

INTEGRATED COASTAL ZONE MANAGEMENT: THE BARBADOS POLICY FRAMEWORK (2020 to 2030)

ICZM Plan Vol.1

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INDEX

FOREWORD	A
PART A: BACKGROUND.....	1
A1) Introduction	1
A2) Purpose of this ICZM Policy Framework	2
A3) Geographic Scope	4
A4) Vision and Principles	8
A4.1) Vision.....	8
A4.2) Guiding Principles	8
PART B: ICZM CHALLENGES AND OPPORTUNITIES	11
B1) Combatting Climate and Disaster Risks	11
B2) Legal Instruments.....	12
B3) Plans and Policies.....	14
B4) National Macro-economic Situation	14
B5) Community and Civil Society.....	14
PART C: THE POLICY FRAMEWORK.....	16
C1) Creating a Risk Resilient ICZM Approach	16
C2) Policy Outcomes and Goals.....	17
PART D: COORDINATION AND IMPLEMENTATION	24
CONCLUSION	26
APPENDIX 1: INTERNATIONAL CONVENTIONS AND PROTOCOLS RELATING TO ICZM DELIVERY IN BARBADOS.....	27
APPENDIX 2: PLANS AND POLICIES OF RELEVANCE TO ICZM DELIVERY IN BARBADOS.....	28
APPENDIX 3: ORGANISATIONS INVOLVED IN ICZM DELIVERY IN BARBADOS	30
APPENDIX 4: PERFORMANCE MANAGEMENT AND EVALUATION INDICATORS	35
A4.1) Overview	35
A4.2) Strategic Performance Indicator Definitions	36
A4.3) Performance Indicators for the Policy Framework (2020-2030)	38

APPENDIX 5: ICZM IN BARBADOS – A WAY FORWARD BASED ON LESSONS LEARNED	56
A5.1) ICZM in Barbados 1983 to 2014.....	56
A5.2) ICZM in Barbados 2014 to 2020.....	57
A5.3) ICZM Beyond 2020	57
A5.4) The Way Forward.....	58
A5.4.1) Phasing Interventions	58
A5.5) Chronology of Donor Interventions and Priority Tasks	60

ACRONYMS

BM	Beach Management
BMS	Barbados Meteorological Service
BSS	Barbados Statistical Service
BTA	Barbados Tourism Authority
BTI	Barbados Tourism Investment Inc.
CCA	Climate Change Adaptation
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Area
CZMU	Coastal Zone Management Unit
DEM	Department of Emergency Management
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EbA R	Ecosystem-based Adaptation
EBM	Ecosystem Based Management
EPD	Environmental Protection Department
ESIA	Environmental and Social Impact Assessment
GoB	Government of Barbados
IADB	Inter-American Development Bank
ICZM	Integrated Coastal Zone Management
IPCC	Intergovernmental Panel on Climate Change
MMABE	Ministry of Maritime Affairs and the Blue Economy
NCC	National Conservation Commission
NCCPF	National Climate Change Policy Framework
NSP	Barbados National Strategic Plan
PDP	Physical Development Plan
R	Research
SAP	Strategic Action Plan
SAR	Convention on Maritime Search and Rescue
SIDS	Small Island Developing States
SLR	Sea Level Rise



SOLAS	Safety of Life at Sea
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea



FOREWORD

Our coast has immense value and is integral to the lives of Barbadians. All of its 97 kilometres (60 miles) are beautiful, diverse and productive. Barbados' coast has a special national heritage that comprises a range of different natural features which include cliffs, mangrove swamps, tide pools, beaches and low lying coral rock platforms. However, few people appreciate the incredible opportunities that it offers to improve the well-being of current and future generations. Our coast provides:

- **Goods and services** essential to meeting basic needs and improving the quality of life of all Barbadians. It provides food, a place to live, work and relax, and a gateway to the world via the Bridgetown Port.
- **Economic opportunities** for improving Barbados' development prospects, including tourism, fishing and a range of recreational business-related opportunities.

Maintaining the diversity, health and productivity of our coast is central to realising and sustaining these economic and social benefits. Doing so requires an understanding of the wider coastal system. Our coast is:

- **A complex natural system.** Many interactions take place there. It is the meeting place of the land and sea – where freshwater and seawater mix; the venue for high energy and change - where tides, currents, winds and waves shape and reshape the shoreline and the backdrop for rich landforms and resources (living and non-living) such as coral reefs, beaches, sand dunes, mangroves, sea grasses, wetlands, rocky headlands and rivers. The coast also nurtures diverse life-forms including turtles, marine mammals, fish, seabirds and a range of coastal plants, all of which make up varied ecosystems. It is therefore rich in natural resources.
- **A natural heritage, which must be carefully managed.** It is a public asset that supports a variety of human activities and is subject to intense and growing demands. However, coastal resources are finite, and vulnerable to over-use, degradation and importantly, climate change. Ongoing coastal erosion and sea level rise all make implementation and preservation of lateral beach access challenging. In fact, the coast can also be an unforgiving place, where inappropriate planning decisions can expose human life and property to high risks. In spite of this, it nonetheless offers enormous opportunities for future development in Barbados.

According to historical records, global average sea surface temperature has increased by 1 degree Celsius since the 1850s as indicated by the Intergovernmental Panel on Climate Change (IPCC). Small Island Developing States (SIDS) such as Barbados are therefore likely to be impacted by factors including coastal erosion, flooding, tidal variations and tropical storms/hurricanes that are exacerbated by climate change. The growing population and economic development will simply create

more pressure on land use and the natural resources along the coastal zones. We therefore need to protect the natural assets for the benefit of our coastal communities and in order to achieve economic prosperity in the future. Coastal management in Barbados has undergone a significant evolution over the past 35 years placing the island at the forefront of ICZM related best practice across the Caribbean, and contributing to a thriving coastal tourism industry that continues to remain at the core of the country's economy. Despite this, a more modern coastal management delivery model is now required if Barbadians are to realise and sustain goods and services and development opportunities that the coast provides. The Government of Barbados (GoB) is committed to adopting a new strategy in order to better implement a climate and disaster risk resilient related ICZM approach which places an improved emphasis on adaptation strategies that provides the optimum response to factors that are exacerbated by climate change. This new delivery model seeks to introduce improved coastal risk understanding and procedures into infrastructure and non-structural adaptation measures that are designed to increase resilience to climate induced coastal hazards whilst embracing ICZM principles and lessons from international best practice.

Implementing risk resilient ICZM is not a simple task, but given the potential, it is a task well worth undertaking. To achieve this, and through implementation of this Plan, there is a concerted effort, through public organisations in tandem with civil society, to promote the following:

- **A more co-ordinated and integrated coastal management approach.** The various human uses of coastal resources are inter-dependent. These uses affect each other and the overall benefits that can be gained from the coast. Co-ordinated and integrated management is needed to ensure that the positive benefits of different human uses are realised in the interests of all Barbadians. Our coast should therefore be managed in a holistic way as a **system**, not as a range of distinct sectors.
- **More efficient, effective and co-operative governance**, based on partnerships between Government, civil society and the private sector. Current legal and institutional arrangements for coastal management are complicated and fragmented. Risk resilient ICZM capacity needs to be built to achieve the development potential of the coast. Proactive guidance is needed to promote a visionary, practical and focused management process that fosters self-regulation and shared responsibility for our special coastal heritage.

The above shall facilitate implementation of this updated ten-year ICZM Plan (2020 - 2030), which represents a mandatory requirement under the Coastal Zone Management Act (currently under revision). There are two (2) Volumes to the Plan:

- Volume 1: Integrated Coastal Zone Management – The Barbados Policy Framework (2020 to 2030);
- Volume 2: Integrated Coastal Zone Management – The Barbados ICZM Plan (2020 to 2030).

It should be emphasised that these two Volumes have been developed in consultation with all stakeholders to enhance understanding about the risks associated with climate change and development pressures around the coastal zones in Barbados. The Plan takes into consideration existing studies that focus on coastal hazards relating to overtopping, sea level rise, cliff stability and flooding along the Barbadian shoreline. Presently, the Ministry of Maritime Affairs and the Blue Economy (MMABE), through the Coastal Zone Management Unit (CZMU) intervenes in association with other partners during extreme events and executes various coastal management efforts to combat such hazards.

This updated Plan provides the guidance that was previously lacking with regards to appropriate long-term ecosystem-based interventions that may be combined with the existing strategies to deal effectively with known coastal hazards. Such measures will help to build coastal resilience and capacity within developmental planning decision making within the newly defined coastal zone management area (CZMA) whilst in addition seeking to reduce future coastal risks and encouraging sustainable coastal economic development for communities by supporting the promotion of healthy coastal ecosystems.

The Plan is therefore an important milestone for Barbados. It will provide not only a framework for all coastal management initiatives but also an opportunity for stakeholders to become more aware of the seriousness of climate change and the developments affecting our nation. The clock is ticking and the race has begun. As one of the world's smallest nations, and through implementation of this Plan, we are tackling climate change and all of its issues head on.



PART A: BACKGROUND

A1) Introduction

The coastal zone of Barbados is characterised by a number of coastal resources, seascapes and landscapes which are all intrinsically linked to our culture, heritage, history, recreational enjoyment, and economic prosperity. Living near well-managed coastal ecosystems plays an important role in the sustainability of our communities and towards an enhanced quality of life.

The coast of Barbados represents a naturally variable and dynamic interface between the land and the sea. Generally, it has a remarkable diversity that is well differentiated by the two sides of the island (the Atlantic Ocean and the Caribbean Sea) which experience quite separate levels of shelter from wind and waves. Landscapes and seascapes on these two coasts are, as a result, strongly defined by their differing characteristics, such as geological formations and human settlement patterns that have developed during the last century.

The north, east and southeast coasts (Atlantic Ocean) is more “exposed”. It remains essentially unaltered by man-made infrastructure and is subject to less man-induced development pressures. Natural processes (erosion, sedimentation, cliff collapse and landslides) are more noticeable as a consequence of the level of exposure experienced. It possesses outstanding aesthetic values and provides unrivalled locations (e.g.: the “Soup Bowl” for surfing) with the Scotland District (within the defined National Park) falling within this area which possesses a characteristic rocky cliff landscape that includes a series of separate pocket beaches.

The south and west coasts of Barbados (Caribbean Sea) possess a different vista as a consequence of being exposed to a lower energy environment. This coast, safe-guarded from larger Atlantic oceanic waves and stronger winds, often presents waters that are calmer, fine sand beaches, and fringing reefs that are arranged within smaller protected bays. It supports a range of uses, including commerce and port operations, housing development as well as being a critical tourism asset.

Anthropogenic pressure is more visible along the north-west, west, south-west and south coast where the urban corridor now extends (from St Lucy in the north and along the west of the island, to St Philip in the south). As a consequence of this rapid developmental expansion (experienced during the last few decades), deleterious socio-environmental issues including the loss of wetlands, natural woodland or the degradation of water quality impacting on coral reef ecosystems are being more frequently experienced.

In 1998, the GoB produced the *“Integrated Coastal Management: The Barbados Policy Framework”* to help manage these issues and to help support and implement future sustainable development of its coastal resources. It is now over 20 years old and now in need of update. To this end, an updated ICZM Policy Framework is being developed (this document) to set a new direction that embraces Disaster Risk Management (DRM) and Climate Change Adaptation (CCA) within the current CZMU mandate¹. To this end, it is proposed that a new term is adopted entitled *Risk Resilient ICZM*. For the purpose of this Policy, this term is defined in Box 1:

Box 1: Risk Resilient ICZM
“To implement coastal infrastructure and develop adaptation measures that improve resilience to coastal hazards, including climate change, by adhering to formal risk management procedures that are designed to future proof decision making in Barbados using the principles and practices of ICZM”.

This updated ICZM Policy now inculcates the new concepts of DRM and CCA in a proactive manner whilst continuing to consider sustainable development as a long-term commitment that combines environmental protection, social equity and economic efficiency.



Boulder located on Bathsheba beach (Atlantic coast of Barbados).

A2) Purpose of this ICZM Policy Framework

The ingredients of this revised ICZM Policy Framework are founded on new information and understanding of the dynamic nature of the coastal zone and importantly, contemporary developmental pressures that are occurring along the Barbados coast. It is also structured to be cognisant of the potential conflicting demands that are facing different sectors both now and in the future.

It signals the start of a new way of thinking and is therefore aimed at promoting the effective stewardship of Barbados’ coastal resources in a new risk resilient manner. It represents an important tool to help the GoB to deliver (through the Coastal Zone Management Unit (CZMU) and partners as

¹ to better incorporate current priorities that have been identified from new studies recently conducted under the Coastal Risk Management Programme (CRMP) program (2018).

identified within the revised Coastal Zone Management Bill Cap. 394 (2020) on its revised mandate² and to ensure that all supporting Ministries, Departments and Agencies take appropriate environmental, economic, and social considerations into account within their future decision making (see Appendix 3 for list of primary and secondary stakeholders).

The Policy Framework helps to define a risk resilient pathway for integrated planning and management of the Coastal Zone Management Area (CZMA – see Figure A1) and associated activities occurring within it for the period from 2020 to 2030. This shall guide the planning and development of coastal activities in a rational and sustainable manner³ through the implementation of supporting guidelines, principles, and tools. It also helps to create a “road map” to not only deliver sustainable socio-economic development in the future, but also to lay the foundations for improved resilience of Barbados’ coastal resources and Barbadians alike.



Harrison Point Lighthouse located at the north of the island, was built in 1925.

This ICZM Policy Framework represents a companion piece to the National Strategic Plan (NSP 2005) which sets out a vision for the island from 2005 to 2025 to help Barbados towards “*becoming a fully developed society that is prosperous, socially just and globally competitive by the end of the first quarter of this century [2025]*”. The sentiments presented also mirror those drawn from the updated Physical Development Plan (PDP 2017) for Barbados. Its scope also aligns well with the broad objectives of the Barbados’ Growth and Development Strategy (BGDS)⁴ as well as supporting CZMU to better execute its’ responsibility to provide the nation with an effective approach towards delivering Risk Resilient ICZM into the long term (see Appendix 2 for complimentary plans and policies).

Performance management and evaluation indicators are presented in Appendix 4 to demonstrate how this Policy Framework intends to be implemented between 2020 and 2030.

² “To develop and implement a National Risk Resilient ICZM Policy and Planning Framework and, through acting as key advisors to Government, support the provision and coordination of quality, timely and relevant information to those who require it”. (defined by McCue (2018) “Strategic Action Plan for CZMU 2018-2030”)

³ i.e.: sustainable development to ensure that coastal vulnerabilities, risks and hazards are all considered and embraced into planning policy and decision making.

⁴ “reduce dependence on fossil-fuels, ensure environmental sustainability and combat climate change; build human and social capital; infrastructure upgrade and modernization; and, ensure more modern and efficient public and private sector institutions”.

A3) Geographic Scope

The principle of Island System Management (ISM), which recognizes the need for the collective and systematic management of terrestrial and coastal resources, is central to the delivery of this ICZM Policy Framework to ensure there is a formal policy connection created between land and sea. This is particularly important as the unique coastal characteristics are strongly influenced through this blend of coastal and landform dynamics. When considering how terrestrial activities are influenced by coastal conditions or how coastal resources (and hence coastal biodiversity) are impacted upon by terrestrial activities, there is a need for a seamless consideration of both terrestrial and coastal “systems” in order to support and promote a sustainable national economy and the well-being of the wide society.

To this end, the geographical scope of this Policy Framework covers the defined limits of the CZMA as identified in Figure A1. The CZMA is subsequently zoned to differentiate between a “Core Area” (subject to the direct impact of identified coastal hazards); and a “Zone of Influence” (Zoi) that is only indirectly exposed to coastal hazards and associated impacts (see Figure A2).

