible support through the Commonwealth Blue Charter Coral Reef Protection and Restoration Action Group</li> </ul>	<ul style="list-style-type: none"> <li>• Barbados' marine environment and the ecosystem services it supports are a key national asset. Such essential services would be extremely costly or impossible to restore or replace once lost. If utilisation of these resources is well managed they can meet broad range of economic, social and cultural aspirations.</li> </ul>



## THEMATIC AREA 1: ENABLING ENVIRONMENT

1.2.2 Strengthen or establish systematic monitoring to quantify the sources, flows, fate and extent of industrial, agricultural and municipal wastes and effluents. The results from such monitoring should be used to inform decision making for improved waste management and pollution control.	<ul style="list-style-type: none"> <li>• Undertake new or update existing inventories of known sources of land-based pollution.</li> <li>• Prepare a comprehensive and spatially-based analysis of coastal water quality trends based on existing water quality and pollution source data.</li> <li>• Update and enhance the existing coastal water quality monitoring programme to ensure it captures all relevant parameters.</li> <li>• Review existing regulations relevant to the management and control of marine pollution, including the compliance and enforcement provisions.</li> <li>• Develop a prioritized list of geographic sites and catchments where focused effort to reduce inputs to the marine environment should be targeted.</li> <li>• Identify and implement key infrastructure projects needed to address the most highly polluted coastal areas.</li> </ul>	<ul style="list-style-type: none"> <li>• IDB</li> <li>• UWI</li> <li>• UNEP-CEP</li> <li>• CLME+</li> </ul>	<ul style="list-style-type: none"> <li>• CLME+/ GEF</li> <li>• IDB</li> <li>• CDB</li> </ul>	<ul style="list-style-type: none"> <li>• Despite a number of initiatives and ongoing water quality monitoring, water quality at key sites around Barbados remains poor as a result of poor land-use practices leading to the release of waste water, agricultural run-off, nutrients and sediment. Solid waste management also poses a threat to the marine environment.</li> <li>• Responding to this issue will require a multi-agency and multi-sector approach that focusses both on coastal management and improved land-use planning and management.</li> </ul>
1.2.3. Expand the current system of marine protected areas, with a view to achieving at least the 10% Aichi target, taking into account the need to better protect key coastal habitats and the resources they support.	<ul style="list-style-type: none"> <li>• Prioritize specific habitats and locations to be protected, either through MPAs (which have specific ecological conservation objectives) or no take zones (NTZs).</li> <li>• Consult with stakeholders in the designation of MPAs and NTZs, with the objective of building a connected network of MPAs and NTZs over time</li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• TNC</li> <li>• Wait Foundation</li> <li>• Local NGOs</li> <li>• UNEP-CEP</li> <li>• IUCN</li> </ul>	<ul style="list-style-type: none"> <li>• TNC</li> <li>• Wait Foundation</li> <li>• UN Environment</li> <li>• GEF Small Grants Facility</li> <li>• Expanded visitor fees and tourism revenue</li> <li>• Blue Finance</li> </ul>	<ul style="list-style-type: none"> <li>• The current network of MPAs in Barbados does not reflect the diversity of areas that require additional protection. The area under protection in Barbados is well below the target of 10% and below that of many other SIDS in the region.</li> <li>• Those areas that exist are heavily used and lack formal management planning arrangements and enforcement.</li> </ul>

## THEMATIC AREA 1: ENABLING ENVIRONMENT

	<p>that protects all the key ecosystem elements.</p> <ul style="list-style-type: none"> <li>Consult with stakeholders to develop appropriate regulation of permitted activities within zones (certain types of fishing and other low impact activities).</li> <li>Prepare draft management plans for each area identified as a potential MPA that specify areas where specific activities (e.g. fishing and anchoring) are permitted/prohibited.</li> <li>Develop partnerships with local communities and the private sector to participate in protected area management.</li> </ul>	<ul style="list-style-type: none"> <li>Local business and community groups</li> <li>Blue Finance</li> </ul>	<ul style="list-style-type: none"> <li>Possible support through the Commonwealth Blue Charter MPA Action Group</li> </ul>	<ul style="list-style-type: none"> <li>There is a need to better understand the full range of coastal and marine habitats that require protection. This action links closely with activities under Action Area 1.5 below relating to marine knowledge and information management.</li> </ul>
1.2.4. Address increased risks of climate change through integration of appropriate adaptation and resilience building strategies into sustainable development, conservation and governance actions.	<ul style="list-style-type: none"> <li>Assess/characterise the impacts of climate change on marine resources including coral reefs, fisheries, tourism and coastal infrastructure.</li> <li>Assess the economic costs (e.g. to tourism and fisheries) of coral reef loss through coral bleaching and propose a coral reef rescue plan based on the IUCN/Global Reef Monitoring Network 2012 report.</li> <li>Develop a monitoring programme and spatially reference database of impacts of climate change on marine resources especially those of economic importance and integrate into marine spatial and sector plan</li> <li>Update Barbados' Nationally Determined Contributions (NDC)</li> </ul>	<ul style="list-style-type: none"> <li>UNDP</li> <li>UNEP-CEP</li> <li>UWI</li> <li>Local business and community groups</li> <li>Local NGOs</li> <li>Commonwealth Secretariat</li> </ul>	<ul style="list-style-type: none"> <li>Green Climate Fund</li> <li>GEF Small Grants Facility</li> <li>UNEP-CEP</li> <li>Possible support through the Commonwealth Blue Charter Ocean &amp; Climate Change Action Group</li> </ul>	<ul style="list-style-type: none"> <li>Climate Change impacts on coastal and marine ecosystems add to existing pressures such as marine pollution and over exploitation of resources. Understanding those interactions is important to develop sustainable management responses. The increasing risks associated with climate change must therefore be recognised and managed through the development of appropriate adaptation and resilience strategies and incorporation of measures (soft and hard infrastructure in particular around high density population areas) in land use planning, sustainable development and environmental management.</li> </ul>



**THEMATIC AREA 1: ENABLING ENVIRONMENT**

incorporating ocean sectors and the blue economy.

**Action Area 1.3: Sustainable finance & investment**
**Desired Outcomes:**

- Financing the blue economy through a diversified portfolio of funding opportunities, taking advantage of international private sector investors' appetite for investment in sustainability; and ensuring greater efficiency of revenue raising mechanisms.
- Increase revenue streams for blue economy initiatives including through a review and update of the existing user fees systems.
- A framework consisting of a portfolio of separate but complementary funding streams including payments for ecosystem services and user fees for marine conservation sites.
- A legal and institutional framework that can deliver targeted investment finance to the blue economy.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
1.3.1 Work collaboratively with regional development partners and financial institutions to examine a range of emerging innovative finance options that could be applied in Barbados.	<ul style="list-style-type: none"> <li>• Blue Economy Advisory Committee to engage with financial institutions to develop a picture of the range of instruments available.</li> <li>• Prepare an inventory of possible sources of sustainable finance including examples from overseas and the potential to apply finance from other sectors (e.g. Green Climate Fund).</li> <li>• Identify a portfolio of potential projects that could be eligible for concessional funding or public-private partnership investments.</li> <li>• Develop up to three full project proposals to take to the domestic and international markets.</li> <li>• Outline the design of a sustainable blue economy finance portfolio: including legal measures required, institutional framework, staffing, and operational procedures, to manage</li> </ul>	<ul style="list-style-type: none"> <li>• UNDP</li> <li>• CDB</li> <li>• IDB</li> <li>• TNC</li> <li>• UN Environment - Blue Finance Initiative</li> <li>• CLME+</li> <li>• Commonwealth Secretariat</li> </ul>	<ul style="list-style-type: none"> <li>• UN Environment - Blue Finance Initiative</li> <li>• UNDP – Blue Invest</li> <li>• UNDP- Blue Finance for the Eastern Caribbean</li> <li>• Green Climate Fund</li> <li>• Commonwealth Fund for Technical Cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• A range of financial instruments are increasingly being deployed to support the blue economy, both public and private. Barbados should assess the suitability of the full range of financial instruments and determine how best to access the most suitable to support the development of existing and emerging blue sectors.</li> <li>• A number of regional initiatives could be leveraged to support this including the next phase of CLME+, The UN Environment Finance Initiative, as well as Blue Invest and Blue Finance for the Eastern Caribbean, both being developed by UNDP.</li> </ul>

