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Barbados and the
Eastern Caribbean

Barbados Blue Economy Scoping Study

Synthesis Report

July, 2020



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Prepared for the Ministry of Maritime Affairs and the Blue Economy

Under the UWI-UNDP Blue Economists Programme



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1 OVERVIEW

The economy of Barbados is highly dependent on the marine and coastal environment 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 of 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 make up the marine environment.

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.

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. This Scoping Study, being delivered under the joint UWI-UNDP *Think Tank on Public Policy for a Blue Economy*, provides information on what areas of the blue economy Barbados is exploiting, those areas that are less well developed and approaches that could be adopted to achieve more sustainable utilisation of the marine environment. In doing so, the study will provide an analysis of the current situation in Barbados as well as identify some initial actions to allow Barbados to further realise the range of opportunities under the blue economy.

In this regard, it is expected that this scoping study will provide one of several sources of information that can inform the development of the Blue Economy Roadmap being prepared by the Inter-American Development Bank (IADB) on behalf of the Government of Barbados.

1.1 Barbados' Blue Economy at a Glance

The blue economy is not new to Barbados, with its development of fisheries, its reliance on international shipping to support trade, and its tourism industry. Today, tourism is the leading economic activity in Barbados, while fishing is an important sector from a socio-economic perspective. As such, the key economic activity relevant to the blue economy in Barbados at present is tourism, which directly contributes 12.9 percent of GDP and 62.1 percent of the country's exports. This notwithstanding, Barbados, like all other SIDS, relies heavily on international shipping to support trade, with greater than 90% of all imports and exports being transported by sea.

Barbados – Blue Economy Indicators

OCEAN ECONOMY IN CONTEXT	AVAILABLE INFORMATION
Land area (sq. km)	432
Coastline (km)	97
Exclusive Economic Zone (sq. km)	186,898
Shelf Area (sq. km)	342
Inshore Fishing Area (sq. km)	342
Population (2018 values)	286,641
Gross domestic product (2018 values)	US\$5.145 billion
Human development index (HDI)	0.813 - high human development category (Barbados ranked 56 among 189 countries and territories in 2018)
Key Blue Economy Sectors	<ul style="list-style-type: none"> – Marine and coastal tourism – Marine capture fisheries – Ports and shipping – Offshore petroleum exploration – Desalination – Aquaculture
Estimated value of Barbados' blue economy	<ul style="list-style-type: none"> – No overall figures have been estimated – Ex-vessel value of marine capture fish production = US\$7.9 million (2016 figures) – Value added of fisheries = US\$25 million
Marine protected area (percentage of EEZ)	2.2 sq. km - <0.001%
Ocean health index (OHI) ¹	58 (Barbados ranks 187 among 221 countries and territories)
Tropical Coral Reefs (sq. km)	100
Value of reef related tourism	Data not available

¹ The Ocean Health Index is the comprehensive framework used to measure ocean health from global to local scales. <http://www.oceanhealthindex.org/>.

2 IMPLEMENTING THE BLUE ECONOMY

It is important to understand that the development of the blue economy in Barbados sits within the broader national framework for economic development. In the particular case of SIDS, the blue economy, as a macro-economy concept, involves every aspect of national governance, economic development, environmental protection and sustainability. The blue economy is an integration of sustainable development and green growth. It highlights an overall-planning and coordinated development between marine ecosystem and ocean and coastal zone economic system. Furthermore, socio-economic development planning in Barbados has already drawn heavily on the concept of the “Green Economy” and there is growing interest in the development of the “Circular Economy”.

It must be stressed that, particularly in a country the size of Barbados, these different “elements” of the economy cannot be viewed in isolation. Rather, the ‘blue’, ‘green’ and ‘circular’ economies should be seen as a single, interlinked economic system that encompasses the entire island system and its maritime waters. As such, the overarching aim for the Government of Barbados should be to define a holistic approach to the sustainable exploitation of marine resources with consideration of the implications of current activities on the oceans, and the realization of future potential opportunities.

The realisation of such opportunities will require strategies that:

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.

In the context of Barbados, the major existing beneficial uses of the marine environment include:

- Fisheries (commercial, subsistence and recreational);
- Tourism (including cruise ships, recreational yachting and SCUBA diving);
- Shipping and port services; and
- The provision of marine ecological services that support social, environmental and economic benefits.