- a) The Core Area is where coastal hazards⁵ and economic activities can directly impact the coastal resources.
- b) The Zoi represents the surrounding space to the core area (both inland and offshore), where activities⁶ or events⁷ could indirectly affect the coastal resources identified within the Core Area.

Within both sub-divisions, the roles and functions of the CZMU, as well as the coordination mechanism and procedures with other agencies, are clearly distinguished (see Appendix 3).

The Core Area is divided into Sub-Areas that reflect specific Barbadian coast characteristics and risk exposure variances. Based on an improved understanding of coastal hazards, risks, vulnerabilities and exposures, a total of eight Sub-Areas are defined, five of them are located in the Atlantic coast (Sub-Areas 1, 2, 3, 4 and 5) and the other three are located in the Caribbean coast (Sub-Areas 6, 7 and 8)⁸.

Sub-Area 1 – South Point to Kitridge Point: This covers the south-east coast and is an area of fairly barren cliff top. There are a number of older settlements increasingly being overtaken by residential sub-divisions most of which have low levels of occupancy. This is an extensive and mostly undeveloped urban land reserve and an important recreation area. The nearshore environment is dominated by the presence of Cobblers Reef.

Sub-Area 2 – Kitridge Point to Conset Point: The land use in this Sub-Area is characterised by small scale agricultural holdings and the settlements of Sealy Hill, Whitehaven and Bayfield. The nearshore environment is dominated by an extensive area of limestone pavement colonised by gorgonians

Sub-Area 3 – Conset Point to The Choyce: This Sub-Area covers most of the coastline of the proposed National Park (GOB, 1998a). There is more topographical variety when compared to the other Sub-Areas. It consists of sloping areas between the main escarpment and the coast and is quite heavily eroded. There is also a less homogeneous pattern of land use when compared to other parts of the

⁵ Coastal hazards include storm surge, coastal erosion, tsunami, cliff collapse, climate change.

⁶ Activities may include development of offshore energy fields, large tourism developments inland etc.

⁷ Events may include oil spills, flash flooding, etc.)

⁸ “Sub-Areas” remain unaltered as per the original CZM Plan (1998/9) based on an improved understanding of Legal and administrative framework; physical and human characteristics.

Plan area. The seabed of the nearshore environment is dominated by predominantly sandy sediment eroded from the Scotland District.

Sub-Area 4 – The Choyce to North Point: North Point lies at the boundary between the Caribbean and Atlantic coasts of Barbados on the northernmost point of the island. This coastline is mostly very exposed with a fairly barren cliff-top landscape. Apart from the main settlement of Rockfield there is limited built development in this area. Certain Sub-Areas, such as River Bay and Pico Teneriffe are popular for recreation.

Sub-Area 5 – North Point to Maycock’s Bay: This area has a similar character to Sub-Area 1 i.e.: cliff top, though it does not possess as many partly occupied sub-divisions. The main features of the nearshore environment are areas of bank reef, similar to those found along the more southerly sections of this coast, with hard corals (less gorgonian platforms) being visually dominant.

Sub-Area 6 – Maycock’s Bay to Batts Rock: This Sub-Area extends along the leeward west coast of the island. Land use immediately adjacent to the coast is principally focused on tourism and residential development incorporating the regional centres of Speightstown and Holetown.

Sub-Area 7 – Batts Rock to Needham’s Point: This sector of the coastline is predominantly south-west facing. Land use is dominated by the national centre of Bridgetown and the major coastal feature is the sheltered area of Carlisle Bay whose southern boundary is formed by Needham’s Point. This Sub-Areas supports the highest population densities on the island.

Sub-Area 8 – Needham’s Point to South Point: This Sub-Area extends along the south coast of the island and includes the broad sweep of Oistins Bay. It is principally a residential area though with a developing tourism focus. The regional centre of Oistins is in the eastern part of this Sub-Area and is an important focus for fisheries related activities on the island.

DELIMITATION OF THE COASTAL MANAGEMENT AREA



Figure A1: Updated Coastal Zone Management Area and Sub-Areas of Barbados.

DELIMITATION OF THE COASTAL MANAGEMENT AREA AND ZONE OF INFLUENCE

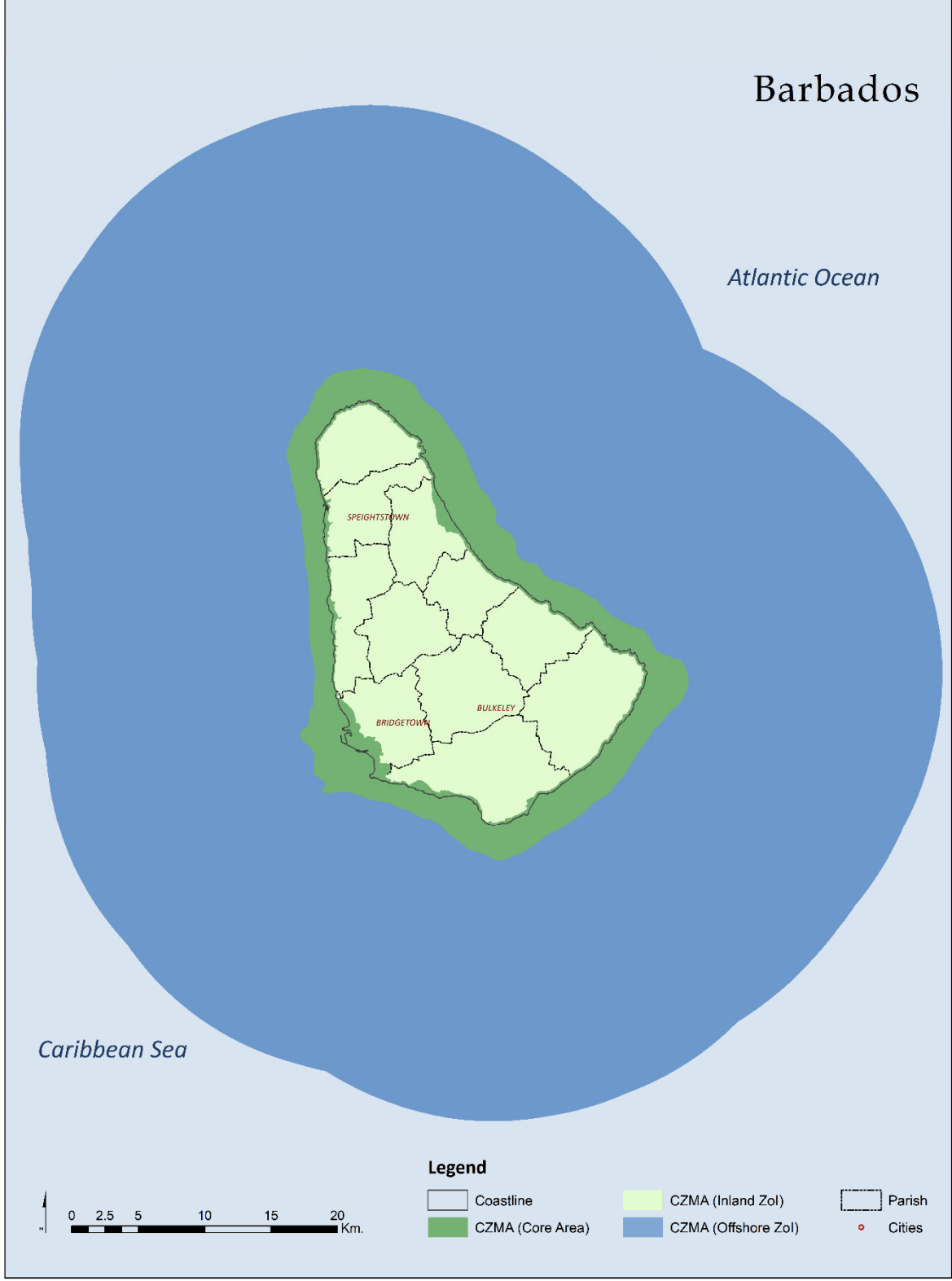


Figure A2: Updated Coastal Zone Management Area (CZMA) and Zone of Influence (Zoi) inland and offshore.

A4) Vision and Principles

A4.1) Vision

The ICZM Policy Vision (as defined in 1998) has been edited slightly to expand the vision to embrace a Risk Resilient approach to ICZM.

“a coast to be proud of, which is valued, appreciated and safeguarded as a place to live, work, use and relax; a place where economic activity and the use of its resources are sustainably utilised and managed, is resilient to climate change and other hazards, and where the natural environment is protected and enhanced to keep its essential and unique place in the Barbadian heritage and economy.”

By 2030, Barbados will be realising the importance of having a CZMA, understanding the economic value that it provides, the natural capital it offers and its role in supporting a significant proportion of its economy through encouraging healthy traditional and emerging sectors. The consequences from both unplanned development, inappropriate human activity and climate change will all be managed and enforced to ensure effective guidelines, tools and operating procedures consider and mainstream disaster and climate resilience factors. Sustainable tourism will also be thriving, with the industry paying due cognisance to a full understanding of the carrying capacity of tourist areas.

The CZMA will be managed in a way that absorbs the consequences of climate related impacts leading to more resilient coastal communities and infrastructure that help sustain livelihood and business security. Land and water management will be taking place in a way that ensures that impacts on the coastal environment are minimised, particularly in relation to land-based pollution.

A4.2) Guiding Principles

The following nine (9) principles are reflective of international best practice in ICZM and are provided to support the delivery of this ICZM Policy Framework. They are to be used in making decisions and actions affecting access to and the use of the CZMA.



Calm water at Heywoods beach, characteristic ocean condition of the Caribbean seascapes in Barbados.

Key Principle 1: Sustainable Development

Sustainable development principles rest at the core of this Policy. It recognizes the need for integration of social, economic and risk resilient aspects of decision making, and that any current and future coastal resource development must be carefully undertaken without compromising the ability of future generations to meet their needs. In addition, it is acknowledged that human development in harmony with the coastal environment is fundamental to the achievement of sustainable development, so that individuals and societies are empowered to achieve positive social and environmental outcomes. The value of coastal resources must also be recognized and opportunities for their economic development optimized to meet society's needs and promote the wellbeing of Barbadian coastal communities.

Key Principle 2: Ecosystem Based Management

Ecosystem Based Management (EBM) is a resource planning and management approach that integrates the connections between land, air and water and all living things, including people, their activities and institutions. Stemming from the UN Convention on Biological Diversity (CBD), EBM is the main tool to help meet and balance the objectives of conservation, sustainable use and equitable sharing of the benefits arising from the use of common resources. There is a need to move towards an integrated approach that embraces Risk Resilient ICZM with EBM. Where possible, development should use ecosystem based solutions as part of the overall approach, particularly in coastal areas. This approach will be participatory, accountable, transparent, equitable, and inclusive, in order to be responsive to present and future human uses and needs, including the needs of minorities and the most vulnerable groups in society.

Key Principle 3: Use of sound science and best practice

Risk Resilient ICZM decisions and planned interventions should be based as far as possible on the best available information on the natural, social, and economic processes that affect coastal resources. Decision makers should be able to obtain and understand high quality science, data and best practice to facilitate sustainable use of coastal resources. This enables a risk-based approach that allows consideration of uncertainty in decision-making.

Key Principle 4: Public and Private Participation

Full awareness and participation of the general public, the private sector and NGOs contribute to credible, accepted rules that ensure empowerment and accountability. All Barbadian stakeholders should be fully engaged and empowered to participate in decision making associated with this Policy. Partnerships between government, the private sector and civil society will be built in order to ensure co-responsibility for ICZM and to empower stakeholders to participate effectively. This shall help to support the fair and equitable sharing of the benefits arising from the use of common coastal resources, and the responsibilities for their continued health and productivity, among all Barbadian citizens.

Key Principle 5: Islands Systems Management

Island Systems Management (ISM) is a multidisciplinary, integrated approach using adaptive management to address conflict in resource use and provide necessary policy orientation to control the impacts of human intervention. ISM recognizes the particular characteristics of islands and the need to take a system view of the tightly coupled socio-ecological systems across land and sea. The long-term development objectives will be considered in all decision making. The effectiveness of ISM depends on the institutional and legal framework that coordinates the initiatives of all sectors, both public and private, to ensure the achievement of common goals.

Key Principle 6: Access and benefit sharing

The benefits arising from the use of coastal resources, and the responsibilities for their continued health and productivity, should be shared in a fair and equitable way among all citizens. Access to common ocean resources for private profit should be priced to give a fair and equitable rate of return to the community. Charges for access to coastal resources should reflect the community interest and short- and long-term economic, environmental, social, and cultural costs and benefits. Barbados should govern its coastal resource use in a manner that aims at sharing the benefits arising from the utilization of coastal resources (including genetic resources) in a fair and equitable way, including by appropriate access to resources and by appropriate transfer of relevant technologies.

Key Principle 7: Good Governance

Good governance requires the exercising of prudence and responsibility by public bodies and achieving management that is proportionate to the decision under consideration, consistent with similar decision making and allows for the decision maker to be accountable for their actions. Governance needs to be adaptive in order to deal with complexity and uncertainty associated with rapid environmental and social change. This requires a reflexive approach and continual improvement by learning from experience, based on collaborative and participatory processes. Adaptive capacity should be supported to enable flexibility and to remain resilient over time.

Key Principle 8: Environmental Liability

Those responsible for causing, or with potential to cause, marine pollution or environmental damage should bear the costs of managing their activities to prevent such pollution or damage, of carrying out the measures decided by public authorities to ensure that the environment is maintained in an acceptable state, and of meeting any sanctions put in place as a consequence of their actions, including environmental restoration (through bonds or similar). Costs should be proportionate to the level of risk of harm or damage done. To ensure that this principle is effectively implemented, it is important that those who could be liable fully understand their obligations and responsibilities and are educated and empowered to act responsibly.

Key Principle 9: Gender Equality and Social Inclusion

Gender equality and social inclusion (GESI) are seen as not only a fundamental aspect of human rights and social justice, but also a precondition to improve the development process by putting social concerns at the forefront of interventions. Social exclusion is defined by the Department of Economic and Social Affairs of the United Nations as the *"involuntary exclusion of individuals and groups from society's political, economic and societal processes, which prevents their full participation in the society in which they live"*. It does therefore make full sense to combine both GE and SI into a so-called "GESI" approach. This shall be promoted to ensure equal ease of access to resources and opportunities. Economic participation and involvement in decision-making will be open to all regardless of gender and including those from disadvantaged or marginalized groups in Barbados. Consultation and participation processes must include considerations of the views of all relevant groups.

PART B: ICZM CHALLENGES AND OPPORTUNITIES

B1) Combatting Climate and Disaster Risks

GoB are involved in a number of national and regional projects that address CCA (such as the Physical Development Plan and the Tourism Master Plan), though it remains unclear to what extent these have become integrated into Government policy, including minimal (if any) any reference at all to the original “Integrated Coastal Management – The Barbados Policy Framework (1998)”. An overarching goal of the current Barbados Sustainable Development Policy (BSDP) Policy is “to ensure the optimization of the quality of life for every person by ensuring that economic growth and development does not occur to the detriment of our ecological capital” It is recommended that Section 22 of the BDSP Action Plan (which covers coastal preservation) is revised to better make mention of DRM and/or CCA with the support of the CZMU towards the promotion of the island's coastal resources.

Latest census information declares that Barbados has a population of approximately 284,215 (WDI, 2016). It is ranked the 16th most densely populated country in the world, with a population density averaging 662.8 persons/km² and a population growth rate of 0.3 %, at 2016. The 100-year coastal storm surge induced flood model predicts that 6,000 residences along the south and west coasts and 70% of west coast hotels would be affected by the event⁹. In addition, coral bleaching, the intensification of beach erosion and the encroachment of mangroves and lagoons because of poor land management, pollution and sea level rise could have serious implications for future development, recreational activities and livelihood security in the coastal zone. For example, 80% of Barbados’ fringing reefs are reported as seriously degraded. Bank reefs have also decreased in their coral cover from 37% to 23% over the past decade. Likewise, shoreline erosion rates are estimated at 15 meters/100 years (Baird 2017).