**THEMATIC AREA 1: ENABLING ENVIRONMENT**

	disbursement, monitor investments, and ensure transparency etc.			
1.3.2. Undertake a comprehensive review of the various existing fees, levies and charges that are received from marine related activities, especially cruise shipping, fishing and yachting. Such a review should include a benchmarking exercise to compare the level of fees and levies with international norms as well as examining areas where no fees are currently collected.	<ul style="list-style-type: none"> <li>Review existing fees under the range of different legal instruments.</li> <li>Review the actual amounts collected by different agencies under each legal instrument.</li> <li>Undertake a benchmarking exercise to compare fees with international norms as well as examining areas where no fees are currently collected or not cost effective.</li> <li>Identify options to increase resource rent from the use of marine resources (focusing on tourism and fisheries in the first instance) and develop access rights commensurate with resource value.</li> <li>Propose legislative and administrative reform to improve compliance and enforcement (e.g. disclosure provisions).</li> <li>Improve capacity to administer fees taxes and levies through E-government, including compliance and enforcement.</li> </ul>	<ul style="list-style-type: none"> <li>IDB</li> <li>CDB</li> <li>UWI</li> <li>Commonwealth Secretariat</li> </ul>	<ul style="list-style-type: none"> <li>IDB</li> <li>CDB</li> <li>Commonwealth Fund for Technical Cooperation</li> </ul>	<ul style="list-style-type: none"> <li>This is closely linked to 1.3.3. above but is broader in scope since it looks at the full range of fees, levies, charges and duties that are derived from maritime activities.</li> </ul>
1.3.3. Reform the current funding model for marine protected areas/marine reserves to ensure that users of marine reserve contribute a fair amount to the maintenance and upkeep of the marine reserves.	<ul style="list-style-type: none"> <li>Undertake a review of existing fees charged for maritime activities in Barbados including a benchmarking exercise against regional and international practice.</li> <li>Determine fee structures based on global comparisons.</li> </ul>	<ul style="list-style-type: none"> <li>TNC</li> <li>UN Environment</li> <li>IUCN</li> <li>CLME+</li> </ul>	<ul style="list-style-type: none"> <li>TNC – Debt Conversion Project.</li> <li>Green Climate Fund</li> <li>GEF Small Grants Facility</li> <li>Blue Finance</li> <li>Conservation International Ventures</li> </ul>	<ul style="list-style-type: none"> <li>This activity links closely with the TNC-supported Barbados Debt Conversion Project.</li> <li>It will be crucial that there is a ring-fenced fund to support future marine conservation activities and that visitor fees (and other revenue) is channelled into this fund.</li> </ul>



## THEMATIC AREA 1: ENABLING ENVIRONMENT

- Establish new fees in statute.

### Action Area 1.4: Business development

#### Desired Outcomes:

- An accurate and easily updateable assessment of the direct and indirect economic contribution of key marine sectors and marine ecosystem services in Barbados.
- Better prioritisation of blue economy investment potential.
- Support the growth of Micro, Small & Medium Enterprises (MSME) within the blue economy.

#### Recommended Actions

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
1.4.1. Engage with the private sector (both domestic and international) to promote the blue economy as an attractive investment and business development opportunity.	<ul style="list-style-type: none"> <li>• Establish a task force (with co-opted members from the private sector and academia) to determine the (blue economy) areas of priority interest on which they wish to focus</li> <li>• Map out and promote areas of opportunity of ocean based sectors for local investment and SMEs.</li> <li>• Undertake outreach and awareness raising activities to increase the private sector's knowledge of the blue economy and the opportunities for investment therein.</li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• CDB</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• CDB</li> <li>• IDB</li> <li>• Conservation International Ventures</li> <li>• Katapult Ocean</li> </ul>	<ul style="list-style-type: none"> <li>• The blue economy offers opportunities for private sector engagement. Realising these opportunities requires strategies to support goods and services diversification and value chains of existing sectors, investment in research and innovation and legislation and policy to support the development of new sectors. This is important since large parts of the economic activities such as services take place not in core sectors themselves, but in adjacent economic activities.</li> <li>• It is paramount to recognize the important role MSMEs play in value chains as innovators and job creators, but also the need for capacity building and other assistance to raise their performance. MSMEs can bring innovative niche products to market and play an important role in value chains as they touch many crosscutting areas in society.</li> </ul>
1.4.2. Examine the mechanisms to improve local business engagement in the blue economy through <i>inter alia</i> streamlining of regulation and procedures, improved access to technology and innovation, affordable finance, training and support for local entrepreneurs.	<ul style="list-style-type: none"> <li>• Engage with the private sector to identify the barriers (perceived and real) to investment in the blue economy.</li> <li>• Assess options for fiscal incentives to facilitate local investment in MSMEs including credit mechanisms.</li> <li>• Develop frameworks to stimulate MSME innovation and research: <ul style="list-style-type: none"> <li>– Legislation, licensing, regulations etc;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• CDB</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• CDB</li> <li>• IDB</li> <li>• Conservation International Ventures</li> <li>• Katapult Ocean</li> </ul>	<ul style="list-style-type: none"> <li>• There is a need to empower local entrepreneurs and support the growth of local MSMEs to take advantage of Blue Economy opportunities. In particular there are clear opportunities in Barbados for MSMEs to develop in fisheries, tourism, the blue biotechnology and mariculture sectors and associated activities.</li> </ul>

## THEMATIC AREA 1: ENABLING ENVIRONMENT

	<ul style="list-style-type: none"> <li>– Facilitate knowledge and skills transfer</li> <li>• Promote investment and innovation to support the development of new sectors.</li> <li>• Assess the feasibility of establishing a “National Blue Economy Business Incubator” in conjunction with the University of the West Indies and regional development partners.</li> </ul>			
1.4.3. Streamline, harmonised and standardise blue economy statistics (e.g. GDP contributions direct and indirect from BE sectors), employment, social and environmental datasets to inform decision-making and develop standardised data collection, analysis, methodologies and reports to facilitate tracking progress on implementation of Blue Economy.	<ul style="list-style-type: none"> <li>• Undertake a comprehensive, sector-by sector analysis of key economic indicators to quantify the value of the blue economy in Barbados.</li> <li>• Develop/define a replicable methodology for undertaking an assessment of the direct and indirect economic contribution of key sectors.</li> <li>• Review existing economic indicators and statistics held by the Government of Barbados.</li> <li>• Design a data system for collecting and measuring the direct economic contribution of different sectors and sub-sectors.</li> <li>• Undertake further data disaggregation and collection activities to support the analysis.</li> <li>• Prepare a national blue economy financial audit for Barbados to provide a comprehensive summary of the total economic contribution of Barbados’ blue economy.</li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• CDB</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• CDB</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• It will not be possible to “grow” the blue economy if the value of the blue economy is not known or measured. There is a need to establish minimum metrics to evaluate the size of the blue economy as a baseline and against which to set future targets and measure future growth.</li> <li>• This activity will allow the Government to better understand where the greatest potential growth opportunities lie within the blue economy and to target interventions at those areas that are likely to generate the greatest growth potential with the minimum environmental impact.</li> <li>• This should be considered to be a key element under the IDB-supported Blue Economy Initiative.</li> </ul>

## Action Area 1.5: Human capacity development



## THEMATIC AREA 1: ENABLING ENVIRONMENT

The UNDP project team notes that Component 2 of the IADB-supported project “Strategic Roadmap for the Blue Economy in Barbados” will comprehensively address institutional capacity building for the MMABE to improve its coordination capacities and ability to support blue growth in Barbados.