In terms of new and emerging uses of the ocean, aquaculture, marine renewable energy and “blue” biotechnology have been identified as possible development opportunities that can contribute to the development of the blue economy. However, while potential exists, there is only limited development experience in Barbados. Many of these future opportunities have an essential technological component that will, in some cases, require substantial capital investment.

The UNDP project team recommends that a phased approach be applied to the rolling out of the blue economy as follows:

- 1) **Deepen/upgrade existing mature areas** via the use of technology (tourism, ports and shipping) – product deepening. These could be commenced immediately;

- 2) **Support growth areas** with assistance from development partners (fishing, aquaculture, coastal development) - product widening. These would typically have a short to medium-term development horizon (1-10 years); and
- 3) **Explore new areas** (widening). These would typically have a long-term development horizon (15-20 years).

Underpinning this phased approach should be the development and implementation of a comprehensive and integrated **enabling environment** that can support growth of the blue economy by reducing risks to people and the environment and to those willing to invest private capital in blue economy sectors in Barbados.

If successfully implemented a number of economic development outcomes would be achieved for Barbados:

- 1) Increased investment in existing ocean-based economic sectors and new technologies to realise greater value and efficiency from the existing resource base;
- 2) Increase the number of businesses operating and the number of people employed in the blue economy;
- 3) Utilise rents from existing sectors (e.g tourism, fishing and maritime sectors) to invest in and stimulate development of new economic sectors based on existing marine resources;
- 4) Achieve greater protection for Barbados' ocean space and resources through strengthened coordination across different sectors, application of protective measures and greater use of surveillance and enforcement tools; and
- 5) Generate new research, innovation and knowledge about the country's ocean space and management needs to facilitate more informed decision-making.

3 BLUE ECONOMY OPPORTUNITIES AND INTERVENTIONS

While a number of development opportunities could be pursued within specific marine economic sectors, a more sustainable long-term strategy would be for Barbados to embark on the development of a blue economy development framework that recognises and provides for the broad range of environmental and socio-economic services provided by the marine environment. Throughout the report, a broad range of issues and opportunities are identified as well as a corresponding set of high level recommendations, (summarised below), with the aim of creating both the enabling environment to support implementation of the blue economy in Barbados as a number of development opportunities that could be initiated as a way to catalyse future investment into a broad range of 'blue' sectors.

3.1 Recommendations

Developing the Enabling Environment to Support Blue Growth

- 1) The Government should transition to a single *Blue Economy Advisory Committee* that oversees all future maritime activities and decision-making. Such a committee would be overseen by the MMABE, reporting to the Minister responsible.

Consideration should also be given to whether the MMABE should take on the overall responsibility for the planning and coordination of activities across Barbados entire maritime space.

- 2) The Government should consider the development of a single, overarching National Ocean (Blue Economy) Policy setting out the strategic direction and objectives for development of Barbados' maritime waters.

Such a policy should not be seen as a replacement for existing sector-specific policies, which are still required. Rather, it should be an overarching framework, providing the broad policy direction under which all future sector-specific policies and planning should be developed.

- 3) A more comprehensive and integrated environmental assessment and management (legal) framework is required that responds to the broad range of activities that are, or are likely to be, undertaken in the EEZ and the continental shelf.

In developing such a regime, the following recommendations should be considered:

- prepare a new legal instrument that deals primarily with protection, planning and management of the marine environment (to include Barbados' entire maritime waters);
- develop new regulations under the *Petroleum Act*; and
- introduce new legislation controlling access and benefit sharing (ABS) from the use of marine genetic resources.

In addition, a number of existing legal instruments need to be updated.

- 4) It is strongly recommended that Barbados embarks on the development of a comprehensive EEZ-wide MSP framework.

- 5) A comprehensive approach is needed to address the full range of threats to the marine environment, in particular coral reefs. Such an approach must ensure that any future national blue economy development framework addresses the full range of threats to the marine environment including land-based sources of pollution, unsustainable fishing practices and physical damage to marine habitats. Only when these issues are adequately managed will the blue economy be able to thrive in Barbados.