Hazards (coastal flooding, storm surge and coastal erosion) are a key area of focus within this Policy Framework as they represent the greatest historical disasters that have affected Barbados (mainly land derived flooding though inclusive of coastal flooding). Importantly, storm surges are influenced by climate change most significantly due to the influence of sea level rise. This is arguably the most important predictor in defining risk and therefore effectively controlling CCA at the coastline of Barbados. Vulnerability to sea level rise is most evident along the west and south coasts (St James and Christ Church Parishes). It has been calculated that this accounts for 89% of the predicted land loss (CARIBSAVE 2012). Consequently, there is an emerging awareness of the risks that are being presented (as a consequence of climate change) to approximately 50% of the population of Barbados (circa 142,000) and 95% of the tourism related infrastructure that is concentrated in or near the coastal zone. Sea level rise estimates range from 0-6mm/year with 1.6mm/year being accepted by CZMU as a strategic design figure to apply to coastal engineering designs.

Erosion (beach and cliff) is directly impacted by sea level rise (SLR) with estimates of beach width loss being directly linked to the rate of SLR. Using basic geometry and assuming beach profiles are static (Baird 2017), it is estimated that the natural beach asset is losing BBD \$2 to \$4 million every year (3 mm of sea level rise). When considering typical erosion rates, the west coast alone is estimated at losing in the order of BBD \$6 to \$8 million per year. In year 10, that equates to circa BBD \$60 - \$80 million in annual revenue less than today. Cliff erosion events may occur as part of larger single events, though also can occur cumulatively because of high frequency, low magnitude flood events (land

⁹ McCue (2018) Strategic Action Plan for the CZMU, IADB funded.

saturation). During these scenarios, coastal cliff collapses can occur at numerous locations as opposed to one single large event (which is more prevalent an occurrence due to storm or seismic events). Loss of life and property are relevant as a result of cliff erosion; however beach erosion creates the most significant economic losses due to the high intrinsic value of the Barbados coastline to the tourism market and wider infrastructure.

Due to Barbados' geographic location to the east of the chain of Caribbean Islands, it is considered moderately exposed and has an overall low hurricane frequency. Climate change over the next 100 years will influence the strength and frequency of hurricanes, with a prediction of an increase in category 4 and 5 Atlantic Hurricanes, with a maximum sustained wind speed 58-70m/s. There is predicted to be a shift toward stronger storms by the end of the century, as measured by maximum wind speed increases of 2 to 11%.

Barbados is rarely affected by earthquakes or tsunamis (seismic or geo-hazards) are infrequent historically in Barbados. Such geo-hazards are therefore statistically not as recurrent as hurricanes though (as they are low frequency-high impact hazards) could inflict significant economic and social damage to Barbados. The country lies in an area of relatively high earthquake activity for the Caribbean, the most likely tsunamis to affect Barbados (and the Windward Islands) are those which can be triggered by shallow earthquakes, Accordingly, what is important is that Barbados has in place very clear and tangible internal and external planning, communication and coping strategies (planning and coping strategies for assets/features within the defined CZMA) should such events occur.

In order for the GoB to more effectively manage priority risks in the coastal zone, Risk Resilient ICZM must be better mainstreamed into development policy decision making at both the national and sector levels. A major activity towards setting a sustainable long term platform to develop Risk Resilient ICZM in Barbados shall be the creation and approval of this updated (and soon to be Cabinet endorsed) Risk Resilient ICZM Policy Framework Document (2020-2030).

For Barbados to move forward, it will inevitably be influenced by economic necessities; hence the need to continually demonstrate value for money, return on investment and public sector efficiencies which will be at the forefront of any policy direction. The implication of this is that the economic valuation of ICZM (i.e.: losses avoided by risk reduction or infrastructure investments) needs to be better quantified and systematically brought into mainstreamed public accounting. There is therefore a need to lay the foundation for this new pathway as Barbados must continually build CCA and DRM supporting capacities for their coastal populations to better adapt the adverse impacts of climate change.

B2) Legal Instruments

Most of the existing national legislative instruments are largely developed and drawn up along departmental/or sectoral lines. This means that while there is a comprehensive set of environmentally-oriented legislation within Barbados, there is a lack of cohesion and integration in its implementation. This has often led to a convoluted institutional framework with multiple agencies involved in different areas of environmental governance. For example, there are approximately 37 main pieces of legislation in Barbados which deal with land use and building issues. Of these 37 statutes, 62% may be classified as environmental in nature, 27% as related to land use and 1% as related to building. Generally, whilst most are not exclusive to the coastal zone of Barbados, all are indirectly applicable to the coast in varying degrees.

The most significant legislative instrument to support the future delivery of Risk Resilient ICZM in Barbados remains the Coastal Zone Management Act (CZMA) of 1998 despite its lack of reference to climate change, risk or disasters. The CZMA (1998) covers the defined CZMA and the management of coastal resources and activities that could impact upon them¹⁰. This piece of legislation is used by the CZMU to manage all activities within the CZMA (although it has not yet been formally adopted by Cabinet). The CZMA (1998) currently does not, for example, provide jurisdiction on the CZMU to permit or otherwise regulate developmental activities which will affect sustainable development within the defined CZMA.



Jetty located at Skeete's Bay used for traditional fishing boats.

The Marine Pollution Control Act (MPCA 1998) controls the release of pollutants to the sea and provides the GoB with the mandate to investigate pollution sources and to require monitoring by the discharger. The MPCA (1998) covers all waste disposal and discharges across Barbados that could have an impact on marine water quality. The MPCA (1998) makes it an offence to release any pollutant in violation of the applicable standards and requirements. It therefore helps to provide the opportunity to regulate all discharges that may impact negatively on the marine environment.

The National Conservation Commission Act (1982) establishes the National Conservation Commission (NCC) which has, as one of its main functions, to conserve the natural beauty of Barbados¹¹. Of interest, it is currently the CZMA – not the NCC Act – that provides for the establishment of underwater parks and art centres for the display of underwater objects. Section 18 of the CZMA states that the Commission (that is NCC) may, in conjunction with the Director (of CZMU) and with the approval of the Minister establish such underwater parks and art centres. This aspect of the legislation must be reconciled since the Minister responsible for NCC is currently a different person than the Minister responsible for CZMU.

Based on the observations above, efforts to improve coordination between supporting legislative among agencies remains an important action that is embedded within this Policy Framework.

¹⁰ A key part of the CZMA is the protection of the beaches, beach vegetation and coral reefs surrounding Barbados.

¹¹ To control and develop public parks, public gardens, beaches and caves; to provide advice on the removal of coral from the ocean bed; and to regulate commercial activities in public parks, gardens, caves, and on beaches.

B3) Plans and Policies

There is currently no clear mechanism to embed DRM and CCA within the existing planning process, or ability for the different agencies involved to coordinate approaches and activities to ensure this happens. However, the regulatory system presents some preliminary tools for decision making principally with the aim of avoiding or rectifying vulnerability and risk through e.g. land use zoning, construction guidelines, natural resource management and climate change adaptation. Whilst the regulatory system presents a framework for DRM/CCA, often the efficacy of current frameworks to help address vulnerability and reducing risk/building resilience, current frameworks often do not make the requisite “entry points” for DRM mainstreaming to better address risk/resilience as part of global best practice standards/approaches.

Any efforts to improve existing governance arrangements must therefore seek to include those related to risk identification, prevention and mitigation, financial risk management, governance and preparedness and response and recovery. This is required as there currently remains a lack of policy coordination on DRM/CCA matters within GoB, lack of financing mechanisms for specific funding allocations and investments that clearly play a role in reducing risk plus the need for improved implementation of new financial mechanisms. All these aspects need to be considered through an improved partnership model that includes CZMU in a supporting role through the use of the National Coastal Risk Information and Planning Platform (NCRIPP).

B4) National Macro-economic Situation

As a consequence of the current debt situation¹², within the next 5 years (up to 2023), the GoB will need to focus all of its sectoral efforts on improved reform, efficiency, productivity and debt management. This commonly means more prudence in relation to the justification and use of key public resources (i.e.: budgets, etc.) As for many countries facing similar economic challenges, in many instances it is those Units or Departments that can better embrace and justify their service value (within an IMF structural reform program) that are the ones that will garner the most political and hence financial budgetary support. In light of this, Barbados intends to create the necessary platforms to be able to put necessary technical requirements in place (e.g.: economic valuation models) to help its core work requirements to be mainstreamed into annual public accounting and associated budget lines. This work not only helps to set Risk Resilient ICZM on a financially sustainable footing, but also it would set the foundation for an all-encompassing Blue Economy in years to come (i.e.: post 2024).

B5) Community and Civil Society

Civil society bodies are active in a variety of sectors including agriculture, environmental heritage and conservation, health and gender affairs. There are many non-government organizations, interest groups and academics with a wealth of expertise in Barbados. These organisations can provide informed advice on matters such as economic (jobs and growth), environmental, science and technology, public education as well as social issues and community living.

The Barbados National Trust (BNT) is one of the leading environmental non-governmental organisations (NGOs) in the country that run several sustainable management programmes that focus on natural and cultural resources. In addition, influential bodies in civil society include the Barbados National Union of Fisher-folk Organisations (BARNUFO) and the Barbados Association of Non-

¹² National debt in 2018 reached 125.71% of Barbados GDP, a 32.55 percentage point fall from 2017, when it was 158.26% (www.countryeconomy.com)

Governmental Organisations (BANGO). BANGO facilitates the cohesive involvement of Barbadian civil society in national and international matters through the provision of technical and other forms of support.

Local communities should also be encouraged to participate in planning and management strategies and share responsibility for the management of all coastal resources. The public should have sufficient opportunities to contribute to decision making with sufficient systems in place to allow for open public scrutiny of policies and actions.



Field visit to Barbados guided by CZMU members.



PART C: THE POLICY FRAMEWORK

C1) Creating a Risk Resilient ICZM Approach

This Policy Framework (2020 to 2030) sets out a direction for improved decision making to support socio-economic development and conservation focused activities to occur in tandem within the CZMA. For this to work, its delivery approach is to enhance and build upon existing governance structures, with updates to legislation, rules and regulations (as required and when needed) to help strengthen appropriate plans, policies and institutional arrangements to integrate climate and disaster resilience. In addition, translating new opportunities into productive sectors will require continued investment in research and development, building technical capacities and creating the right economic environment to attract and retain outside investment to support these needs. These represent the fundamental requirements under which the CZMU can assist GoB onto this new path that considers all uses, users and values and integrates environmental management directly with economic development, fiscal policy and social goals.

An updated Strategic Action Plan (SAP-2018 to 2030) was prepared for the CZMU in 2018¹³ that provides a new framework for sound management of present and future activities within the CZMA. This represents an important catalyst document for the CZMU, allowing it to consider the direction of its actions to help the development of country-specific national actions and cross sectoral policies that pay due recognition to the national PDP (2017) and NDS (2013-2022) whilst reflecting the unique circumstances of the Barbados coastal zone. It also provides the mechanism for CZMU to help support the future sustainable use of the CZMA and its resources for all communities, businesses and external partners wishing to operate and /or use land or sea space within the defined CZMA.

Five “Columns” for successful change are presented within the SAP (2018-2030) as follows:

¹³ McCue. J (2018) Strategic Action Plan for CZMU, GoB

“Sea of Change” Columns for Risk Resilient ICZM (2018-2030) The 5 C’s – “Columns” for successful change (CZMU)	
1	Communication: Turning science into policy. Collection, analysing and supplying digestible information and knowledge on Risk Resilient ICZM, and Ecosystem Service related topics, in appropriate formats to those needing it.
2	Collaboration: All parties working together. Formulating the policy, planning and institutional governance framework to enable Risk Resilient ICZM and Ecosystem Service related issues to be efficiently and effectively delivered.
3	Coordination: Gaining consensus and orchestrating action. Facilitating public participation and stakeholder engagement to ensure that Risk Resilient ICZM and Ecosystem Service related actions are inclusively implemented.
4	Capacity for Continuity: Long term human resource capability. Sustaining human resource training and capacity building to embrace the current mandate of the CZMU and future needs as defined by GoB and/or international agreements.
5	Commitment: Creating the financial platform to maintain CZMU Mandate. Supporting the GoB to create necessary financial protection and risk transfer strategies needed in the future for Risk Resilient ICZM delivery.

Figure C1: “Sea of Change” Columns supporting ICZM success (adapted from McCue 2018).

C2) Policy Outcomes and Goals

Policy Outcomes and Goals are presented that consider the 5 “Columns” set out in Figure C1, and which apply directly to the Barbados CZMA and associated Zol (see Figure A2). They are designed to help demonstrate how the Vision shall be achieved (see Part A) and how Policy principles shall help to guide the way forward (see Figure C2).

VISION	A statement setting out where Barbados will be by 2030 in relation to the coastal environment and its contribution to our society.
PRINCIPLES	A set of overarching principles to guide all that we do in achieving our vision.
POLICY OUTCOMES	A set of outcomes that will enable us to know when we have achieved our vision.
POLICY GOALS	Goals that will allow us to know when we have reached our outcomes.

Figure C2 ICZM Policy structure

Where possible, Policy Goals have been put in place that align with any international commitments (see Appendix 1) to enable efficient monitoring and delivery at a national and international scale.

Six Policy Outcomes are covered as set out in Figure C3.

- Outcome 1 - Sustainable socioeconomic development is achieved**
- Outcome 2 - Coastal resources are protected and effectively managed**
- Outcome 3 - Climate and disaster risk adaptive capacity is strengthened**
- Outcome 4 - ICZM is delivered through a coordinated governance arrangement**
- Outcome 5 - Capacity for ICZM delivery is strengthened for all relevant sectors**
- Outcome 6 - Research, understanding and knowledge outreach is increased**

Figure C3: Policy Outcomes

Outcome 1: Sustainable socioeconomic development is achieved

Planning for future population and settlement within the defined CZMA of Barbados will require an enhanced focus on sustainable and resilient development. An emphasis on optimizing existing settlement areas and efficient provision of climate resilient infrastructure is needed to respond to national imperatives including: climate change and resiliency, healthy communities, an aging community and the recognition of Barbados as a Small Island Developing State (SIDS). In addition the sustainable development and integrated management of coastal resources in or around the CZMA (inland and offshore) through improved habitat management and critical scientific research (data collection) and knowledge management.

The introduction of climate risk resilience into the Environmental and Social Impact Assessment (ESIA) processes as included within the current PDP (2017) now needs to mainstream by TCDPO within the newly proposed Natural Hazards Impact Assessment process. The Hazard Mitigation Council provides the opportunity to allow for a systematic incorporation of all aspects of risk into the ESIA process, of which both CZMU and DEM shall be key players in its delivery within existing and future regulatory frameworks. In parallel to this, the formalisation and mainstreaming of accrediting Risk Assessment procedures for delivering DRM on the coast may prove of value in Barbados.

Finally, there is an aspiration in Barbados to further develop a Sustainable Ocean Based Economy (SOBE) which may impact on existing and emerging activities within the CZMA and neighbouring influence areas (inland and offshore). Developing this potential in a sustainable and climate resilient manner presents Barbados with many new opportunities which can create new jobs, achieve a higher rate of growth, reduce poverty, and secure international biodiversity and sustainability obligations¹⁴.

GOAL 1.1 – APPLY RISK RESILIENT STANDARDS AND PROCEDURES TO SUPPORT SUSTAINABLE DEVELOPMENT WITHIN NATIONAL SOCIO-ECONOMIC POLICIES AND DEVELOPMENT PLANNING FRAMEWORKS.

GOAL 1.2 – ENCOURAGE NEW AND EMERGING SUSTAINABLE OPPORTUNITIES WITHIN THE CZMA THAT SUPPORT THE DEVELOPMENT OF GREEN AND BLUE ECONOMIES.