### Action Area 1.6: Research & marine information

Desired Outcomes:

- Facilitate and support research to increase understanding of the marine environment, its natural processes and cultural marine heritage.
- Authoritative GIS data layers representing human uses and key marine environment layers.
- Identification of future data requirements to support marine decision making and management.
- New research, innovation and knowledge about Barbados’ ocean space and management needs to facilitate more informed decision making.
- Ensure that data sharing arrangements made with organisations undertaking research in Barbados waters facilitate the free transfer of all data collected to the Government at the conclusion of the research programme.

### Recommended Actions

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
1.6.1. Assess the options for collating and mapping existing baseline data in a centralised data management system.	<ul style="list-style-type: none"> <li>• Collect &amp; map information about ecological, environmental &amp; oceanographic conditions.</li> <li>• Collect &amp; map information about human activities.</li> <li>• Identify potential conflicts &amp; compatibilities.</li> <li>• Develop a GIS-based spatial data management system for marine data management.</li> </ul>	<ul style="list-style-type: none"> <li>• TNC</li> <li>• UWI</li> <li>• CLME+</li> <li>• UNESCO-IOC</li> </ul>	<ul style="list-style-type: none"> <li>• TNC</li> <li>• GEF</li> <li>• Caribbean Biodiversity Fund</li> </ul>	<ul style="list-style-type: none"> <li>• Barbados already has some data sets of key coastal/nearshore habitat types. However, this data requires updating and extended further offshore.</li> <li>• In order to manage future development of the blue economy, there is a need to develop a current baseline of the state of marine habitats and the marine environment in general. This will also allow better decision making in terms of the nature and geographic scope of future maritime activities.</li> </ul>
1.6.2. Undertake an assessment of existing research data relating to Barbados’ maritime waters and held by overseas research institutions and commence a process of data repatriation.	<ul style="list-style-type: none"> <li>• Explore partnership opportunities with third party research organisations and the private sector to address data/research gaps identified by the Government.</li> <li>• Review Ministry of Foreign Affairs and Foreign Trade research permit system and develop protocols to capture international and national research conducted in Barbados</li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• UNESCO-IOC</li> <li>• Possible bi-lateral support from countries such as Canada, UK or EU</li> </ul>	<ul style="list-style-type: none"> <li>• Possibly through EU</li> </ul>	<ul style="list-style-type: none"> <li>• Despite the paucity of data currently available for Barbados’ offshore waters, various international research expeditions have been undertaken to the area in the past. The purpose and application of the research varies on a case-by-case basis but in most cases the data acquired during the research cruises may be used for a number of different purposes. However, there is no clear, consolidated picture of what information has been collected.</li> </ul>

## THEMATIC AREA 1: ENABLING ENVIRONMENT

	<p>including conditions to ensure local capacity is built, raw data collected and reports are returned to Barbados as a condition of research permits.</p> <ul style="list-style-type: none"> <li>• Ensure that data collected through marine scientific research and environmental monitoring is made available to the Government.</li> <li>• Explore options for developing an EEZ-wide marine landscape map using existing (known) marine datasets.</li> </ul>			<ul style="list-style-type: none"> <li>• Under international law, such researchers are obliged, upon request, to provide copies of their data to the host country. However, this is rarely proactively shared and in most cases requires a formal request from the host country.</li> <li>• Provisions contained within the LOSC gives States the right to request data acquired during marine scientific research within that States' maritime area. It is, however, becoming increasingly apparent that such provisions are alien to many States. As a result data that are key to enabling responsible use of marine waters are not being made available to the appropriate responsible agencies.</li> <li>• A programme of identifying marine data, in particular bathymetry, via a number of academic and other sources will help address this shortcoming.</li> </ul>
1.6.3. Develop a clear marine research strategy that identifies key data requirements for decision making and supports investment for new and emerging opportunities.	<ul style="list-style-type: none"> <li>• Undertake a stocktake of existing marine datasets that are held by the various agencies in Barbados as well as known research institutions.</li> <li>• Identify critical existing gaps in existing datasets.</li> <li>• Combine the outputs from Activities 1.5.1 and 1.5.2 to determine the critical data needs and gaps that will need to be filled over time.</li> <li>• Identify possible sources or mechanisms through which to procure the data.</li> <li>• Develop a strategy that identifies, as a minimum, key data needs, where the data exists or can be obtained from, the mechanism for obtaining/procuring the data.</li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• UNESCO-IOC</li> </ul>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>	<ul style="list-style-type: none"> <li>• To avoid future duplication of effort, and maximise use of the current knowledge base, there is a need to better understand what information is currently available and design a system to make that information available to decision makers and users of the marine environment.</li> <li>• This should involve all users of the marine environment and those organisations and institutions involved (both past and present) in studying the marine environment.</li> <li>• Opportunities to undertake research are extremely limited due to the cost of mounting research expeditions to the area. In order to benefit fully from any future research opportunities that may occur, there is a need for the government to clearly define its future research priorities and needs to better inform future research planning activities.</li> <li>• Future research needs should be defined in a Marine Scientific Research Strategy.</li> </ul>

## THEMATIC AREA 1: ENABLING ENVIRONMENT

### Action Area 1.7: Public awareness & engagement

#### Desired Outcomes:

- Local communities are more educated and aware of the importance and value of the marine environment to the national development and livelihoods in Barbados.
- Greater engagement of local community in environmental stewardship initiatives.
- Greater level of education of school children of the value of the ocean and the threats it is under.
- Barbados' population and key sectors are strong supporters of the blue economy and act as champions promoting the blue economy nationally and internationally as an example of best practice.

#### Recommended Actions

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
1.7.1 Support and promote strategies to build public and visitor awareness of the importance of the sea and its resources and protection of the marine environment.	<ul style="list-style-type: none"> <li>• Develop outreach programmes that create public awareness of the importance of the sea and its resources to our livelihood, quality of life and well-being.</li> <li>• Implement a visitor marine awareness programme at entry points to the country (e.g. cruise ship berths, marinas, airports, Customs and Immigration).</li> <li>• Develop dedicated communication products and activities for local stakeholder and interest groups as well as policy makers such as: Brochures, posters, videos.</li> <li>• Incorporate marine education in school curricula.</li> </ul>	<ul style="list-style-type: none"> <li>• IDB</li> <li>• Local NGOs</li> </ul>	<ul style="list-style-type: none"> <li>• IDB</li> <li>• Blue Finance</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of awareness and environmental education opportunities for local and visitors to the islands is a risk to the long term sustainable development of the blue economy.</li> <li>• An informed public ensures the social acceptability that will enhance ocean governance decision making and implementation. Moreover, community participation is a key to promoting and instituting a duty of care for the marine environment. Awareness creation, participation and consultation will assist in promoting understanding and stewardship by all stakeholders.</li> </ul>
1.7.2. Establish a process to identify and stimulate the engagement of local communities and local industries in stewardship initiatives and cooperating to find environmental and sustainable development solutions.	<ul style="list-style-type: none"> <li>• MMABE to act as lead agency and provide resources to acquire a focal point for local communities and lead community-based initiatives.</li> <li>• Identify a national network of "ocean leaders" to champion the importance</li> </ul>	<ul style="list-style-type: none"> <li>• IDB</li> <li>• Local NGOs</li> <li>• CLME+ - CANARI</li> </ul>	<ul style="list-style-type: none"> <li>• IDB</li> <li>• CLME+ - CANARI</li> <li>• Blue Finance</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient capacity exists within government agencies to effectively monitor and manage the marine environment. A strong case can be made for greater involvement of civil society and local communities to engage in stewardship initiatives that will benefit all Barbadians.</li> </ul>