Furthermore, future policy and planning decisions need to avoid impacts accumulating through multiple and potentially incompatible activities taking place in a particular space, thereby preventing both land-based and marine activities from damaging the functioning of the marine ecosystem and the benefits it provides.

- 6) The expansion of the existing marine reserves to include a system of representative habitat types should be seen as a priority.

Not only will this provide direct benefits in terms of improvements to fish stocks, but it will also help to build the resilience of those natural systems to better protect them against the inevitable impacts of climate change. They will also contribute to the natural capital which underpins the tourism sector.

Further additional areas of Barbados' maritime space should also be assessed for greater protection.

- 7) The increasing risks associated with climate change must be recognised and managed through the incorporation of appropriate adaptation and resilience building strategies into sustainable development, conservation and governance actions if Barbados is to realise its vision for a blue economy.
- 8) Opportunities exist to increase the flows of revenue received from the various maritime activities in Barbados.

To this end, it is recommended that the Government 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.

As an initial step in this regard, the Government should review and revise the existing schedule of visitor fees charged in respect of the Barbados Marine Reserve.

- 9) As one of its first tasks, the *Blue Economy Advisory Committee* (recommendation (1) above) should establish a task force (with co-opted members from the private sector and academia) to engage with the private sector and oversee the issues associated with MSME growth and development in the blue economy — *inter alia* scuba, coastal cruisers, diving, fishing, cottage industries associated with blue economy resources etc.
- 10) If Barbados is to progress the development of the blue economy, better data on progress with these activities is needed to measure and monitor the progress of activities in the blue economy.

This should include a focus not only on the value of economic sectors but a broader approach to valuing the natural capital that supports these sectors.

- 11) The potential to develop a centralised multi-user platform through which marine data can be stored, accessed and used by multiple agencies should be considered by the IADB as one of the critical elements of the Blue Economy Roadmap, given the critical need and multiple applications of such a platform (including EEZ-wide MSP).
- 12) The Government should pursue a data discovery process to identify and secure all offshore data that relates to its maritime waters. Once obtained, it will then need to determine what skills, equipment and other resources will be required to process and interpret such data.
- 13) A more coordinated focus between the existing research and educational facilities is essential to support the development of new research clusters aimed at supporting and furthering key marine sectors.

Identifying and defining ongoing strategic marine research and information needs, in an inclusive and adaptive manner, together with the appropriate funding resources and mechanisms, is essential for achieving economic development through a blue economy framework.

This requires the development and implementation of a clear strategy relating to marine scientific research and data.

- 14) Emphasis should be placed on sensitising the population on coastal environmental issues, introducing relevant subjects through the school curriculum by involving the Ministry of Education, as well as capacity building especially for office bearers for effective implementation of the policies and activities.
- 15) There is a need for Barbados to enhance its capability to identify threats to its maritime space in a timely manner by sharing and integrating intelligence, surveillance, and navigation systems into a common operating picture.

Applying the blue economy in Barbados

- 1) Opportunities should be identified to develop partnerships with local tourism operators, fisherfolk and Government agencies to develop locally owned and operated marine management areas.

Such projects could be packaged as Corporate Sustainability products for the companies and could also provide a vehicle for tourism education and awareness campaigns.

- 2) Ensure that the development of the cruise tourism sector considers not only the economic benefits but also long-term impacts and socio-economic and environmental risks to Barbados which are in line with the Barbados Port Inc's master plan and vision of becoming the most innovative and green maritime hub by 2030.

- 3) The Government should engage with the yachting sector to assess the economic potential and feasibility of expanding this sector through the provision of additional marine facilities and extending the existing supply chain.
- 4) There is a need to better understand the likely trajectory for key marine species (in terms of diversity, distribution and abundance) under different future climate change scenarios supporting the ability to better plan for future fisheries development.
- 5) A process to better understand and value the total contribution of the fisheries sector, as a critical component of Barbados' blue economy, is required. Such an analysis should not only assess the direct upstream and downstream linkages of capture fisheries, but also the wider social and cultural benefits.

As a critical first step, the Government should implement a robust data recording and reporting system to ensure that catch/landing data are treated in a consistent manner thereby ensuring that the Government of Barbados always works with a single consistent data set for fisheries landings.