GOAL 1.3 – PROVIDE GUIDANCE TO HELP DELIVER SUITABLE COASTAL ADAPTATION TECHNIQUES WITHIN THE DESIGNS AND PLANS OF CURRENT AND FUTURE COASTAL DEVELOPMENTS.

Outcome 2: Coastal resources are protected and effectively managed

Identifying and protecting these coastal resources is at the heart of the PDP's rationale for directing growth and new development in a more sustainable manner and the majority of these assets are located or affected by the coast. Coastal resources are often irreplaceable places, elements and resources that are critical to the long-term prosperity of the island. In Barbados these include both core national assets as well as natural heritage systems that are valued as a means of mitigating the effects of climate change and the related risks of natural disasters. The latter shall help support the

¹⁴ Barbados is currently (2020) developing its roadmap for the Blue Economy and continues to enhance and develop supporting plans and policies to help facilitate its development. Economic opportunities should be developed in a sustainable manner to realise the full value for Barbados' economy, society and natural environment

conservation of a range of ecosystem services that will, in turn, confer reduced vulnerability to (and enhance resiliency of) human populations, infrastructure, and sectoral undertakings in the face of evolving natural hazard and climate change threats. In terms of the coast, this also includes the provision of safe access and use of core assets within the CZMA whilst ensuring the overall resilience and integrity of Barbados' coastal infrastructure for the benefit of all Barbadians.

This policy outcome requires considerable attention if it is to be effectively achieved, as the current use of the CZMA in Barbados is, and will increase in the future, with demand for coastal goods and services having the real potential to exceed the capacity available to meet them all sustainably. This increasing human activity has the potential to significantly negatively impact on coastal biodiversity and must be managed carefully to avoid conflict, maximise the use of the CZMA and to ensure that the core assets (built and natural) are protected and sustained for current and future generations. Well integrated governance frameworks need to understand the value of natural capital to help reduce or avoid land-based sources of marine pollution, accommodate and resolve conflicts between the vast range of coastal related interests and values.

The adoption of an integrated approach to sustainably managing activities within the core CZMA and Zol ((see Figure A1 and A2), in line with the principle of ISM, will allow for the successful delivery of this policy outcome and seek to ensure the protection of core assets and coastal resources. This should be underpinned by the principle of Ecosystem Based Management (EBM – see Section A4.2) and consist of effective management and coordination across all policy areas to allow for integrated policy formulation, compliance, enforcement, data collection and information analysis to inform decision making.

- GOAL 2.1 – DEVELOP GUIDELINES TO HELP REGULATE AND MANAGE LEGALLY DEFINED COASTAL RESOURCES FOR FUTURE GENERATIONS.**
- GOAL 2.2 – SUPPORT THE REHABILITATION OF COASTAL RESOURCES THROUGH THE MAINSTREAMING AND ADOPTION OF ECOSYSTEM BASED ADAPTATION APPROACHES TO INCREASE THE RESILIENCE OF SECTORS AND COMMUNITIES ALIKE.**

Outcome 3: Climate and disaster risk adaptive capacity is strengthened

The core CZMA includes many significant national infrastructural assets including a full range of transportation, communication, water, sewer, renewable energy and waste management facilities that are essential to the health, safety, economic success and environmental health of Barbados. Climate and disaster adaptive policies therefore need to be mainstreamed into all sectors to help guide the future design, development, upgrading and location of these facilities within the CZMA in the future. Due consideration to uncertainty, risks and variability must be given to any developmental planning decision so that implementation strategies for adaptation are provided that help restore and build climate and disaster resilience into coastal systems, which may involve the consideration of large scale Ecosystem based Adaptation (EbA) related interventions (see Policy Outcome 2). The impacts of climate change and disaster are particularly important as recent national studies suggest that increases in relative sea level rise, raised sea surface temperatures and ocean acidification, and the increased intensity and/or frequency of tropical storms and hurricanes are likely. These changes will lead to increased vulnerabilities for the natural environment and consequently for national economic development.

To support adaptive capacity strengthening, there is an urgent need to better embrace disaster risk financing within all sector activities. More work is required to support future implementation of financial protection and risk transfer mechanisms for key coastal assets (e.g.: beaches) that are critical to Barbados' tourism economy. GoB need to be provided with continued advice (from CZMU amongst others) on where to risk related matters on the coast so that GoB can better allocate scarce public resources on investments that are designed or at least, consider resiliency to natural hazards (e.g. risk assessment, preparedness/response and mitigation) within their designs. This shall be achieved through the using and enhancing the NCRIPP system to help develop new natural resource economic models which embrace life cycle returns on investments. Updating NCRIPP shall ensure that the country has the requisite access to both financial protection and risk transfer instruments to better cover probable loss scenarios (as developed by probabilistic risk assessment and NCRIPP) and to help Barbados to capture concessional climate and development international finance.

To support this outcome, there remain significant benefits for GoB by setting up partnerships (among several organisations, ministries and stakeholders) to partition responsibilities for climate and disaster related risks (recovery and resilience) as well as using these partnerships to garner financial support on ICZM issues. Public-private partnerships (PPPs) represent one likely initiative that needs focused coordination attention.

- GOAL 3.1 – ADOPT A RISK MANAGEMENT APPROACH FOR COASTAL DEVELOPMENT.**
- GOAL 3.2 – DEVELOP EMERGENCY OPERATING PROCEDURES FOR CLIMATE AND DISASTER PREPAREDNESS, RESPONSE AND RECOVERY ACTIONS WITHIN THE CZMA.**
- GOAL 3.3 – FORMALISE PROCEDURES FOR A SUSTAINED ECONOMIC AND FINANCIAL RESILIENCE APPROACH TO ENABLE RISK TRANSFER (WITHIN THE PUBLIC, PRIVATE AND CIVIL SOCIETY SECTORS) WITHIN THE CZMA.**

Outcome 4 - ICZM is delivered through a coordinated governance arrangement

Being mindful of the challenging macro-economic context that Barbados is facing (from 2018), there is a strong priority consideration needed to better link and demonstrate value for money, return on investment and improved public sector decision making efficiency (across GoB sectors) as part of any new data collection programme. Barbados must therefore better demonstrate improved public sector efficiency in data use/application.

There is a rich history of ICZM in Barbados that provides evidence of successful coordinatory approaches to increasing coastal resiliency in the country. However, efforts to disentangle disjointed and outdated legislation, policies, regulations and institutional roles/responsibilities (improved authorities for collaborative decision making and ultimately, improved coastal resiliency, etc.) Coordinated institutional and governance arrangements are a key aspect of this Policy which need to be relevant and fully cognisant of the current national macro-economic situation, making efficient and effective use of new systems such as NCRIPP, both now and through updated versions in the future.

Innovative partnership arrangements (involving collaboration between government, private sector, NGOs and academic institutions) will prove critical and required to help successfully forge linkages to implement shared approaches to reduce costs and human resource needs (especially significant for monitoring and reporting systems). Coordinatory approaches are also required to better address current and emerging issues facing the CZMA, emphasizing the interconnectedness of activities within the core area and ZoI (see Figure A1 and A2). This may involve introducing ways to manage emerging

issue impacts through international, regional and, as appropriate, inter agency collaboration at the national level.

The establishment of NCRIPP needs to be recognised as the core national repository for coastal zone-specific disaster risk data and be the primary instrument for data sharing and dissemination in Barbados. Through the creation of a multi-sector Integrated Monitoring Plan, it is hoped that NCRIPP may improve the integration of up-to-date operational information on all risk resilient ICZM and related activities. Its application and use across all sectors, particularly the financial sectors, to assist in long term planning is deemed essential.

Finally, the recent Planning and Development Act (PDA 2019) underpins the approach that applies to the implementation of ICZM as well as the wider process of developmental planning in Barbados. Importantly for ICZM delivery, the PDA (2019) expresses the requirement for public participation towards achieving the purposes of the Act which was a requirement that was absent from the original Town and Country Planning and Development Act (Cap. 240). The new PDA (2019), which shall be delivered through a range of internal administrative Sections, importantly provides for a Planning and Development Board (the “Board”) whose requirements pertaining to the operation and members of that Board, are definitively expressed within the PDA (2019) with regards to engagement and public participation. The Board is a body corporate with perpetual succession and a common seal and is responsible for the implementation of the policies framed by the Minister. This is relevant to the implementation of ICZM in Barbados as the CZMU’s role and responsibility (as a key member of this Board) will be to specifically to advise the TCPDO on the granting of permissions for development within the CZMA plus to ensure that all relevant supporting agencies undertake their roles to implement the policies and adopt the guidelines set out within the ICZM Plan.

- GOAL 4.1 – CONTRIBUTE TO DATA COLLECTION, STORAGE, ANALYSIS AND MONITORING SYSTEMS ACROSS ALL SECTORS FOR COASTAL INFORMATION.**
- GOAL 4.2 – PROMOTE ICZM POLICY DECISION MAKING AND COORDINATION, ACROSS ALL SECTORS AND INSTITUTIONS, IN LINE WITH THE PROCEDURES OF THE PLANNING AND DEVELOPMENT BOARD (UNDER THE PDA 2019).**
- GOAL 4.3 – SUPPORT GOVERNMENT COMMITMENTS TO DELIVER APPROPRIATE INTERNATIONAL AGREEMENTS LINKED TO ICZM.**

Outcome 5 - Capacity for ICZM delivery is strengthened for all relevant sectors

The recent passage of Tropical Storms Matthew (2016) and Irma (2017) provided an example of the potential vulnerability that Barbados institutions face should another strong hurricane season be predicted. For effective implementation, this will require significant strengthening in capacity on issues relating to DRM as well as within key sectoral agencies including CZMU and DEM. Capacity in this instance is defined as a combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management.

In order to replenish and sustain a risk resilient ICZM knowledge base, it is necessary to generate new knowledge about the coastal zone and surrounding oceans upon which the Barbadian way of life depends. Tools and support guidelines need to be produced to help existing public sector staffs to deflect responsibility back onto developers where possible. GoB needs to better streamline the relevance and suitability of any development application prior to formal detailed ESIA completion

stage. The role of Guidelines and “To do” sheets, linked to the development planning process (i.e.: updating the current Coastal Planning Guide produced in 2010) is one initiative to improve capacity for ICZM delivery across all sectors.

In the short term, the greatest challenge for Risk Resilient ICZM delivery (for all agencies) continues to be the allocation of scarce human resources to safeguard life and property, particularly in coastal settlements and flood prone areas (especially in rural Parishes of Barbados), through the provision better trained and prepared staffs (within DEM, TCDPO and also CZMU) for disaster preparedness, mitigation and response. It is therefore critical that counterpart organizations in the private sector and the NGO community maintain an effective link to public agencies so as to ensure harmony in the development, implementation and monitoring of policies and regulations as they relate to entire spectrum of DRM activities. There is scope for greater coordination between DEM, the Ministry of Housing and the private sector in the areas of safer building construction. The role of the CZMU could prove pivotal here to help support this process should avenues for improved inter-departmental staff coordination be pursued (i.e.: “Train the trainer” initiatives instigated from CZMU as portal organisation).

Fundamental to the sustained generation of new knowledge is the continuing education of scientists and policy makers. Continued Professional Development (CPD) needs to be at the core of this Policy across all sectors (embracing performance management and reporting systems, etc.) Training on economic valuation/return, on investment/cost and effectiveness/cost recovery role will be critically important function that will require capacity development to help with improved communication and information provision. This would be of direct relevance to the Ministry of Finance and Economic Affairs. In addition, an Environmental Compliance Awareness Program (that embraces the principles set out for risk resilient ICZM) could be initiated by CZMU in partnership with a range of organisations including Environmental Protection Department (EPD), NCC, DD and TCDPO and also including SEA, should this be pursued and included under updated Planning Law. CZMU could initiate activities to ensure that staff members are trained in new environmental compliance whilst all organisations are able to demonstrate how they are incorporating this new knowledge and regulation into daily work regimes.

- GOAL 5.1 – DEVELOP A CROSS SECTORAL CAPACITY DEVELOPMENT PROGRAMME.**
- GOAL 5.2 – FORMALIZE NEW ICZM PERFORMANCE MANAGEMENT, EVALUATION AND REPORTING SYSTEMS.**

Outcome 6 - Research, understanding and knowledge outreach is increased

Caring for the coastal environment is the responsibility of everyone. However, lack of awareness and environmental education and participation can result in low levels of personal accountability and participation. Community participation is critical to promoting and instituting a duty of care for the coastal environment. The initiation of meaningful and implementable community engagement strategies help provide a greater level of sophistication in the context of characterizing community or coastal stakeholder behaviours. This understanding, on a more social (citizen) science based footing, often allows for better design and targeting of awareness and behaviour change interventions on the coast.

Barbados needs to take stock over the next few years with regards to data and information management to help provide clear advisories on risk resilient ICZM topics. There is an immediate need to communicate information that they (and other supporting partners) already hold, consolidating programmes on target topics to help transform scientific data into meaningful and digestible policy statements for decision makers. To this end a new focusing of action is needed that links scientific knowledge into the provision of relevant decision making product support to those who need it most.

There remain existing innovative technologies that can provide efficient and cost-saving solutions in data-poor contexts. For example, probabilistic risk assessment enables quantitative valuation of risk plus economic valuation of the coastal protection services obtained from ecosystems. In addition, innovation is required with regards towards the integration of monitoring approaches needed to support (for example) nature-based coastal protection (data collection programmes) to help support the sustainable design of beach nourishment schemes, flood conveyance (watershed) interventions that may help support data collection and monitoring programmes to support coral reef/wetland conservation schemes.

An informed public increases participation in the successful delivery of risk resilient ICZM. To support this, the Government of Barbados must better engage with civil society and local communities to ensure that coastal literacy is increased and that the social and cultural benefits of Barbados' CZMA (and the resources therein) are fully realised.

To this end, there is also a need to develop a new "2020-2030 Coastal Research Agenda" for Barbados that identifies key data requirements for decision making, monitoring and evaluation and supports investment for new or emerging opportunities.

- GOAL 6.1 – TAKE ACTION TO INCREASE PUBLIC AWARENESS, UNDERSTANDING AND APPRECIATION OF THE IMPORTANCE OF COASTAL RESOURCES THROUGH EDUCATION AND OUTREACH, TO ENHANCE STEWARDSHIP AND EMPOWER CIVIL SOCIETY TO WORK WITH GOVERNMENT TO MANAGE RESOURCES WITHIN THE CZMA.**
- GOAL 6.2 – ENSURE THAT THE NEEDS AND ASPIRATIONS OF COMMUNITIES ARE CONSIDERED IN PLANNING, POLICY AND DECISION MAKING THROUGH ACTIVE PUBLIC PARTICIPATION.**
- GOAL 6.3 – IDENTIFY, PROMOTE AND SUPPORT OPPORTUNITIES FOR INCREASING THE HEALTH AND WELL-BEING BENEFITS OF THE OCEAN TO CITIZENS, PARTICULARLY THROUGH ACCESS TO BEACHES AND THE COASTAL ZONE.**
- GOAL 6.4 – DEVELOP A COASTAL RESEARCH AGENDA IN LINE WITH NATIONAL NEEDS AND NEW EMERGING ISSUES.**



PART D: COORDINATION AND IMPLEMENTATION

The lead agency for overseeing the implementation of this ICZM Plan is the CZMU (within MMABE) whose remit and powers on this matter are stated clearly within the updated CZM Bill (2020). Once this Bill is turned into an Act, and after Ministerial approval, the Plan will become a statutory document. The CZMU will lead this process by firstly presenting the draft Plan and a draft Order delimiting the CZMA to a public enquiry. They will also carry out any required revisions before the Plan receives final approval.

The institutional requirements to implement ICZM in Barbados will vary depending upon the stages in the cycle of the ICZM Plan (i.e.: implementation, monitoring, evaluation, review and revision etc) but it will be the CZMU, with their overseeing and coordinatory role, who will be the focal point throughout the process.