**THEMATIC AREA 1: ENABLING ENVIRONMENT**

	<p>of the marine environment in Barbados.</p> <ul style="list-style-type: none"> <li>Promote greater engagement between government agencies and local communities.</li> <li>Support local NGOs and community groups to develop small-scale community-based environmental projects around Barbados.</li> <li>Engage with local companies to sponsor and directly support local community activities.</li> </ul>			
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**Action Area 1.8: Maritime surveillance, monitoring & enforcement**
**Desired Outcomes:**

- Greater protection of Barbados' maritime waters from unlawful activities.
- Greater awareness of activities being undertaken in Barbados' waters.
- Greater protection and sustainable use of Barbados' ocean space and resources through effective cross-sectoral coordination, application of protective measures and greater use of surveillance and enforcement tools.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
1.8.1 Establish a national maritime monitoring control and surveillance system to strengthen compliance with and enforcement of national legal requirements.	<ul style="list-style-type: none"> <li>Undertake a review of Barbados' existing MSC capability with a particular focus on maritime domain awareness and fisheries compliance.</li> <li>Develop the current capacity of existing maritime monitoring and enforcement agencies.</li> <li>Upgrade current water and remote monitoring capabilities.</li> <li>Upgrade current monitoring, compliance and enforcement</li> </ul>	<ul style="list-style-type: none"> <li>CDB</li> <li>IDB</li> <li>IMO</li> <li>Possible bi-lateral support from countries such as Canada, UK or EU</li> </ul>	<ul style="list-style-type: none"> <li>EU</li> </ul>	<ul style="list-style-type: none"> <li>This is necessary in order to protect Barbados' marine resources and fragile marine habitats. A range of pressures need to be addressed across all sectors. This will require greater coordination across government agencies as well as collaboration with the private sector.</li> </ul>

THEMATIC AREA 1: ENABLING ENVIRONMENT				
	capabilities at sea and at ports of entry/landing sites.			
1.8.2. Review options to strengthen maritime domain awareness in Barbados including the application of new technology and the option of sharing capabilities across a number of neighbouring countries.	<ul style="list-style-type: none"> <li>Assesses the utility of Automated Identification Systems (AIS) and other Vessel Monitoring Systems (VMS) as a way of carrying out surveillance for Barbados' maritime space.</li> <li>Assess the feasibility of partnering with global technology leaders to run pilot projects focused on large scale deployment of remote sensing technology for EEZ surveillance and monitoring activities (e.g. Global Fish Watch).</li> </ul>	<ul style="list-style-type: none"> <li>Global Fishing Watch</li> <li>Possible bi-lateral support from countries such as Canada, UK or EU</li> </ul>	<ul style="list-style-type: none"> <li>EU</li> </ul>	<ul style="list-style-type: none"> <li>Critical to achieving this will be an assessment of the opportunities to deploy technological solutions (such as AIS, VMS and satellite monitoring) on vessels operating in Barbados' waters. A greater focus on monitoring and enforcement at landing sites will also be necessary.</li> </ul>

## THEMATIC AREA 2: TOURISM & LEISURE

### Action Area 2.1: Create linkages between the tourism sector and marine conservation

#### Desired Outcomes:

- Develop conservation partnerships with the operators of high end hotels/resorts aimed at protecting marine ecosystems.
- Improved environmental benefits for wider tourism sector (e.g. SCUBA diving).
- Access to private-sector funding to support public good projects.
- Basis for longer term partnership with the private sector.
- The creation of a vehicle for tourism education and awareness campaigns.
- Building environmental resilience into natural marine systems.

#### Recommended Actions

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
2.1.1 Assess areas in the vicinity of high end coastal resorts that may be candidates for locally managed area (LMA) status.	<ul style="list-style-type: none"> <li>• Consult with stakeholders (including local user groups and the tourism sector) on the identification of potential habitats and locations in the vicinity of coastal resorts.</li> <li>• Develop, in conjunction with local Stakeholders, a prioritized list of suitable candidate areas to be considered protected, through LMA mechanisms.</li> </ul>	<ul style="list-style-type: none"> <li>• Hotel and resort operators</li> <li>• Local dive operators</li> <li>• UWI</li> <li>• Local NGOs</li> <li>• Barbados Hotel &amp; Tourism Authority</li> <li>• TNC</li> <li>• Blue Finance (NGO)</li> <li>• Conservation International</li> </ul>	<ul style="list-style-type: none"> <li>• Public-Private Partnerships with hotel and resort operators</li> <li>• TNC through the Barbados Debt Conversion Project</li> <li>• Access fees (this would be a long-term aspiration)</li> <li>• Blue Finance (NGO)</li> <li>• Conservation International Ventures</li> </ul>	<ul style="list-style-type: none"> <li>• These sorts of partnerships have worked well in other countries and can provide a unique selling point for resort owners for their clients while providing broader benefits to the local community and environment.</li> <li>• This would build on and link to work undertaken under Action Areas 1.2. and 1.5 above and will require effective co-funding mechanisms to ensure that the private sector recognises government commitment to the project.</li> <li>• Hotel and resort operators will be a critical partner to establish and co-finance the pilot projects. However, local community associations will also be essential to provide a linkage between the government/private sector and the local community to ensure effective engagement.</li> </ul>
2.1.2 Develop a pilot project in conjunction with one resort operator to develop a conservation partnership.	<ul style="list-style-type: none"> <li>• Work with the Corporate Sustainability teams of selected tourism operators to develop a conservation programme as part of the wider Corporate Sustainability Framework.</li> <li>• Select one or two high priority areas from the list prepared under 2.2.1</li> </ul>	<ul style="list-style-type: none"> <li>• Hotel and resort operators</li> <li>• Local dive operators</li> <li>• UWI</li> <li>• Local NGOs</li> <li>• Barbados Hotel &amp; Tourism Authority</li> <li>• TNC</li> </ul>	<ul style="list-style-type: none"> <li>• Public-Private Partnerships with hotel and resort operators</li> <li>• TNC through the Barbados Debt Conversion Project</li> <li>• Access fees (this would be a long-term aspiration)</li> <li>• Blue Finance (NGO)</li> </ul>	<ul style="list-style-type: none"> <li>• Can be considered to be an element of a broader national network of MPAs proposed under Action Area 1.2 above.</li> <li>• Could explore links with the NGO 'Blue Finance' that is investing in tourism-based conservation projects in the Caribbean.</li> </ul>



**THEMATIC AREA 2: TOURISM & LEISURE**

	<p>above to be piloted as co-managed LMAs.</p> <ul style="list-style-type: none"> <li>• Agree with local tourism operators a funding framework to support implementation of the LMAs and to assist with capacity building to strengthen local co-management.</li> <li>• Develop a project steering committee to include government officials, tourism operators and local stakeholders.</li> <li>• Define project scope and terms of reference for a minimum period of 5 years.</li> <li>• Develop a management plan for pilot-project area in conjunction with the selected tourism operator(s).</li> </ul>	<ul style="list-style-type: none"> <li>• Caribbean Biodiversity Fund</li> <li>• Blue Finance (NGO)</li> <li>• Conservation International</li> </ul>	<ul style="list-style-type: none"> <li>• Could also explore linkages with CCI to gain TNC and CBF support</li> <li>• Conservation International Ventures</li> </ul>	
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**Action Area 2.2: Ensure that the future development of the cruise ship sector accounts for not only its direct economic contribution but also the long-term risks and impacts to the marine environment and other marine user groups**

**Desired Outcomes:**

- Ensure that the cruise tourism sector is a sustainable component of the wider Barbados tourism product.
- Implement effective policy and management controls to ensure cruise tourism activities do not adversely impact coastal and marine environments.
- Anticipate, manage and mitigate the multiple and potentially conflicts between cruise tourism and other maritime sectors (such as yachting, SCUBA diving and fishing).