- 6) Given that the nearshore reef fishery represents a major contribution to local livelihoods and food security, opportunities to implement fishery management measures, to improve the health of these stocks, should be explored. The implementation of Fisheries Management Plans (FMPs) is recommended; these are detailed management plans that align fishing effort and specific regulations with (1) scientific guidance regarding the health of the stock and (2) economic objectives.
- 7) Given the current uncertainty, a strategy to improve selective targeting of high value tunas should be pursued as a way to increase harvests of these species. Such a strategy would be consistent with recommendations made by the FAO.
- 8) The IADB project should consider in more detail how the existing fishery can be diversified through the diversification of the existing fishery resource base to sustainably exploit deeper offshore species and nearshore species that are currently not fished.
- 9) There is a need 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.

This could be achieved through further expansion of existing initiatives such as the MMABE / Embassy of Argentina / FAO / BGI fish waste silage project and the UNDP Accelerator Lab biofuel project, or could require additional projects that could be evaluated further through the IADB project.

- 10) There is a need to 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.
- 11) In order to fully understand, mitigate and manage operational risks to the port of Bridgetown it is recommended that Barbados Port Inc. undertake a comprehensive risk assessment of the existing and future planned port facilities.

- 12) 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.
- 13) Although the *Offshore Petroleum Regulations* contain provisions relating to environmental procedures, it is recommended that the Government should consider development of a comprehensive and dedicated environmental management regime for the offshore petroleum sector. Such a regime (to be developed under the *Offshore Petroleum Act*) should address, as a minimum *inter alia*:
 - appropriate discharge quality standards in accordance with international best practice;
 - appropriate atmospheric emissions standards including with regard to venting and flaring of associated gas;
 - environmental management planning requirements including with respect to waste management;
 - requirements for offshore installation (Tier 1) marine oil spill contingency plans;
 - selection, use and management of hazardous substances;
 - requirements relating to conservation and protection of marine biodiversity
 - Functions, powers and duties of different regulatory agencies vis-à-vis management of the health, safety and environmental aspects of offshore petroleum activities.
- 14) In the context of a broader blue economy development framework, the provision of coastal areas that are protected and able to support the installation and operation of future desalination facilities, particularly with respect to protection of the source water catchment, requires particular attention.
- 15) In order to develop new and emerging areas of the blue economy, there is a need for government and non-government stakeholders to determine the areas of priority interest on which they wish to focus. This could then be followed by undertaking the necessary feasibility studies and possibly pilot projects to better assess the feasibility of specific development opportunities.

The UNDP project team therefore recommends that these, and other potential opportunities, be considered more thoroughly during the development of the IADB-supported Blue Economy Strategic Roadmap.

3.2 Initial Action Plan

More specifically, the analysis included in this report identifies a total of **eight (8) critical enablers** (encompassing a total of 21 enabling policy interventions) and **thirteen (13) development opportunities** that could be pursued by the Government of Barbados as an initial step to implementing a blue economy-based development strategy. While some of these opportunities are sector-specific, others create synergies and linkages across different maritime functions that operate within Barbados.

These opportunities and policy interventions have been developed further into an **Initial Action Plan**, which provides a preliminary framework to allow Barbados to further identify a range of opportunities under the blue economy.

It should be recognised that the action plan is by no means exhaustive but rather captures the key issues and opportunities that were identified during this assignment, thereby highlighting a number of specific opportunities that the Government of Barbados could pursue in its efforts to develop the blue economy, these efforts cannot occur in isolation.

The UNDP project team notes that Barbados is already undertaking (or planning to undertake) a broad range of activities that naturally fall under the umbrella of the blue economy. Through this Scoping Study and the Initial Action Plan, UNDP has sought to recognise these “complementary” activities and to propose interventions that will provide specific support for the development of key economic sectors in Barbados. If undertaken in conjunction with the other initiatives being pursued by the Government of Barbados, the Action Plan can enable Barbados to develop its ocean-based economic sectors in a more integrated manner thereby contributing to inclusive, environmentally sustainable, economic growth.

THEMATIC AREA	ACTION AREAS
1. Enabling Environment	Action Areas:
	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	Action Areas:
	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	Action Areas:
	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	Action Areas:
	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	Action Areas:
	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



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