When the ICZM Plan has statutory backing, the CZMU will have an enforcement as well as an advisory role. Staff, for example, may be called upon to act as enforcement officers or be requested to initiate “Coastal Zone Protection Notices” with others. Procedural Guidance (in addition to agency specific Operational Manuals to guide day to day work standards and expectations) should be developed to guide the national approach to ICZM implementation to provide consistency and rigour, which are both essential is legal action is to be taken as a result of infringements of coastal zone related legislation or regulation. This guidance shall be prepared to help communicate compliant issues and regulatory expectations for developers or equally for user groups to convey what activities and behaviours are deemed suitable within the CZMA. These may also promote mitigation strategies or advisories for how compliant solutions or control measures (such as Nature based Solutions - NbS) may be inculcated within individual planning applications, designs or specific interventions to help promote best practice.

Regarding the future implementation of a Sustainable Ocean Based Economy (SOBE - or alternatively referred to as the “Blue Economy”), anything proposed (be it a policy, a plan, a regulation or institutional arrangement) that either contradicts or jeopardises ICZM Plan implementation (especially with regards to Blue Economy related activities falling within the core CZMA and associated ZoI) may need to be carefully and respectively reviewed and amended to ensure compliance. An integrated and all-encompassing delivery model must therefore be established that ensures institutional, planning and regulatory synergies (under the responsibility of MMABE) to anything already legally established to support ICZM delivery in Barbados from 2020 onwards.

A partnership approach is promoted to help implement this Policy Framework. It is recommended that the GoB continue to promote interdepartmental communication and coordination on all coastal matters in the future. This closely adheres to the current defined Mission Statement of the CZMU who shall continue to adopt a coordinatory and advisory role on all activities pertaining to the ICZM decision-making process for Barbados.

To support this strategy, and to create the necessary platform for future collaboration, all planning related ICZM activities and development application related issues will be coordinated through the Planning and Development Board, which is set up under the Planning and Development Act (2019). Activities shall include consensus on the design of EIA terms of reference to ensure that all future development proposals falling within the defined CZMA undertake the necessary studies to provide the evidence base for appropriate decision making to be made that supports the ICZM Plan. Decisions made shall be collaborative amongst relevant organisations, adhering to new or existing operational guidance manuals or advisories that may be produced to support all sectors and individual agency expectations.



CONCLUSION

Coastal resources are immensely important to the history, current well-being, and future prosperity of Barbados. This Policy Framework will help guide and facilitate national action towards a coordinated and strategic approach towards directing coastal management (from 2020 to 2030) in a direction that is more cognisant of the threats posed by climate change coupled with the emerging opportunities that a successful Sustainable Ocean Based Economy can bring to Barbados.

This Policy Framework provides an approach towards increasing risk resilient ICZM capacity and overarching guidance for policy development in relation to coastal (and marine) activities and resource use, whilst highlighting national priority areas for action. The existing roles, responsibilities, and programs of relevant Government Ministries and Departments are to be maintained, supported, and enhanced through this Policy Framework. Despite this, a coordinated approach between responsible agencies will need to be sustained to ensure long-term success. The CZMU (under the Ministry of Maritime Affairs and the Blue Economy) will coordinate and monitor the outcomes of this Policy Framework against the identified Policy Outcomes and Goals to determine its effectiveness in promoting risk resilient ICZM and addressing its priority issues once coordination of action planning is implemented.

The success of this Policy Framework will therefore be judged on whether effective institutional arrangements can be put in place, along with the capacity and capability of all supporting institutions to help deliver the intended way forward. It is also dependent on a holistic approach to management, including due consideration of other relevant policies and plans. Therefore its implementation, monitoring and evaluation should be combined with the pending “Roadmap for the Blue Economy”, as the delivery of the two are integrally linked within the geographic scope of this Policy Framework.



Ensuring the continuity of outstanding seascapes remains pivotal within this Policy Framework.

APPENDIX 1: INTERNATIONAL CONVENTIONS AND PROTOCOLS RELATING TO ICZM DELIVERY IN BARBADOS

Title of Convention or Protocol
Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, 1989 Accession, 24 August 1995
Convention on Biological Diversity, 1992 Ratification, 10 December 1993
MARPOL 1973/78 International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 Ratification, 6 May 1994
United Nations Framework Convention on Climate Change, 1992 Ratification, 23 March 1994
Stockholm Convention On Persistent Organic Pollutants, 2001 Accession, 7 June 2004
The Kyoto Protocol to the UN Framework Convention on Climate Change, 1997 Accession, 7 August 2000
1992 Rio Declaration on Environment and Development, and Agenda 21;
1994 Programme of Action for the Sustainable Development of Small Island Developing States (BPOA);
Protocol to the Cartagena Convention concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region Ratification, 28 May 1985
2002 Johannesburg Plan of Implementation of the World Summit on Sustainable Development (JPOI);
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), 1973 as amended at Bonn, on 22 June 1979 Ratification, 12 December 1992
2005 Mauritius Strategy for the further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States.
The Vienna Convention on Protection of the Ozone Layer, 1985 Accession, 16 October 1992
Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 Accession, 16 October 1992
Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (The Cartagena Convention) Ratification, 28 May 1985
The Ramsar Convention on Wetlands
United Nations Convention to Combat Desertification (UNCCD)
United Nations Convention on the Law of the Sea (UNCLOS), 1982 Ratification, 12 October 1993
Convention on Maritime Search and Rescue (SAR) 1979 and 1988
Convention on the International Regulations for Preventing Collisions at Sea (COLREG)
Safety of Life at Sea (SOLAS)

APPENDIX 2: PLANS AND POLICIES OF RELEVANCE TO ICZM DELIVERY IN BARBADOS

The updated PDP (2017) is the GoB's primary planning instrument for establishing the use of land, and the environment and conservation policies that will apply within these designations. The PDP is supported by a number of other plans that provide national guidance on specific elements of natural resource management and development, namely:

- The ICZM Plan (this document plus Volume 2 ICZM Plan);
- Barbados National Strategic Plan (NSP 2005-2025);
- Draft National Climate Change Policy Framework (NCCPF) (2012);
- Country Document for Disaster Risk Reduction (DEM 2014);
- Tourism Master Plan (2014-2023);
- The Environmental Management Plan (1998);
- Barbados Growth and Development Strategy (2013 – 2020)
- Barbados Oil Spill Contingency Plan (2013);
- Fisheries Management Plan (2004 to 2006);

There are cross-references between the various planning documents. In the updated PDP (2017) for example, it is stated that the ICZM Plan abide to the *Natural Heritage System* approach and in return, all decisions on coastal development, conservation, and management in the CZMA are to be informed by the latest technical data and analysis available to the CZMU and that the ICZM Plan will implement the PDP policies for Open Spaces that occur within the CZMA (Section 2.2.2 – Natural Heritage System: Coastal Zone Management sub-section).

Reflecting this synergistic approach, Section 4.4 of the PDP (OS3 – Coastal Landscape Protection) defines the limits of Coastal Landscape Protection Zones from Salt Cave Point to Conset Bay (south and east coasts) plus from Archers Bay to Maycocks Bay (north-west coast) whereby the inland limit is defined by the Coastal Zone Management Area boundary. In addition, Section 4.8 of the PDP (2017) refers to “Shore Access Points” and the importance of maintaining access to the sea for emergency vehicles and maintenance vehicles for coastal structures. In a similar vein, the objectives for the Barbados National Park have been used to guide the coastal management programme for the stretch of coast which falls within the proposed National Park (see Section 4.2.8 of the updated PDP 2017). Further information on links such as these are given in the national guidance in Part C of this ICZM Plan. These links will need to be maintained when any of these related plans and policies are reviewed (see Figure A.2.1). The Planning and Development Board (as set out within the Planning and Development Act (2019) shall assist with this process¹⁵.

Consistency of approach, that is in line with the updated PDP (2017) and the Planning and Development Act¹⁶ (Sections 1.4 and C5.1 of Volume 2 - ICZM Plan) with regards to the status of the ICZM Plan, remains paramount throughout the effective life of this ICZM Plan. These also provide the opportunities to support delivery of an improved environmental impact assessment (EIA) process for

¹⁵ The Planning and Development Board is a body corporate with perpetual succession and a common seal. The Board is responsible for the implementation of the policies framed by the Minister.

¹⁶ Accepted by both Houses of Parliament by January 2019. Currently it underpins the approach that applies to ICZM as well as the process of national physical planning and development. It is anticipated that this legislative instrument will be effected as a Statutory Instrument.

the country. This opportunity is supported through existing planning processes with the Director of the CZMU currently identified (within the Planning and Development Act 2019) as a key member of the Planning and Development Board which is an obligatory channel of cooperation and communication relating primarily to physical development and planning.

Links between the different legal provisions are subsequently essential to ensure ICZM delivery and success as all aspects of ICZM in Barbados involve aspects of environmental management. Consequently, in addition to the updated CZM Bill 2020, the Planning and Development Act (2019) and the Marine Pollution Act (1998), the entire legal framework is important to the implementation of the ICZM Plan. New legislation is being prepared in the form of the Open Beaches Bill (2019) with provisions to help facilitate ICZM delivery. Pending developments to formalise a “Sustainable Ocean Based Economy - SOBE” for Barbados shall also require close integration with this ICZM Plan and supporting sectoral strategies within the coming years.

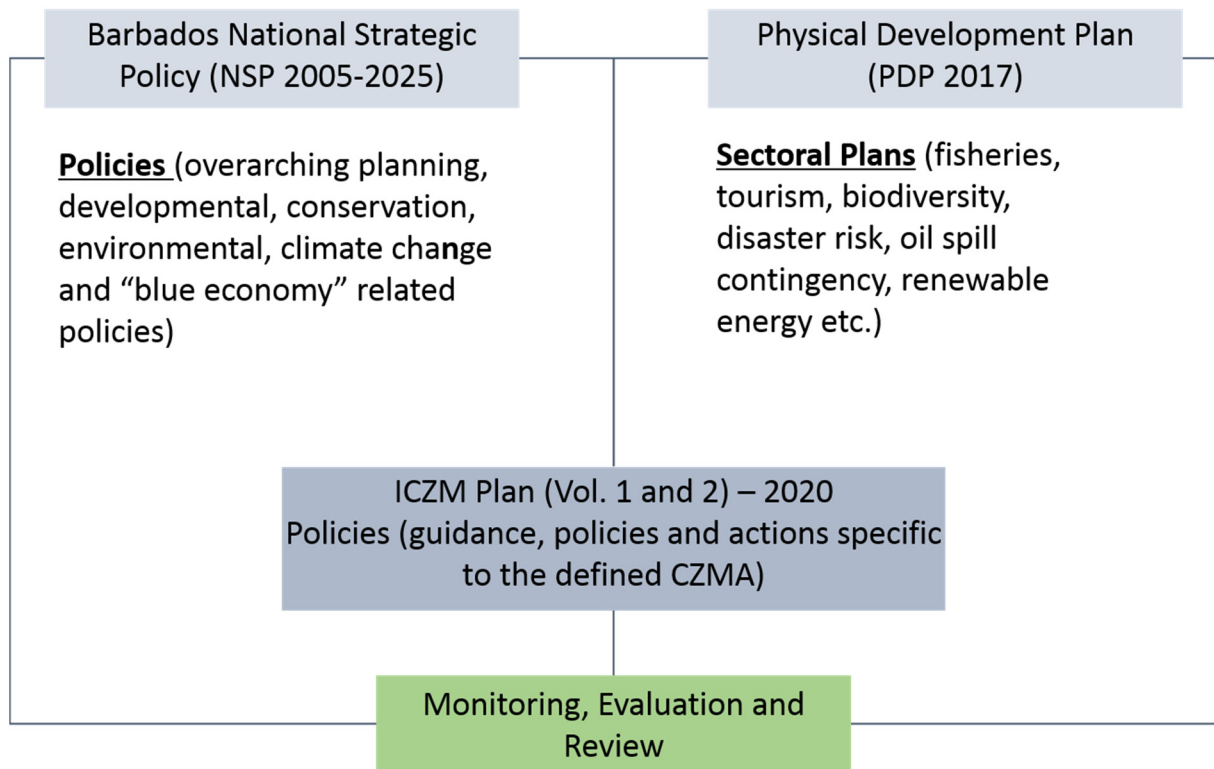


Figure A.2.1. Links between key planning documents which support this ICZM Plan.

APPENDIX 3: ORGANISATIONS INVOLVED IN ICZM DELIVERY IN BARBADOS

PRIMARY OR SECONDARY ICZM FUNCTION	AGENCY RESPONSIBLE	KEY PARTNER IMPLEMENTATION AGENCIES	LEGISLATION	FUTURE DELIVERY OF RISK RESILIENT ICZM – LIKELY ACTIONS
<p>Primary Function 1: Preparation and revision of Coastal Management Plans:</p> <ul style="list-style-type: none"> Inventory of coastal resources (data collection etc) Coastal management strategies Standards of new development Allocation of resources between competing use Coordination with other development plans Stakeholder engagement 	<p>CZMU (<i>Ministry of Maritime Affairs and the Blue Economy</i>)</p>	<p>TCDPDO; Ministry of Finance, Economic Affairs and Investment; Environmental Protection Department; Drainage Division; Fisheries Division; Department of Emergency Management National Conservation Commission Natural Resources Department, (Energy Division)</p>	<p>Coastal Zone Management Bill (2020)</p>	<p>Need to ensure that new status of coastal resources is undertaken as part of the “State of the Coast” reporting strategy. In addition important that new hazard risk profile findings are presented into this updated CZM Plan as well as being reflected and inculcated into a new set of national applicable monitoring and evaluation indicators (M&E) that will help to demonstrate institutional and GoB progress against the SDG13 and the Sendai Framework. Tsunami and storm surge hazard mitigation measures, articulated within the updated ICZM Plans, need to be embraced within future developmental policy and planning decision making (applications) that consider evacuation routes/setback guidance (i.e.: new standards etc).</p>
<p>Primary Function 2: Control of development in Coastal Zone Management Area:</p> <ul style="list-style-type: none"> Environmental and Social impact assessment Inspection Consultation to Town & Country Planning Office Compliance and enforcement Review design of any coastal projects Data collection on stakeholders Stakeholder engagement 	<p>TCPDO, CZMU</p>	<p>Environmental Protection Department Drainage Division Soil Conservation Unit Fisheries Division Barbados Water Authority Ministry of Finance, Economic Affairs and Investment; National Conservation Commission Natural Resources Department, (Energy Division) Natural Heritage Department) All government Departments linked to any aspect of developmental control within the defined CZMA.</p>	<p>Planning and Development Act (2019) Coastal Zone Management Bill (2020) Tourism Development Act (2002)</p>	<p>Planning system is currently not specifically climate-resilient. Impetus for GoB to adopt through advisories and protocols, designed and prepared by key agencies (e.g.: DEM and CZMU) are required. Implementing Standard Operating Procedures (SoPs), building codes (not formalised) and the like to advice on climate-resilient adaptation measures for existing and future infrastructure (with advisories for retrofitting where suitable) may be needed. The development or expansion of any activity in the CZMA and of any facilities associated with them will continue to need and involve CZMU supervision through the development control process and some will trigger an environmental impact assessment (EIA). CZMU needs to play an enhanced role in the planning development control arena with total support from TCDPO. This could be undertaken through the setup of complimentary “Standing Committees” on specific topics, similar to the approach adopted by DEM whereby sector-specific sub DRM teams are chaired by specific sectors.</p>