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
2.2.1 Develop a policy aimed at better managing the impacts of cruise tourism on other, more valuable, sub-sectors of the maritime tourism product and the wider marine environment.	<ul style="list-style-type: none"> <li>• Undertake an economic assessment of the costs and benefits of cruise tourism versus other sectors of the tourism product.</li> <li>• Undertake an assessment to identify any marine or coastal areas where additional controls should be.</li> </ul>	<ul style="list-style-type: none"> <li>• Barbados Ports Inc</li> <li>• Barbados Hotel &amp; Tourism Authority</li> <li>• UWI</li> <li>• UNDP</li> <li>• CDB</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• PPP with the tourism sector</li> <li>• IDB Blue Economy Initiative</li> </ul>	<ul style="list-style-type: none"> <li>• This is necessary to ensure that the cruise tourism sector can continue in a sustainable manner without adversely affecting other, potentially more valuable economic sectors. Given the critical role that the marine environment plays in the overall economy of Barbados this must necessarily include managing the environmental impacts associated with cruise ships and cruise tourism.</li> </ul>

**THEMATIC AREA 2: TOURISM & LEISURE**

	<ul style="list-style-type: none"> <li>established to mitigate the potential impacts of cruise tourism activities.</li> <li>Develop a draft Cruise Tourism Policy for consultation with stakeholders.</li> </ul>			<ul style="list-style-type: none"> <li>In the long run this should be addressed through a process of multi-use spatial planning, with a view to better managing those interactions on a site-by-site basis.</li> <li>This will require an assessment of the costs and benefits of cruise tourism versus overnight visitors leading to the development of a model that maximises the overall benefits from tourists, recognising all components of the tourism sector.</li> </ul>
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**Action Area 2.3: Undertake an assessment, in conjunction with the yachting sector, to determine the potential opportunity and feasibility of expanding the existing leisure yacht facilities to cater for more recreation (cruising) yachts**
**Desired Outcomes:**

- Create facilities that could attract a greater portion of the yachts travelling the Europe-Caribbean cruising route and using the Panama canal.
- Provide greater opportunities to develop yacht and small boat maintenance and boat building in Barbados.
- Upstream and downstream opportunities to service the increased number of yachts visiting Barbados.
- Yacht tourists tend to spend multiple nights in marine/mooring facilities with associated spending.
- Greater segmentation/assignment of different classes of vessels could ease congestion at existing sites and bring economies of scale, tourists tend to spend multiple nights in marine/mooring facilities with associated spending.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
2.3.1 Undertake an assessment, in partnership with the yachting sector, of the economic potential and feasibility of developing the recreational yachting sector further in Barbados.	<ul style="list-style-type: none"> <li>Engage with marine operators in Barbados and throughout the Caribbean.</li> <li>Undertake an assessment of the potential opportunity for marine development (i.e. demand for new berths and the number of berths that could be supported).</li> <li>Undertake an economic analysis to determine the optimum fiscal policy to support establishment of the sector while also ensuring the government received a fair return.</li> </ul>	<ul style="list-style-type: none"> <li>Private marine operators and yacht charter companies</li> <li>CDB</li> <li>IDB</li> </ul>	<ul style="list-style-type: none"> <li>Private sector investment for project development.</li> <li>IDB or CDB for project feasibility and proposal development funding.</li> </ul>	<ul style="list-style-type: none"> <li>This would be considered a long-term project which will require significant investment to undertake feasibility studies, economic modelling and to attract suitable investors.</li> </ul>

## THEMATIC AREA 2: TOURISM &amp; LEISURE

	<ul style="list-style-type: none"> <li>Identify barriers and financial incentives for new “start-up” businesses to ensure that marinas are included as one of the start-up sectors.</li> </ul>			
2.3.2 Identify potential candidate site(s) for the development of a small recreational vessel marine facility.	<ul style="list-style-type: none"> <li>Undertake an island-wide assessment, in conjunction with the sailing sector, of potentially suitable sites for marine development taking into account inter alia:               <ul style="list-style-type: none"> <li>operational requirements</li> <li>infrastructure and capital works needs</li> <li>environmental values in the vicinity of identified sites</li> <li>the potential environmental costs of development</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Private marine operators and yacht charter companies</li> <li>CDB</li> <li>IDB</li> </ul>	<ul style="list-style-type: none"> <li>Private sector investment for project development</li> <li>IDB or CDB for project feasibility and proposal development funding</li> </ul>	<ul style="list-style-type: none"> <li>This would be considered a long-term project which will require significant investment to undertake feasibility studies, economic modelling and to attract suitable investors.</li> </ul>

## THEMATIC AREA 3: MARINE LIVING RESOURCES

**Action Area 3.1: Improve the understanding of fishery management requirements undertaking future climate change projections for the Caribbean**

## Desired Outcomes:

- Better understand the likely trajectory for key marine species (in terms of diversity, distribution and abundance) under different future climate change scenarios.
- Provides a tool to assess what development strategies might be the most likely to be effective in the future.
- Provides fisheries managers with information to assist with the development of future Fishery Management Plans.
- Provides information to fisherfolks/investors about what investment strategies might be the most appropriate.
- Assist in developing climate mitigation strategies for the future – building climate resilience into the fisheries sector.

Action				
	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
3.1.1. Undertake scenario planning to assess the future possible development scenarios for the fishery sector under future climate change projections.	<ul style="list-style-type: none"> <li>• Identify stakeholders and technical experts to participate in the process.</li> <li>• Determine the future time horizon against which to undertake the assessment.</li> <li>• Describe the current state and trends for fisheries and the marine environment in the Caribbean region (Baseline).</li> <li>• Develop indicative narratives about the possible futures for fisheries and the marine environment in the Caribbean region (Future Scenarios).</li> <li>• Develop plausible multi-perspective scenarios for future fishery management needs in Barbados.</li> <li>• Determine appropriate mitigation and adaptation strategies to be considered in future Fishery Management Plans.</li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• FAO/WECAF</li> <li>• University of British Columbia</li> <li>• CRFM</li> </ul>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>	<ul style="list-style-type: none"> <li>• Anticipating future changes in the marine environment, in the context of accelerating global change, several decades into the future is essential to anticipating future resource availability and development strategies for the blue economy.</li> <li>• Some existing projections do exist for fisheries but it is not known whether this has been applied in the context of fisheries management requirements in the Caribbean.</li> <li>• Barbados could be seen as a regional leader by taking this initiative and working with other countries and development partners in the region.</li> </ul>

**Action Area 3.2: Review existing and develop new metrics for recording and reporting landings of marine fish in Barbados**