PRIMARY OR SECONDARY ICZM FUNCTION	AGENCY RESPONSIBLE	KEY PARTNER IMPLEMENTATION AGENCIES	LEGISLATION	FUTURE DELIVERY OF RISK RESILIENT ICZM – LIKELY ACTIONS
				CZMU to consider ways of improving two-way communication between themselves and BTI so that an early understanding of any large development project that may be attracted to Barbados is considering climate resiliency into early design ideas.
<p><u>Primary Function 3: Beach erosion and accretion control (coastal maintenance):</u></p> <ul style="list-style-type: none"> Monitoring programs, sampling measurement and data collection Database building Stakeholder engagement 	CZMU Ministry of Transport and Works	Ministry of Tourism and International Transport Barbados Tourism Investments Inc Department of Emergency Management Barbados Meteorological Service The Research and Planning Unit Barbados Statistical Service (BSS) National Conservation Commission	Coastal Zone Management Bill (2020)	Need to set up a series of “transition hand over” phases (advisories) to other organisations to take responsibility for management and maintenance of structures/assets etc. Where possible, there is a need to reduce the cost of outsourcing skills to private companies with regards to core activities that may be undertaken by the CZMU such as maintenance of coastal assets, setting up new databases etc.
<p><u>Primary Function 4: Research and its regulation:</u></p> <ul style="list-style-type: none"> Internal research programs Approval and monitoring of external programs through stakeholder engagement Compliance and enforcement Supporting data collection programmes 	CZMU and Fisheries Division	Ministry of Finance, Economic Affairs and Investment Environmental Protection Department The Research and Planning Unit Barbados Statistical Service National Conservation Commission Natural Resources Department, (Energy Division) Natural Heritage Department) Barbados Agricultural Development and Marketing Corporation	Coastal Zone Management Bill (2020) Fisheries Act (2004)	Creation of an implementable policy on Knowledge Management (KM) so that all key information developed (via various consultancies) can be used for improved implementation of the ICZM Plan for GoB especially regarding monitoring and evaluation and compliance/enforcement-related issues. Creation of a clear “conditions of sale” as well as “information sharing” policies on the coastal related data is required. CZMU could potentially add “marine climate services” to their technical portfolio to help the Barbados Meteorological Service (BMS).
<p><u>Primary Function 5: Coastal Resources protection and monitoring:</u></p> <ul style="list-style-type: none"> Monitoring and data collection (sampling etc) Coral reef/wetland/mangrove/seagrass database creation Setting and enforcing protection standards State of the Coast Reporting Education and Outreach Stakeholder engagement 	CZMU Fisheries Division	Ministry of Finance, Economic Affairs and Investment Environmental Protection Department Drainage Division Fisheries Division Barbados Water Authority Ministry of Tourism and International Transport Sanitation Service Authority Ministry of Transport and Works Department of Emergency Management Barbados Coast Guard Barbados Statistical Service National Conservation Commission Natural Resources Department, (Energy Division)	Coastal Zone Management Bill (2020)	Creation of an outreach strategy that clearly communicates agency mandates and roles with regard to reef conservation. This should dilute any confusion over responsibilities and delivery expectations linked to various statutes, regulations and laws (i.e.: the CZM Bill (2020), NCC Act and Fisheries Act etc). There is also no formal reporting system is currently in place to capture coral reef health statistics as part of a “state of the coast” reporting system. There is a need to formalise a new reporting function to assess progress against a nationally agreed set of bio-indicators as well as SDG 14.

PRIMARY OR SECONDARY ICZM FUNCTION	AGENCY RESPONSIBLE	KEY PARTNER IMPLEMENTATION AGENCIES	LEGISLATION	FUTURE DELIVERY OF RISK RESILIENT ICZM – LIKELY ACTIONS
		Natural Heritage Department Royal Barbados Police Force Barbados Agricultural Development and Marketing Corporation		
<p><u>Primary Function 6: Marine water quality testing:</u></p> <ul style="list-style-type: none"> Monitoring and data collection programs Sampling and analysis Database building State of the Coast Reporting Interpretation and assessment of results and trends Identification of critical water quality characteristics for specific environments Establishment of appropriate standards (both ambient and point of discharge) Enforcement of water quality standards through stakeholder engagement 	EPD CZMU	Government Analytical Services Drainage Division Soil Conservation Unit Fisheries Division Barbados Water Authority Ministry of Tourism and International Transport Sanitation Service Authority Ministry of Transport and Works Barbados Statistical Service National Conservation Commission	Marine Pollution Control Act (1998)	There is no formal reporting system is currently in place to capture environmental statistics or “state of the coast” information. There is a need to formalise a new reporting function progress against a nationally agreed set of bio-indicators (for wetlands, mangroves, seagrasses as well as coral reefs) in addition to SDG 13 and 14 national reporting support.
<p><u>Primary Function 7: Coastal Engineering and Shoreline Management:</u></p> <ul style="list-style-type: none"> Monitoring and data collection Coastal construction and maintenance New materials for beach recharge Enforcement of prohibition, conditions of approval where permitted Support to promote ecosystem-based adaptation techniques Stakeholder engagement 	TCDPO CZMU	Drainage Division Soil Conservation Unit Sanitation Service Authority Ministry of Transport and Works Department of Emergency Management Barbados Meteorological Service National Conservation Commission	Planning and Development Act (2019) Coastal Zone Management Bill (2020)	A national Coastal Engineering Guide (“How to Guide etc”) needs to be prepared that embraces the new NCRIPP data with a Summary “White Paper” disseminated to all GoB Ministries and new developers etc (including TCDPO as an annex to the existing EIA ToR Guideline etc). New technical guidance on (for example) flood retention basins, flood conveyance and ecosystem-based adaptation advisories and practices and use of quarried sands for beach recharge etc should be developed that consider new engineering support advice on the use of quarried sands for use on beaches etc within the Coastal Zone Management Area. Importantly, no building regulations are enshrined in law at present, where these do exist they are in need of update to become climate resilient (to better embrace latest climate model predictions of precipitation rates for better calculate culvert diameters for roads etc). Internally, infrastructure specifications do already

PRIMARY OR SECONDARY ICZM FUNCTION	AGENCY RESPONSIBLE	KEY PARTNER IMPLEMENTATION AGENCIES	LEGISLATION	FUTURE DELIVERY OF RISK RESILIENT ICZM – LIKELY ACTIONS
				exist (written by MTW) for roads and culvert designs and these are communicated to contractors as required. These need to better acknowledge the more recent climate prediction and risk analysis work recently carried out by CZMU through the NCRIPP project.
<p><u>Primary Function 8: Development and management of marine parks, reserves and beach accesses:</u></p> <ul style="list-style-type: none"> • Identification of potential marine reserves and parks • Establishment and operation (BM) Beach Management Standard setting (ISO13009) through stakeholder engagement • Data collection on beach users 	CZMU TCDPO	NCC Ministry of Finance, Economic Affairs and Investment Environmental Protection Department Drainage Division Soil Conservation Unit Fisheries Division Ministry of Tourism and International Transport Barbados Tourism Investments Inc Department of Emergency Management Barbados Meteorological Service Barbados Tourism Investment Inc. (BTI) Barbados Tourism Authority Barbados Hotel and Tourism Association	Coastal Zone Management Bill (2020) Planning and Development Act (2019) National Conservation Commission Act	Creation of a new International Standard for Beaches (ISO13009) – with NCC as the lead implementer under the management of the Barbados Standards Bureau. The service provided by CZMU would be as supporting coordinator. The new Special Marine Areas Regulations (2020), once endorsed, may be used to help identify and manage new marine reserves/parks etc.
<p><u>Supporting Function 1: Coordination and enforcement:</u></p> <ul style="list-style-type: none"> • Ensuring that primary coastal management functions are carried out through stakeholder engagement • Ensuring that all coastal management functions are coordinated through stakeholder engagement 	CZMU TCDPO	CZMU Government Analytical Services Ministry of Finance, Economic Affairs and Investment Environmental Protection Department Drainage Division Soil Conservation Unit Fisheries Division Barbados Water Authority Ministry of Tourism and International Transport	Coastal Zone Management Bill (2020) Marine Pollution Control Act (1998)	The CZMU should consider multi-disciplinary approaches whereby the actions are delivered by other partners, though CZMU may spearhead the action if required and if necessary to promote the need. Improving public outreach of CZMU to the public is important and should continue to be improved upon coupled with improve education to all sectors of society on risk resilient ICZM measures.
<p><u>Supporting Function 2: Provision of legislation and regulations:</u></p> <ul style="list-style-type: none"> • Identify needs for legislation and regulations • Timely drafting and submission to Parliament of the Minister for consideration 	Chief Parliamentary Counsel Solicitor General's Chambers	Barbados Tourism Investments Inc Sanitation Service Authority Ministry of Transport and Works Department of Emergency Management Barbados Meteorological Service Barbados Coast Guard The Research and Planning Unit Barbados Statistical Service National Conservation Commission	N/A	CZM Bill (2020) encourages improved enforcement powers to the CZMU to help remove poor coastal designed structures etc. This should help to climate proof the current planning system and to help with regulatory enforcement. Recommend new specific M&E guidance or models are set up to comply with the latest Sendai

PRIMARY OR SECONDARY ICZM FUNCTION	AGENCY RESPONSIBLE	KEY PARTNER IMPLEMENTATION AGENCIES	LEGISLATION	FUTURE DELIVERY OF RISK RESILIENT ICZM – LIKELY ACTIONS
	Ministry of International Transport	Natural Resources Department, (Energy Division) Natural Heritage Department) Barbados Police Force Royal Barbados Police Force Customs Division, Barbados Agricultural Development and Marketing Corporation Barbados Tourism Investment Inc. (BTI) Barbados Tourism Authority Barbados Hotel and Tourism Association		Framework Priorities/Targets/Indicators. CDEMA encouraged to support a consistent approach to determine this approach for Caribbean Nations.

APPENDIX 4: PERFORMANCE MANAGEMENT AND EVALUATION INDICATORS

A4.1) Overview

There is a need for the GoB to develop, adhere and implement a series of governance related Performance Management and Evaluation indicators to support GoB in monitoring or evaluate ICZM performance (McCue 2018). A set of governance related performance indicators are hereby designed to help assist implementation of this Policy Framework (up to 2030) plus also to measure the performance of the responses to adapt to climate induced pressures and impacts facing the Coastal Zone Management Area of Barbados. They hereby focus on variables that relate to inputs, processes, outputs, outcomes and impacts of a Risk Resilient ICZM programme.

The indicators proposed within this Appendix are also designed to measure the progress and quality of the governance process itself, that is, the extent to which Risk Resilient ICZM is addressing the issue(s) that triggered its initiation in the first place. Four main areas of performance evaluation are proposed:

1. Institutional coordination and coherence to ensure that (i) the functions of administrative actors are properly defined, including through the establishment of a coordinating mechanism; (ii) a legal framework exists to support ICZM and the pursuance of coherent objectives; (iii) the impacts of sectoral plans, programmes and projects potentially affecting coastal zones are taken into account through procedures for environmental impact assessment (EIA), and carrying capacity assessment; and (iv) conflict resolution mechanisms are available to anticipate, resolve, or mitigate conflicts over the use of coastal areas and resources;
2. Quality and effectiveness of management by (i) the formal adoption of the ICZM Plan (Volumes 1 and 2); (ii) active implementation of these via agreed Action Plans; (iii) routine monitoring and evaluation of management and its outputs, outcomes and impacts, as well as the consideration of results in adaptive management; and (iv) the sustained availability of human, financial and technical resources to enable effective management;
3. Improved knowledge, awareness and support by ensuring (i) the production of results from scientific research, its use for management and its dissemination to a wider audience; (ii) the participation of stakeholders in decision-making processes; (iii) the activities of NGOs and CBOs; and (iv) the introduction of ICZM related subjects into educational and training curricula for the formation of ICZM cadres;
4. Mainstreaming ICZM into sustainable development by (i) the development and application of technologies that can enable and support ICZM; (ii) the use of economic instruments to promote ICZM objectives through the private sector; and (iii) the incorporation of ICZM objectives into broader sustainable development strategies.

For each area, a robust set of performance indicators are proposed to measure the evolution of management processes and the attribution of factors of success or failure of the actions proposed. The indicators are based on the definition of parameters and metrics as follows:

- Quality
- Quantity
- Time

- Targeted population or institution
- Geographical location
- Sectoral reference

A rational scale of confidence levels should be assigned to these indicators, described and judged as proposed and used by IPCC (2013):

- Very high: Strong evidence derived from a verifiable theory, multiple sources, consistent results, well documented, accepted methods, and there is high consensus.
- High: Moderate evidence rendered by several sources with an acceptable consistency; methods vary, documentation is limited, and there is medium consensus.
- Medium: Suggestive evidence coming from a few sources, limited consistency, models are somewhat incomplete, methods emerging, but there are competing schools of thought.
- Low: Inconclusive evidence coming from limited sources, extrapolations, inconsistent findings, poor documentation and/or methods not tested, and there is disagreement or lack of converging opinions among experts.

And, when applicable, the likelihood statement of performance levels should be judged, measured and indicated, according to the probabilistic values and degrees of uncertainties associated to the likelihood of their accomplishments:

- Virtually certain: 99%–100%
- Extremely likely: 95%–100%
- Very likely: 90%–100%
- Likely: 66%–100%
- About as likely as not: 33%–66%
- Unlikely: 0%–33%
- Very unlikely: 0%–10%
- Extremely unlikely: 0%–5%
- Exceptionally unlikely: 0%–1%

A4.2) Strategic Performance Indicator Definitions

The following focused strategic performance indicators reflect best international practice in indicator setting. Examples of these Strategic Indicators are listed below for consideration. Reference to any relevant Strategic Indicators are included in the specific indicators set in Section 4.3 below, though not all are used within this Policy Framework for Barbados.

Strategic Indicator 1: Number of direct beneficiaries

This indicator serves as a proxy for the number of people whose vulnerability to the adverse effects of climate change is reduced as a result of the Risk Resilient ICZM policy (“the Policy”). “Direct beneficiaries” are defined as people who receive direct assistance aimed at reducing their vulnerability. Such assistance may include measures to reduce people’s sensitivity, or to enhance their adaptive capacity (see IPCC 2014 for definitions of these terms). Direct beneficiaries include, in most cases, all members of a household that receives direct assistance. This indicator does not measure whether people’s vulnerability has in fact been reduced.

Strategic Indicator 2: Type and extent of assets strengthened and/or better managed to withstand the effects of climate change

This indicator serves as a proxy for the extent to which the Policy reduces the vulnerability of physical assets and natural systems to the adverse effects of climate change.

Strategic Indicator 3: Population benefiting from the adoption of diversified, climate resilient livelihood options

This indicator serves as a proxy for the number of people whose vulnerability to the adverse effects of climate change is reduced through the adoption of more resilient livelihood options as a result of the Policy. The number of people includes all members of households and groups that benefit from the adoption of more resilient livelihood options. "Livelihood options" refers to sources of income as well as subsistence.

Strategic Indicator 4: Extent of the adoption of climate-resilient technologies/practices

This indicator measures the extent to which more resilient technologies and practices are adopted/deployed as a result of the Policy. It serves as a measure of the contribution of the Policy towards the transfer of adaptation technology. Climate-resilient technology, in this context, is understood broadly as tools and practices; including both hardware and software; that reduce the vulnerability of people, livelihoods, physical assets and natural systems to the adverse effects of climate change.

Strategic Indicator 5: Public awareness activities carried out and population reached

This indicator monitors whether the Policy contributes towards people's awareness of climate change impacts, vulnerability and adaptation (Yes/No); and estimates the population reached through public awareness activities.

Strategic Indicator 6: Risk and vulnerability assessments, and other relevant scientific and technical assessments carried out and updated

This indicator measures the extent to which the Policy contributes towards enhancing the knowledge base for effective adaptation through relevant assessments and knowledge products. 'Relevant' assessments and knowledge products are ones that are applicable beyond the Policy in question, and that are available to decision-makers, planners, financiers and other stakeholders.

Strategic Indicator 7: Number of people/geographical area with access to improved climate information services

This indicator measures the extent to which the collection, analysis, communication and application of climate information services are improved as a result of the project. "Access" is understood as regular access to information over an extended period of time. "Improved" can refer to more accurate, more timely and/or more user-friendly climate information services.

Strategic Indicator 8: Number of people/geographical area with access to improved, climate related early warning information

This indicator measures the extent to which the Policy contributes towards improving the capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a climate-related hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss (adapted from the definition of "early warning" in UNISDR 2006).

Strategic Indicator 9: Number of people trained to identify, prioritize, implement, monitor and evaluate adaptation strategies and measures

This indicator measures the extent to which the Policy strengthens people’s capacity to identify, prioritize, implement, monitor and evaluate adaptation strategies and measures. The indicator aims to capture capacity building provided in relation to one or more of these key elements of the adaptation process. While the focus here is on imparting knowledge and developing skills through training, the project may develop capacities through means other than training, e.g. learning by doing.

Strategic Indicator 10: Capacities of regional, national and sub-national institutions to identify, prioritize, implement, monitor and evaluate adaptation strategies and measures

This indicator monitors the number of regional, national and sub-national institutions that receive capacity building through the Policy to identify, prioritize, implement, monitor and/or evaluate adaptation strategies and measures (number of institutions); and measures the extent to which the project strengthens those capacities (score).

Indicator 11: Institutional arrangements to lead, coordinate and support the integration of climate change adaptation into relevant policies, plans and associated processes

This indicator measures the extent to which the Policy contributes towards establishing and/or strengthening relevant institutional arrangements to lead, coordinate and support the integration of climate change adaptation into relevant supporting policies, plans and associated processes.

Strategic Indicator 12: Regional, national and sector-wide policies, plans and processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures

This indicator measures the extent to which national and sector-wide policies, plans and processes are strengthened and/or developed to identify, prioritize and integrate adaptation strategies and measures as a result of this Policy. The terms “policy” and “plan” are understood broadly, and may include strategies, laws and regulatory frameworks. “Process” refers simply to the process by which a relevant policy or plan is developed, implemented, monitored, reviewed and updated. The policies and plans included here should be relevant, i.e. they should shape decision-making on matters that are of relevance to climate change adaptation. “Regional”, in this context, refers to multi-country policies and plans.

Strategic Indicator 13: Subnational plans and processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures

This indicator measures the extent to which sub-national plans and processes are strengthened and/or developed to identify, prioritize and integrate adaptation strategies and measures as a result of this Policy.

Strategic Indicator 14: Countries with systems and frameworks for the continuous monitoring, reporting and review of adaptation

This indicator measures the extent to which the Policy contributes towards establishing and/or strengthening systems and frameworks for the continuous monitoring, reporting and review of adaptation measures and strategies.

A4.3) Performance Indicators for the Policy Framework (2020-2030)

The following performance indicator tables are separated by each Policy Outcome and Policy Goal as presented clearly within Part C2 of this Volume 1 Policy Framework (2020-2030).

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
POLICY VISION: "A COAST TO BE PROUD OF, WHICH IS VALUED, APPRECIATED AND SAFEGUARDED AS A PLACE TO LIVE, WORK, USE AND RELAX; A PLACE WHERE ECONOMIC ACTIVITY AND THE USE OF ITS RESOURCES ARE SUSTAINABLY UTILISED AND MANAGED, IS RESILIENT TO CLIMATE CHANGE AND OTHER HAZARDS, AND WHERE THE NATURAL ENVIRONMENT IS PROTECTED AND ENHANCED TO KEEP ITS ESSENTIAL AND UNIQUE PLACE IN THE BARBADIAN HERITAGE AND ECONOMY."									
OUTCOME 1 - SUSTAINABLE SOCIOECONOMIC DEVELOPMENT IS ACHIEVED									
GOAL 1.1 – APPLY RISK RESILIENT STANDARDS AND PROCEDURES TO SUPPORT SUSTAINABLE DEVELOPMENT WITHIN NATIONAL SOCIO-ECONOMIC POLICIES AND DEVELOPMENT PLANNING FRAMEWORKS.									
Indicator 1.1a <i>(Strategic Indicators - 10, 11)</i>	Number of existing policy documents, standards and/or building codes and sector development strategies reviewed and updated to better reflect the need to reduce climate change risks in the defined coastal zone.	0	2020	By the end of 2020, a fully endorsed national ICZM Policy Framework is being implemented	2025	By the end of the Policy period, at least 2 national policies within the Physical Development Plan (2017) are promoted to better address the delivery of sustainable, climate-resilient development (including DRM) for coastal communities within the country.	2030	Adoption of national Building Codes and Emergency protocols that relate to infrastructure in the coastal zone.	Needs a review and update to the National Building Codes and emergency procedures Guidance manual to implement Barbados defined Sustainable Development Goal (SDG) delivery
Indicator 1.1b	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd
Indicator 1.1c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 1 - SUSTAINABLE SOCIOECONOMIC DEVELOPMENT IS ACHIEVED									
GOAL 1.2 – ENCOURAGE NEW AND EMERGING SUSTAINABLE OPPORTUNITIES WITHIN THE CZMA THAT SUPPORT THE DEVELOPMENT OF GREEN AND BLUE ECONOMIES									
Indicator 1.2a	Budget confirmations agreed to support implementation of Green and Blue Economies	No budgets currently set by MMABE on these matters	2020	Internal financial performance (against agreed targets) are demonstrating successful performance scores.	2025	Formal agreement (from MMABE) of the budgets necessary to support implementation of Green and Blue Economic strategies for Barbados.	2030	MMABE Budget Operational Plan (2020-2025 or similar). New CZMU Operational Plan, New Performance Management System	New consultancy required to formalize a CZMU Operations Plan in light of MMABE new Budget Operation Plan
Indicator 1.2b	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd
Indicator 1.2c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 1 - SUSTAINABLE SOCIOECONOMIC DEVELOPMENT IS ACHIEVED									
GOAL 1.3 – PROVIDE GUIDANCE TO HELP DELIVER SUITABLE COASTAL ADAPTATION TECHNIQUES WITHIN THE DESIGNS AND PLANS OF CURRENT AND FUTURE COASTAL DEVELOPMENTS									
Indicator 1.3a (Strategic Indicators - 12, 13)	Amount (\$) of funding allocated from the GoB budget for climate adaptation on the coast.	Limited maintenance budget available within MMABE and/or CZMU for coastal adaptation techniques	2020	Existence of a specific defence maintenance budget within MMABE and CZMU budgets	2025	Suitable defence maintenance budget within MMABE and CZMU based on monitoring results of coastal adaptation interventions	2030	GoB Annual Budget Reports	Financial provisions are reflected in the national budget, public sector asset management plans, and Physical Development Plan (2017) for climate change risk management in coastal areas.
Indicator 1.3b (Strategic Indicator 13)	Production of Guidelines, White Papers, Draft SoPs, State of the Coast Reports	No formal White Papers produced by CZMU regarding results of CRMP outputs	2020	At least 5 specific Cabinet reports/White papers/Guidelines produced and disseminated to key decision making outlets (Parliament/Ministerial meetings/Cabinet meetings etc)	2025	At least 1- specific Cabinet/White papers/Guidelines produced and disseminated to key decision making outlets (Parliament/Ministerial meetings/Cabinet meetings etc)	2030	Document review and verification of reports and records; Minister Approved CZMU related documents produced for Cabinet submission etc.	Supporting information provided for the production of annual State of the Coast Reporting.
Indicator 1.3c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 2 - COASTAL RESOURCES ARE PROTECTED AND EFFECTIVELY MANAGED									
GOAL 2.1: DEVELOP GUIDELINES TO HELP REGULATE AND MANAGE LEGALLY DEFINED COASTAL RESOURCES FOR FUTURE GENERATIONS									
Indicator 2.1a (Strategic Indicators - 11, 12, 13)	Number of new strategic planning “tools”, “Guide manuals”, standards or procedures produced and endorsed that help better integrate risk resilient ICZM	There are a limited number of strategic planning documents, standards, guides or “tools” that help integrate risk resilient ICZM	2020						PDP (2017) and the strategic plans of agencies with a primary mandate for ICZM (i.e. EPD, MMABE, DEM and NCCHA) should be prioritized.
Indicator 2.1b	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd
Indicator 2.1c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 2 - COASTAL RESOURCES ARE PROTECTED AND EFFECTIVELY MANAGED									
GOAL 2.2: SUPPORT THE REHABILITATION OF COASTAL RESOURCES THROUGH THE MAINSTREAMING AND ADOPTION OF ECOSYSTEM BASED ADAPTATION APPROACHES TO INCREASE THE RESILIENCE OF SECTORS AND COMMUNITIES ALIKE									
Indicator 2.2a (Strategic Indicators – 14)	Measured lengths of shoreline / habitats monitored by trained officials and information formally stored into the NCRIPP	50 hectares of coastal resources (incl: coral reefs) continuously monitored and managed by CZMU	2019	100 hectares of coastal resources continuously monitored and managed by CZMU	2018	150 hectares of coastal resources (incl: coral reefs) continuously monitored and managed by CZMU	2021	Annual statistics recorded within the NCRIPP on coastal resource extent and health	Existing CZMU initiated monitoring networks coupled with new external monitoring programme results on coastal resources need to be inculcated into the NCRIPP via formally accepted Data Sharing policies
Indicator 2.2b Strategic Indicator 4	Number of Risk Resilient ICZM and ecosystem based adaptation intervention projects constructed	No new risk resilient ICZM and ecosystem based adaptation projects specifically designed or constructed to adhere to the objectives of this Policy.	2020	3 Risk Resilient ICZM coastal adaptation and ecosystem based interventions designed for construction	2025	5 Risk Resilient ICZM and ecosystem based adaptation interventions designed and constructed	2030	A project replication strategy is developed and disseminated to senior government planners in key Ministries or institutions (e.g., EPD, NCC, DEM, MMABE etc).	The results of all ecosystem based adaptation pilot projects are analyzed and used to the formulation of a government-endorsed replication programme
Indicator 2.2c Strategic Indicator 4	Increased national/local technical and institutional capacity to address climate change risks in coastal areas through adaptation interventions including Ecosystem Based Assessments	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 3 - CLIMATE AND DISASTER RISK ADAPTIVE CAPACITY IS STRENGTHENED									
GOAL 3.1: ADOPT A RISK MANAGEMENT APPROACH FOR COASTAL DEVELOPMENT									
Indicator 3.1a	National ICZM Policy Framework consultation process completed and policy and related ICZM Implementation Plan submitted to the Cabinet	Draft National ICZM Policy Framework exists; no Implementation Plan exists.	2020	Completion of formal ICZM Plans by 31 Dec 2020	2021	Formal ratification of ICZM Plans and definitions of the inland and offshore limits of the CZMA, but Cabinet/Parliament, by 31 Dec 2021	2022	Document review and verification of reports and records; Minister Approved CZMU related documents and National Risk Resilient ICZM Plan.	Implementation Plan should recommend appropriate additional legislation/regulatory amends. National ICZM Policy Framework must be endorsed by Cabinet and. Implementation Plan endorsed by ICZM Committee.
Indicator 3.1b	Strengthened policy and legislative framework for Risk Resilient ICZM with Cabinet approval of CZMU approved Drafting Instructions produced before the end of 2020)	Interim Drafting Instructions of CZM Act amendments and ICZM Policy Framework contents agreed by CZMU and IADB.	2020	Cabinet approval of CZM Act Drafting Instruction and updated Risk Resilient ICZM Policy Framework - Tabling of Bill in Parliament	2021		2030	Comments from Chief Parliamentary Council (CPC) & MMABE on the Drafting Instructions, Public Consultations on the Drafting Instruction, Comments on the Draft Bill from relevant Ministries, Attorney General, Legislation Committee, records of Parliament, Barbados Gazette, Parliament website, CZMU Website	Timings subject to alteration based on national legislative priorities and timings of the CPC to review and endorse.
Indicator 3.1c	Reduced spend over the whole life of a scheme (50 years) compared to the current baseline scenario.	Benefit cost ratio over whole life of the scheme (50 years).	2020	Benefit cost ratio of scheme to be above 1.0 and greater than the baseline	2025	tbd	2030	Optioneering studies to provide economic assessment including assessment of benefit cost ratio.	Schemes are often implemented earlier than may actually be required to maintain the necessary standard of service, because there is insufficient high quality data available to enable the scheme designer to proceed with sufficient confidence, that standards will be maintained.

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 3 - CLIMATE AND DISASTER RISK ADAPTIVE CAPACITY IS STRENGTHENED									
GOAL 3.2: DEVELOP EMERGENCY OPERATING PROCEDURES FOR CLIMATE AND DISASTER PREPAREDNESS, RESPONSE AND RECOVERY ACTIONS WITHIN THE CZMA									
Indicator 3.2a (Strategic Indicator 8)	Number of villages/settlements afforded improved risk resilience via enhanced emergency operating procedures							ICZM Committee formal bi-annual progress reports and bi-annual reports.	Demonstration projects need to be in place, with demonstrable positive impacts on wider community objectives
Indicator 3.2b									
Indicator 3.2c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 3 - CLIMATE AND DISASTER RISK ADAPTIVE CAPACITY IS STRENGTHENED									
GOAL 3.3: FORMALISE PROCEDURES FOR A SUSTAINED ECONOMIC AND FINANCIAL RESILIENCE APPROACH TO ENABLE RISK TRANSFER (WITHIN THE PUBLIC, PRIVATE AND CIVIL SOCIETY SECTORS) WITHIN THE CZMA.									
Indicator 3.3a <i>Strategic Indicator 6)</i>	Number of adaptation plans developed with active participation of local communities for coastal resource protection, livelihood diversification, and protection of the wider marine/coastal environment	TBD	2020	At least 4 Grant funded projects on Risk Resilient ICZM are underway and managed by appropriate groups (public/private/civil society)	2018	At least 4 Grant funded projects on Risk Resilient ICZM are underway and managed by appropriate groups (public/private/civil society)	2030	An ICZM “Grant Facility” Board will be established by the end of Year 1 (reporting to the ICZM Committee) to oversee the award and delivery of community based projects designed to advance ICZM nationally and to help engage and coordinate community-based adaptation activities/projects in Barbados.	Enhance the National ICZM Committee to ToR and SOPs to enable it to have coordination powers to effectively help support the initiation of broad community-based adaptation measures.
Indicator 3.3b <i>Strategic Indicator 6)</i>	Finance strategy developed on (i) access to international, regional and national grant and concessional loan funds relevant to risk resilient ICZM, and (ii) dissemination of funds at a national and local level in Barbados	No detailed finance strategy in existence	2020		2025		2030	ICZM Committee formal bi-annual progress reports	Mechanisms to set up Public Private Partnerships and on public consultation for ICZM are needed. Finance strategy should be aligned with ICZM Policy Implementation Plan and Cost Recovery Mechanisms.
Indicator 3.3c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 4 - ICZM IS DELIVERED THROUGH A COORDINATED GOVERNANCE ARRANGEMENT									
GOAL 4.1: CONTRIBUTE TO DATA COLLECTION, STORAGE, ANALYSIS AND MONITORING SYSTEMS ACROSS ALL SECTORS FOR COASTAL INFORMATION									
Indicator 4.1a <i>Strategic Indicator 14)</i>	Number of new ICZM metrics being consistently measured and shared through the NCRIPP.	No agencies have ready access to consistent, up-to-date, mission relevant coastal data	2020	50% of relevant agencies have ready access to consistent, up-to-date, relevant risk resilient coastal data	2025	All relevant agencies have ready access to consistent, up-to-date, relevant risk resilient coastal data	2030	NCRIPP in place, populated and being actively used by CZMU and support partners as appropriate.	
Indicator 4.1b <i>Strategic Indicator 14)</i>	Continued implementation of NCRIPP to support DRM, CCA and risk resilient ICZM delivery.	NCRIPP now being used by CZMU to store and access data to support policy development for DRM, CCA and risk resilient ICZM.	2020	One Cabinet endorsed Data Sharing Policy is established and embraced by all relevant agencies in Barbados	2025	One integrated working data system is set up and being used by all relevant agencies in Barbados.	2030	ICZM Committee formal bi-annual progress reports MMABE Biannual reports	The NCRIPP should be informed by the Freedom of Information Act, and facilitated by a future National Spatial Data Infrastructure Council and the supporting National Statistical Institute (NSI) as appropriate.
Indicator 4.1c <i>Strategic Indicator 10 and 11)</i>	Formal creation (set up and staffing) of the CZMU "Data and Information" Section within CZMU. Completion and receipt of a working and operational NCRIPP system within CZMU	No formal institutional set up of a Data and Information section within CZMU and its operational role/responsibility regarding data sharing policies nationally	2020	NCRIPP is updated with new monitored information (bio-physical and socio-economic data) collated, in addition to the updated ICZM Plan maps/policies/CM ZA boundary and subsequently used to support production of the State of the Coast annual report	2025		2030	Completion statement confirming hand over of final NCRIPP system and supporting documentation. Annual CZMU monitoring reports. Meta data reports (annual) from NCRIPP to support production of annual State of the Coast reporting. Verification of records in database (NCRIPP)	