## Desired Outcomes:



**THEMATIC AREA 3: MARINE LIVING RESOURCES**

- Single harmonised national data metrics for recording and reporting all marine capture fisheries data, both domestically and internationally (e.g. CRFM, FAO etc).
- Up-to-date and accurate data set reflecting the true value of fishery landings in Barbados that can be updated on a rolling basis.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
3.2.1. Establish a single set of metrics for measuring and reporting catches of key species.	<ul style="list-style-type: none"> <li>• Review the range of metrics that are recommended for use by the FAO/CRFM.</li> <li>• Review the existing catch data recording and reporting framework in Barbados including a quality control check on existing reported data.</li> <li>• Update and refine the national data collection and reporting programme in line with the recommendations from FAO/CRFM.</li> <li>• Establish a process of data quality control to ensure that all reporting (including national annual development reports) use and present the same data sets to ensure future consistency in data reporting.</li> </ul>	<ul style="list-style-type: none"> <li>• FAO</li> <li>• CRFM</li> <li>• IADB</li> </ul>	<ul style="list-style-type: none"> <li>• FAO</li> </ul>	<ul style="list-style-type: none"> <li>• Various estimates of catch and landing are available through different sources (e.g. FAO, CRFM, UNCTAD reports), many of which are inconsistent. This leads to uncertainties with respect to both catches and the economic contribution of fisheries to Barbados.</li> <li>• Updating and standardising reporting data is an essential first step to developing a wider process to undertake stock assessments since the data from landed catches (including species, numbers, sizes etc) will be a critical input into the stock assessment process.</li> <li>• Future development of FMPs will also require better data to support monitoring and adaptive management.</li> <li>• Using the value of landed catches as a proxy for the economic contribution of this sector significantly underestimates the overall importance of this sector in terms of its contribution to the economy, livelihoods and the social and cultural fabric of the islands. It also does not take into account the important linkages and interdependencies between the fisheries and other sectors (e.g. tourism).</li> </ul>

**Action Area 3.3: Develop 'Fisheries Management Plans' for key reef fish species**
**Desired Outcomes:**

- Fishing capacity and effort that is commensurate with the reproductive capacity of available stocks.
- Improved monitoring and knowledge to better support decision-making.
- Harvest strategies for key commercial stocks developed on scientific advice and the ecosystem approach to fisheries management.
- Marine fish stocks that increase in productivity over the long term (30 years).

**THEMATIC AREA 3: MARINE LIVING RESOURCES**
**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
3.3.1. Adopt and apply ecosystem-based principles and objectives for marine fisheries	<ul style="list-style-type: none"> <li>Adopt principles from FAO Code of Conduct for Responsible Fisheries (CCRF) and EAF guidelines.</li> <li>Integrate principles into key fisheries legislation (i.e. update and adopt the Fisheries Act and associated Regulations.)</li> </ul>	<ul style="list-style-type: none"> <li>CRFM</li> <li>FAO/WECAF</li> </ul>	<ul style="list-style-type: none"> <li>FAO</li> </ul>	
3.3.2. Develop 'Fisheries Management Plans' for key reef fish species.	<ul style="list-style-type: none"> <li>Identify commercial species groups and spatial areas to be covered in each FMP.</li> <li>Consult widely with fisherfolk and other stakeholders on the management needs for reef fisheries.</li> <li>Agree on FMP content and design, based on scientific advice.</li> <li>Review and update at appropriate intervals.</li> </ul>	<ul style="list-style-type: none"> <li>CRFM</li> <li>FAO/WECAF</li> <li>UWI</li> </ul>	<ul style="list-style-type: none"> <li>FAO</li> <li>IDB</li> </ul>	<ul style="list-style-type: none"> <li>This is a requirement under the Fisheries Act.</li> <li>A number of studies exist that assess the status of reef fisheries in Barbados and the management needs to ensure their sustainability. These should be reviewed as an initial step.</li> </ul>

**Action Area 3.4: Develop strategies to better utilise existing fish stocks and to diversify the existing fisheries to include new or under-utilised fish species**
**Desired Outcomes:**

- Undertake research to assess the feasibility and economic viability of developing new fisheries based on under/un-utilised fish species/stocks.
- Reduce pressure on inshore resources that are already under pressure.
- Ability to target higher value pelagic species.
- Greater availability of high value fish for the domestic and tourism market thereby reducing the need for imports.
- Introduce new species to the market in general
- Reduce the number of invasive lion fish, which are having a significant detrimental impact on native reef and demersal fish species across the eastern Caribbean.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
3.3.1. Undertake an assessment to determine the potential of	<ul style="list-style-type: none"> <li>Undertake a "data discover" process to identify existing sources of data</li> </ul>	<ul style="list-style-type: none"> <li>CRFM</li> <li>FAO/WECAF</li> </ul>	<ul style="list-style-type: none"> <li>CLME+/GEF</li> <li>FAO</li> </ul>	<ul style="list-style-type: none"> <li>Through FAO it would be worth discussing whether opportunities exist to support a research cruise in the</li> </ul>

### THEMATIC AREA 3: MARINE LIVING RESOURCES

developing a market and a sustainable fishery for alternative fish species such as amber fish, squid and deep-sea crab.	<ul style="list-style-type: none"> <li>relating to distribution and abundance of these resources in Barbados EEZ.</li> <li>Prepare an inventory of available data taking into account <i>inter alia</i>: data quality and spatial extent; data completeness; and, how accessible the data is.</li> <li>Engage with development partners to explore opportunities to support a marine research cruise in the region.</li> <li>Engage with potential investors to gauge interest in developing such a fishery.</li> </ul>	<ul style="list-style-type: none"> <li>CLME+</li> <li>UWI</li> <li>IDB</li> <li>CDB</li> </ul>	<ul style="list-style-type: none"> <li>CDB</li> <li>IDB</li> </ul>	western Atlantic waters to include Barbados' EEZ (e.g. through the Norwegian Marine Research Institute.)
3.3.2. Actively promote the harvesting of lionfish as an economic resource.	<ul style="list-style-type: none"> <li>Review the <i>Fisheries Act</i> provisions relating to commercial harvesting of fish using / SCUBA &amp; spear guns with a view to allowing exceptions.</li> <li>Develop a Lion Fish Action Plan for Barbados.</li> <li>Develop the capacity of the Barbados fish processing facilities to handle and process lion fish.</li> <li>Establish partnerships between fishers and restaurants/hotels to promote lion fish as an edible fish.</li> </ul>	<ul style="list-style-type: none"> <li>UWI</li> <li>Local NGOs</li> <li>Local diving operators</li> <li>Local hotels and restaurants</li> </ul>	<ul style="list-style-type: none"> <li>Local community support</li> <li>In-kind support from local diver operators</li> <li>PPP with local hotel and resort operators</li> </ul>	<ul style="list-style-type: none"> <li>In the past few years, a significant threat to marine species has spread through the Eastern Caribbean. The impact in Barbados so far does not appear to have been as significant as in other countries. However, as the numbers of lionfish increase this may change. Moreover, anecdotal evidence suggests that lionfish are distributed in deeper water in Barbados than in other neighbouring countries making it more difficult to harvest them using free-diving techniques.</li> <li>Many other countries in the region have developed Lionfish Action Plans which promote the harvesting of lionfish. Once an economic value has been established and a market created, the numbers of lionfish are likely to fall significantly while also creating an additional industry that has yet to be developed.</li> </ul>
3.3.3 Assess the economic opportunities to extract more value from the existing sport-fishing sector.	<ul style="list-style-type: none"> <li>Assess the existing "Sport Fishing" capacity in Barbados including the estimated value of this activity versus a similar fishing effort for commercial capture fishing to assess what</li> </ul>	<ul style="list-style-type: none"> <li>CDB</li> <li>IDB</li> <li>FAO</li> <li>Local fishers and tour operators</li> </ul>	<ul style="list-style-type: none"> <li>PPP between government and fishing industry</li> </ul>	<ul style="list-style-type: none"> <li>Evidence from other countries clearly illustrates that the value/fish generated from sport fishing far exceeds that of the value of the landed catch – particularly if "catch and release" methods are adopted.</li> </ul>

**THEMATIC AREA 3: MARINE LIVING RESOURCES**

	<p>additional value could be created from expanding this sub-sector.</p> <ul style="list-style-type: none"> <li>Assess the existing barriers to local fishermen expanding into this sub-sector.</li> </ul>			<ul style="list-style-type: none"> <li>Many other islands in the region are well known as sport fishing destinations, holding regular fishing competitions.</li> <li>It is not clear what the value of sport fishing currently is in Barbados or what the potential for development of this sub-sector is. This will need to be assessed using cost-benefit assessment techniques and the value of investing in this sector will need to be assessed.</li> </ul>
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**Action Area 3.4: Expand the current focus on fish silage to determine other options for creating value from the waste generated from fish processing and other biological material**
**Desired Outcomes:**

- To maximise the value that can be derived from fish waste while at the same time reducing the need to dispose of waste to the environment.
- Achieve zero fish waste through processing and post-processing of fish and fish waste.
- Reduce waste streams and improve environmental performance.
- Create value from an otherwise low value product.
- Catalyse a broader bio-technology sector.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
3.4.1. Establish the legal and policy framework for the use of biological resources.	<ul style="list-style-type: none"> <li>Develop legislation and policy for the use of biological resources including benefit sharing, IP etc., consistent with international obligations (Nagoya Protocol, CITES, WTO). See Research and Development section.</li> <li>Develop a biotechnology policy for existing value chains including fish and commercial species from capture fisheries and mariculture.</li> </ul>	<ul style="list-style-type: none"> <li>UNCTAD</li> <li>UNDP</li> <li>UN Environment</li> <li>CBD</li> </ul>	<ul style="list-style-type: none"> <li>Possible extension of existing FAO assistance</li> </ul>	<ul style="list-style-type: none"> <li>Establishing an enabling environment for this sector is an essential first step in the long journey towards a mature sector.</li> <li>First, it is essential to establish the regulatory and policy framework for the use of biological resources including access and benefit sharing in accordance with international obligations under the UN Convention on Biological Diversity (CBD) Nagoya Protocol 2010, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), World Trade Organisation (WTO) to clarify Intellectual property, procedures for exploration permits, patenting and contracts.</li> </ul>
3.4.2 In addition to the current studies in to fish silage, undertake an assessment of the	<ul style="list-style-type: none"> <li>Establish international/regional partnerships with Research and Development institutions to assess</li> </ul>	<ul style="list-style-type: none"> <li>UNCTAD</li> <li>UNDP</li> </ul>	<ul style="list-style-type: none"> <li>Possible extension of existing FAO assistance</li> </ul>	<ul style="list-style-type: none"> <li>The use of biological material for commercially valuable genetic and biochemical properties for</li> </ul>



**THEMATIC AREA 3: MARINE LIVING RESOURCES**

potential higher value products that could be generated from the existing fish waste.	<p>the potential of existing fish waste, as well as other potential waste streams, for high value biological compounds.</p> <ul style="list-style-type: none"> <li>• Undertake socio-economic and sustainability feasibility and marketing studies for possible commercialisation.</li> <li>• Depending on the outcome of the above assessments, develop a pilot project to assess the feasibility of producing higher value products from existing fish waste.</li> </ul>	<ul style="list-style-type: none"> <li>• FAO</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate the possibility of impact investment as a source of finance.</li> </ul>	<p>pharmaceuticals, cosmetics or the food industry is extremely limited or does not occur in Barbados.</p> <ul style="list-style-type: none"> <li>• To support development of such a sector it is necessary to have access to a research and development infrastructure to support this emerging sector.</li> <li>• Barbados is unlikely to ever develop such highly specialised capacity alone and so, it should focus on establishing strong international and regional partnerships with research and development institutions, to attract the necessary investment, expertise and knowledge.</li> </ul>
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**THEMATIC AREA 4: PORTS & SHIPPING**

**Action Area 4.1: Specifically include an assessment of the Maritime Affairs function under Component 2 of the IDB blue economy initiative, taking into account Flag, Coastal and Port state rights and obligations**

**Desired Outcomes:**

- Develop the capacity of the national maritime administration into a fully formed and dedicated unit with oversight of Flag, Port and Coastal States rights and obligations for shipping.
- Strengthen the maritime administration to ensure Barbados can discharge its duties and obligations as a flag State, coastal State and Port State.
- Ensure that Barbados has the capacity to manage shipping risks both within domestic waters (with respect to all vessels) and overseas (with respect to Barbados vessels).

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
4.1.1 Undertake Capacity Needs Assessment of the Maritime Administration function of MMABE.	<ul style="list-style-type: none"> <li>• Define the minimum capacity needs required to discharge the function of a National Maritime Administration (Port State, Coastal State and Flag State responsibilities) taking into account: <ul style="list-style-type: none"> <li>- The results of the 2018 IMSAS Audit</li> <li>- IMO FSI requirement</li> </ul> </li> <li>• Examine the existing capacity of the MMABE against the defined capacity requirements.</li> <li>• Identify the capacity deficit and prioritise the capacity-building needs.</li> <li>• Develop Capacity Building Plan.</li> </ul>	<ul style="list-style-type: none"> <li>• IMO</li> <li>• Possible bi-lateral support from countries such as Canada, UK or US</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for funding through the IDB Blue Economy Project.</li> </ul>	<ul style="list-style-type: none"> <li>• The current focus appears to be very much on the Registry and Flag State jurisdiction. However, Barbados needs to also address its role as a Coastal State and as Port State.</li> <li>• These functions would most sensibly sit within the Maritime Administration.</li> </ul>

**Action Area 4.2: Prepare and implement a Port Safety Management System for the Port of Bridgetown**
**Desired Outcomes:**

- To fully understand, mitigate and manage operational risks to the port of Bridgetown.
- To identify and manage operational risks to the port infrastructure and operations.
- Better understand the potential risks associated with climate change and what measures should be adopted to mitigate against these risks.
- Establish new (or integrate into existing) management systems to deal with health, safety and environmental risks within the port and port operations.

Recommended Actions				
Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
4.2.1 Undertake an audit against a recognized international Port Safety standard	<ul style="list-style-type: none"> <li>Designate a lead person within the port to oversee the development of the Safety Management System.</li> <li>Identify and adopt a suitable international standard (e.g. UK MCGA Port Marine Safety Code).</li> <li>Convene and audit team to include experts and operational staff from the Port.</li> <li>Determine the key requirements to be audited.</li> <li>Undertake audit and identify gaps.</li> </ul>	<ul style="list-style-type: none"> <li>IMO</li> <li>Possible bi-lateral support from countries such as Canada, UK, USA or NZ</li> <li>Development Banks</li> <li>Commonwealth Secretariat</li> </ul>	<ul style="list-style-type: none"> <li>Most likely through the Port operational budget.</li> <li>In-kind support may be available from key partners (e.g. in the form of technical experts and knowledge transfer)</li> <li>Commonwealth Fund for Technical Cooperation</li> </ul>	<ul style="list-style-type: none"> <li>This should be led by the Port of Bridgetown and will require consultants/experts with specialist skills in undertaking these types of risk assessments.</li> </ul>
4.2.2 Undertake a port risk assessment of the port and associated facilities	<ul style="list-style-type: none"> <li>Assess risks to maritime and port operations taking into account the following factors: <ul style="list-style-type: none"> <li>Hazards to shipping within the approaches to the port</li> <li>Aids to navigation along the port approaches</li> <li>Operational risks (such as pilotage and tug operations)</li> <li>Future climate change scenarios and impacts on port infrastructure and operations</li> <li>Environmental risks</li> <li>Future trends and requirements in the international shipping industry</li> </ul> </li> <li>Identify risk mitigation measures from the risk assessment.</li> <li>Develop and implement a Port Safety Management System.</li> </ul>	<ul style="list-style-type: none"> <li>IMO</li> <li>Possible bi-lateral support from countries such as Canada, UK, USA or NZ</li> <li>Development Banks</li> <li>Commonwealth Secretariat</li> </ul>	<ul style="list-style-type: none"> <li>Most likely through the Port operational budget.</li> <li>In-kind support may be available from key partners (e.g. in the form of technical experts and knowledge transfer)</li> <li>Commonwealth Fund for Technical Cooperation</li> </ul>	<ul style="list-style-type: none"> <li>This should be led by the Port of Bridgetown and will require consultants/experts with specialist skills in undertaking these types of risk assessments.</li> </ul>

**Action Area 4.3: Invest in renewable energy sources to provide low carbon shore-based power for visiting ships**
**Desired Outcomes:**

- Barbados Port Inc could further explore options for integrating renewable energy sources (particularly solar and wind) with its facilities to generate power for port consumption and, where excess exists, to provide shore-based power for ships alongside.
- Reduce carbon footprint of the port operation thereby contributing to the overall “climate resilient” vision of the government.
- Reduce long-term operating costs through renewable energy supplies.
- Reduce air pollution from ships in port.
- Opportunity to increase port revenue from charges for shore-power.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
4.3.1 Co-locate renewable energy sources at the Barbados Port as a means to generate shore power to supply to vessels alongside.	<ul style="list-style-type: none"> <li>• Undertake a feasibility study and CBA of the installation of solar and wind power systems to be co-located with existing port infrastructure.</li> <li>• Develop the business case for installation versus supplying shore power to visiting vessels, based on benchmarking.</li> <li>• Procurement and installation of preferred systems.</li> </ul>	<ul style="list-style-type: none"> <li>• CarbonWar Room</li> <li>• Development Banks</li> <li>• UNDP</li> <li>• Private sector - major shipping companies</li> </ul>	<ul style="list-style-type: none"> <li>• Green Climate Fund</li> <li>• CarbonWar Room</li> <li>• Development Banks</li> <li>• Possible PPP with shipping companies</li> </ul>	<ul style="list-style-type: none"> <li>• May require a relaxation of the normal Capital Expenditure return on investment rules due to the longer pay back times for these types of projects.</li> </ul>



**THEMATIC AREA 5: NON-LIVING RESOURCES & ENERGY**

**Action Area 5.1: Undertake a comprehensive review of the existing environmental regulatory functions that relate to the offshore petroleum sector with a view to developing a new set of *Offshore Petroleum (Environmental Management) Regulations*.**

**Desired Outcomes:**

- Develop a comprehensive and dedicated environmental management regime for the offshore petroleum sector that responds to the full range of environmental threats.
- Clarification of different agencies' roles and responsibilities.
- Apply 'best in class' international best practice in environmental management.
- Ensure clarity to international oil companies regarding the environmental performance standards operating in Barbados.

**Recommended Actions**

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
5.1.1 Review existing agency regulatory mandates relating to the offshore petroleum sector.	<ul style="list-style-type: none"> <li>• Undertake a comprehensive assessment of all environmental matters to be regulated in respect of offshore petroleum. As a minimum this should include: <ul style="list-style-type: none"> <li>– Accidental and operation emission to water from both production and operation of installations;</li> <li>– Air emissions;</li> <li>– Physical disturbance;</li> <li>– Impacts to bio-diversity;</li> <li>– Waste and hazardous substances</li> </ul> </li> <li>• Identify which specific agencies is responsible for each aspects.</li> <li>• Review existing sector specific legislation to identify existing regulatory measures and gaps in the existing legislation.</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Secretariat</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Fund for Technical Cooperation</li> <li>• IDB</li> </ul>	<ul style="list-style-type: none"> <li>• It is acknowledged that the Offshore Petroleum (Regulations) do address environmental requirements, but only in a general manner and they do not include specific standards or requirements other than those relating to EIAs and EMPs. Greater detail is required around discharges, roles and responsibilities and physical harm (to biodiversity) etc.</li> <li>• The Commonwealth Secretariat has undertaken similar assignments for a number of other Commonwealth SIDS and would be well placed to provide this assistance.</li> <li>• IDB has been providing funding to several countries with regard to the development of their offshore resource sectors.</li> </ul>

	<p>Zone Management planning to ensure the sites remain available for the future and to avoid conflicts with other coastal users.</p> <ul style="list-style-type: none"> <li>• Develop relevant legal and policy framework to ensure that identified sites are protected from future environmental harm and development.</li> </ul>			Favourable sites can be screened based on criteria developed by the WHO and other international agencies for the purpose of selecting the best apparent site.
5.1.2 Draft new regulations under the Offshore Petroleum Act dealing exclusively with environmental management and protection.	<ul style="list-style-type: none"> <li>• Based on the outcome from 5.1.1 above prepare draft Offshore Petroleum (Environmental Management) Regulations dealing with the full range of environmental issues.</li> <li>• Undertake consultation with the petroleum industry, other agencies and stakeholders.</li> <li>• Revise and adopt regulations.</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Secretariat</li> <li>• UNDP</li> </ul>	<ul style="list-style-type: none"> <li>• Commonwealth Fund for Technical Cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• The Commonwealth Secretariat already has a draft template for regulations that has been developed and applied to a number of other SIDS.</li> <li>• This template could also be made available through UNDP is required.</li> </ul>

### Action Area 5.2: Ensure the security of future desalination capacity

#### Desired Outcomes:

- Build resilience and redundancy into the islands fresh water supply.
- To identify the most suitable sites for the future development of additional desalination capacity in Barbados.
- To take steps to protect those sites from possible future development to avoid user conflicts.
- Effective zoning and protection of suitable coastal areas to support desalination.
- To ensure that the source water is protected to ensure security of supply in the future..

#### Recommended Actions

Action	Key implementation steps	Potential partners	Funding Opportunities	Comments, critical conditions, and linkages
5.2.1. Identify and future-proof potential sites for the development of new coastal desalination facilities.	<ul style="list-style-type: none"> <li>• Undertake a review of global standards for operating desalination plants.</li> <li>• Define specific site selection criteria to be applied in Barbados.</li> <li>• Develop guidelines for the selection, monitoring and management of sites for the installation of new desalination plants.</li> <li>• Undertake an assessment of potential sites and identify the most suitable ones.</li> <li>• Include identified sites in future marine spatial planning/ Coastal.</li> </ul>	<ul style="list-style-type: none"> <li>• World Health Organisation</li> <li>• CDB</li> <li>• IDB</li> <li>• WB</li> </ul>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>	<ul style="list-style-type: none"> <li>• It is already assumed that Barbados will require further desalination capacity in the future. However, desalination cannot necessarily be located anywhere along the coast. Considerable care must be exercised in selecting sites for the location of desalination plants, and many different factors must be considered.</li> <li>• The development of a blue economy framework provides an opportunity to consider future desalination needs in the broader context of a multiple use marine planning framework to ensure that this critical need is adequately provided for in the future.</li> <li>• Collection of basic data and evaluation are the essential steps for the identification of sites.</li> </ul>



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Barbados and the  
Eastern Caribbean

## **Barbados Blue Economy Scoping Study: Initial Action Plan**

Prepared for the Ministry of Maritime Affairs and the Blue Economy

Under the UWI-UNDP Blue Economists Programme

July 2020