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 4 - ICZM IS DELIVERED THROUGH A COORDINATED GOVERNANCE ARRANGEMENT									
GOAL 4.2: ESTABLISH A NATIONAL ICZM "COMMITTEE" AND MAKE IT OPERATIONAL TO SUPPORT POLICY COORDINATION ACROSS ALL SECTORS AND INSTITUTIONS									
Indicator 4.2a <i>Strategic Indicator 11)</i>	Creation and Operation of the Planning and Development Board to support developmental planning decision making within the CZMA	Planning and Development Board inaugural meetings to commence during 2020	2020	Agreement on supporting Technical Working Groups - TWG) as required to support the Planning Development Board	2021	At least 2 minuted meetings of the Planning and Development Board by the end of 2022	2023	Minister Approved CZMU related documents	
Indicator 4.2b <i>Strategic Indicator 10 and 11)</i>	Short and long term institutional arrangements established to lead implementation of risk resilient ICZM in Barbados		2020		2025		2030	Long term ICZM institutional structure, including planning and implementation lead agencies, clearly mandated and operating	Membership should be allocated from existing Ministry and Departmental structures (public sector) with representation from eh private sector and civil society as appropriate under the Chairmanship of the CZMU.
Indicator 4.2c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 4 - ICZM IS DELIVERED THROUGH A COORDINATED GOVERNANCE ARRANGEMENT									
GOAL 4.3: SUPPORT GOVERNMENT COMMITMENTS TO DELIVER APPROPRIATE INTERNATIONAL AGREEMENTS LINKED TO ICZM									
Indicator 4.3a <i>Strategic Indicator 10)</i>	Number of national officials who are able to maintain compliance with revised ICZM policies as defined within updated ICZM Plan	0	2020	3 national officials are able to maintain compliance with revised ICZM policies as defined within updated ICZM Plan	2020	6 of national officials are able to maintain compliance with revised ICZM policies as defined within updated ICZM Plan	2030	By the end of the Policy period, at least 2 new specific coastal zone regulations are set up to promote resilient livelihoods and sustainability of important marine ecosystems/habitats.	Mainstreaming ICZM principles need to be inculcated into sector development plans with “easy to implement” actions to ensure this indicator is attained.
Indicator 4.3b	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd
Indicator 4.3c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 5 - CAPACITY FOR ICZM DELIVERY IS STRENGTHENED FOR ALL RELEVANT SECTORS									
GOAL 5.1: DEVELOP A CROSS SECTORAL CAPACITY DEVELOPMENT PROGRAMME									
Indicator 5.1a <i>Strategic Indicator 10 and 11)</i>	Number of relevant Ministries, Departments and Units that are able to identify climate-related risks and prioritize, plan, and implement effective coastal adaptation measures	0	2020	3 relevant Ministries, Departments and Units are able to identify climate-related risks and prioritize, plan, and implement effective coastal adaptation measures	2025	6 relevant Ministries, Departments and Units are able to identify climate-related risks and prioritize, plan, and implement effective coastal adaptation measures	2030	No. of national civil servant staff, representatives of local communities in Barbados, and NGO staff involved in the ICZM delivery are able to identify climate risks and prioritize, plan, and implement adaptation measures in coastal areas.	Mainstreaming principles need to be inculcated into sector development plans with “easy to implement” actions to ensure this indicator is attained.
Indicator 5.1b <i>Strategic Indicator 9)</i>	Detailed human resource capacity gaps and needs assessment completed for MMABE, DEM, EPD, and NCC (amongst others)	A high level assessment of human resource capacity gaps and needs exists for CZMU only but in need of update	2020		2025		2030	ICZM Committee formal bi-annual progress reports	
Indicator 5.1c <i>Strategic Indicator 9)</i>	Number of new public sector/non-public sector people trained on Risk Resilient ICZM related topics	CZMU Training Plan and Strategy is fully endorsed and inculcated within the CZMU Operations Plan	2020	At least 50 public sector and 30 non public sector staffs (equally gender disaggregated) are trained on Risk Resilient ICZM related events	2023	At least 90 public sector and 66 non public sector staffs (equally gender disaggregated) are trained on Risk Resilient ICZM related events	2025	ICZM Committee formal bi-annual progress reports CZMU Training Plan. Post training event evaluation reports. Annual State of the Coast reporting	Events (e.g. webinars, seminars, workshops, on the job training sessions to be organized in tandem with other organisations.

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 5 - CAPACITY FOR ICZM DELIVERY IS STRENGTHENED FOR ALL RELEVANT SECTORS									
GOAL 5.2: FORMALIZE NEW ICZM PERFORMANCE MANAGEMENT, EVALUATION AND REPORTING SYSTEMS									
Indicator 5.2a <i>Strategic Indicator 9)</i>	Improvements to the Institutional and capacity of CZMU to better delivery Risk Resilient ICZM (including Creation of working Performance Management System for CZMU)	No formal CZMU Performance Management System in place	2020	Performance Management System Consultancy is completed and initial advice for CZMU is fully operational	2025		2030	Staffs trained according to the Staff Training Plan (as defined up to the end of 2025)	Improved CZMU Structure and Capacity
Indicator 5.2b	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd
Indicator 5.2c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 6 - RESEARCH, UNDERSTANDING AND KNOWLEDGE OUTREACH IS INCREASED									
GOAL 6.1 – TAKE ACTION TO INCREASE PUBLIC AWARENESS, UNDERSTANDING AND APPRECIATION OF THE IMPORTANCE OF COASTAL RESOURCES THROUGH EDUCATION AND OUTREACH, TO ENHANCE STEWARDSHIP AND EMPOWER CIVIL SOCIETY TO WORK WITH GOVERNMENT TO MANAGE RESOURCES WITHIN THE CZMA.									
Indicator 6.1a (Strategic Indicator 1)	Number of people (public) with improved access to risk resilient ICZM related information	No “Communication and Outreach” Section within CZMU	2020	Formal creation (set up and staffing) of the CZMU “Communication and Outreach” Section within CZMU	2021	Communication and Outreach Section of CZMU producing appropriate and targeted Risk Resilient ICZM related information to at least 1.5% of the population (circa 4,500 people).	2025	CZMU State of the Coast reports (annual); Event attendee forms; Socio media analytic outputs (to demonstrate “hits” etc)	
Indicator 6.1b (Strategic Indicator 5)	Grant facility established for NGOs/ CBOs and number of ICZM grant and/ or concessional loan funds accessed for Risk Resilient ICZM	No Grant facility in existence	2020		2025		2030		Grant funding is preferable where possible in accordance with Article 9, paragraph 4 of the Paris Agreement.
Indicator 6.1c									

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 6 - RESEARCH, UNDERSTANDING AND KNOWLEDGE OUTREACH IS INCREASED									
GOAL 6.2 – ENSURE THAT THE NEEDS AND ASPIRATIONS OF COMMUNITIES ARE CONSIDERED IN PLANNING, POLICY AND DECISION MAKING THROUGH ACTIVE PUBLIC PARTICIPATION.									
Indicator 6.2a <i>Strategic Indicator 10)</i>	Amount of funding allocated from the MMABE budget for public participation strategies as part of future coastal adaptation interventions.	The current spend allotted nationally for coastal protection/asset maintenance budget within MMABE is not defined apart from other assets.	2020	A clearly defined maintenance and capital spend budget requirements within the MMABE.	2021	Acceptance and agreement by Ministry of Finance and Cabinet on MMABE project budget for coastal protection.	2023	Annual Budget Report	Financial provisions are reflected in the national budget, public sector asset management plans, and PDP (2017) to address climate change risk management in coastal areas.
Indicator 6.2b	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd
Indicator 6.2c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 6 - RESEARCH, UNDERSTANDING AND KNOWLEDGE OUTREACH IS INCREASED									
GOAL 6.3 – IDENTIFY, PROMOTE AND SUPPORT OPPORTUNITIES FOR INCREASING THE HEALTH AND WELL-BEING BENEFITS OF THE OCEAN TO CITIZENS, PARTICULARLY THROUGH ACCESS TO BEACHES AND THE COASTAL ZONE									
Indicator 6.3a <i>Strategic Indicator 7)</i>	Number of pilot project interventions successfully constructed.	No specific risk resilient ICZM interventions are intentionally constructed to provide social benefits to coastal communities.	2020	2 pilot project interventions successfully constructed	2025	5 pilot project interventions successfully constructed	2030	Annual Budget Report PEU ¹⁷ Biannual reports	Pilot projects are proposed for agreed locations in Barbados.
Indicator 6.3b <i>Strategic Indicator 7)</i>	Number of Govt and local community groups/officials trained on low cost, community-based options for Risk Resilient ICZM	No local reps are trained on low cost, community-based options for risk resilient ICZM	2020	At least 15 local community groups are trained on low cost, community-based options for risk resilient ICZM	2025	At least 25 local community groups are trained on low cost, community-based options for risk resilient ICZM	2030	A project replication strategy is developed and disseminated to senior government planners in key Ministries.	The results of all coastal protection pilot projects are analyzed and used to the formulation of a government-endorsed replication programme
Indicator 6.3c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

¹⁷ PEU structure and content is yet to be determined

Indicator Number (Strategic Indicator)	Indicator Title	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
OUTCOME 6 - RESEARCH, UNDERSTANDING AND KNOWLEDGE OUTREACH IS INCREASED									
GOAL 6.4: DEVELOP A COASTAL RESEARCH AGENDA IN LINE WITH NATIONAL NEEDS AND NEW EMERGING ISSUES									
Indicator 6.4a <i>Strategic Indicator 6)</i>	Support the development of regulatory mechanisms for third party research permits and arising intellectual property issues.	No current regulation on coastal and marine data and information collected as a result of commercial or third party research activities	2020	tbd	2025	tbd	2030	tbd	tbd
Indicator 6.4b <i>Strategic Indicator 6)</i>	Review and update regional marine research strategy to address areas of uncertainty and emerging issues.	Operational and monitoring requirements for coastal marine research and data collection in need of review and update	2020	tbd	2025	tbd	2030	tbd	The state of the marine environment needs to be understood, both nationally and regionally, through coordinated monitoring and research activities.
Indicator 6.4c	tbd	tbd	2020	tbd	2025	tbd	2030	tbd	tbd

APPENDIX 5: ICZM IN BARBADOS – A WAY FORWARD BASED ON LESSONS LEARNED

A5.1) ICZM in Barbados 1983 to 2014

Coastal management in Barbados has undergone a significant evolution over the past 35 years putting it at the forefront of the practice across the Caribbean, and contributing to a thriving coastal tourism industry that continues to remain at the core of the country's economy. From a policy and institutional perspective, when compared to other countries in the Caribbean and SIDS globally, Barbados has charted a successful but focused path on core aspects of ICZM delivery including shoreline stabilisation and coral reef conservation. This has been robustly financially supported by the Inter-American Development Bank (IDB) who have collaborated, over recent years, on four specific investment programs as follows:

- Between 1983 and 1984, a Diagnostic and Pre-Feasibility Study of the island's coasts. This included training of 2 staff members to a post graduate level in coastal engineering and coastal planning;
- An institutional strengthening project, funded by IDB was undertaken by Willms and Shier (1992- 1994).
- Two further programmes were subsequently supported through pre-investment loans: namely the Coastal Conservation Pre-Investment Programme (Loan 57110C-BA for US\$4.7 million, 1991 –1995) and the technical cooperation Coastal Conservation Programme Phase I (Loan 856/OC-BA for US\$3.6 million, 1996-1999). Work on Loan 57110C-BA focused attention on the strategic areas of beach creation and stabilization; water quality improvement, the development of a draft Integrated Coastal Zone Management Plan for the South and West Coast and legal and institutional arrangements. Importantly, both loans integrated climate change considerations into the design of the pilot projects executed as part of the project. This included numerical and physical model analysis to help in the ensuring climate resilience was embedded into the designs of beach nourishment schemes which, at this time, was a first for Barbados. Importantly, the programme included institutional strengthening and training aspects associated with them. During the 1991-1995 Loan, 1 staff member was trained to a post graduate level in coastal engineering and post graduate diploma level in hydrographic surveying as well as a certificate in multi beam sonar processing; Phase 1 (Loan 856/OC-BA) trained 1 staff member at the post graduate level in coastal engineering.
- The Coastal Infrastructure Programme (CIP) was the fourth IDB-financed loan operation in Barbados in support of national efforts to implement ICZM in the country (2003-2011). The CIP focused on the development and implementation of shoreline stabilization and enhancement projects in areas that were classified as high priority coastal management concerns with respect to shoreline protection and erosion reduction. The prioritization of future additional areas of shoreline stabilization and enhancement were also identified to be implemented in the subsequent project phases.

Similar to the other projects mentioned above, the CIP had detailed training related activities as well as on the job and in house training components on different aspects of the project and the related activities that would follow on post project. An extensive in house training

programme was undertaken in the areas of practical applied use of physical modelling training as well as data interpretation and engineering design refinement were performed. Support included budget to allow the training of 1 staff member in coastal engineering. Additionally training in public stakeholder consultation approaches and training was carried out in approaches related to dealing with media personnel. Training in FIDC contracts and engineering inspection process on the job were also included which included site supervision, materials inspection and quantification, work validation amongst others.

A5.2) ICZM in Barbados 2014 to 2020

The IDB (within its Country Strategy with Barbados - 2014-2018) identified that Disaster Risk Management (DRM) and Climate Change Adaptation (CCA) should become priority areas for GoB through continued support in tandem with IDB intervention. As a result, the Coastal Risk Management Programme (CRMP - BA-L1014), was developed. This commenced in 2014 with a revised planning deadline extending through to early 2020. The CRMP aimed at building resilience to better embrace coastal hazards (including those associated with climate change) through enhanced conservation and management of the coastal zone. It represents the first time that *risk resilience* has been used as a platform from which to take forward ICZM in Barbados. Given the present stage of this project and the implementation of the project outputs this now requires time for applied development integration and implementation at the department level as well as the cross-governmental level for its impact to be fully recognized.

A5.3) ICZM Beyond 2020

From the investments and interventions received (notably over circa 30 years), the GoB has been able to establish the legal and institutional framework needed to protect its coast; acquired the technical know-how to assess, monitor and manage complex physical processes that shape its shoreline; has contributed to the scenic beauty and recreational value of its beaches; has implemented coastal infrastructure works that have had successfully controlled coastal erosion, stabilized beaches, improved public coastal access; and provided tangible economic and social benefits, both to its international tourism product and to locals alike. In fact, it is evident that no other Caribbean country has been able to implement any form of ICZM (especially ones that have merged DRR and CCA programmes together) in the absence of donor support.

Despite this assessment, there remains plenty of work to do. In particular, mainstreaming risk resilient ICZM (buy-in) at other department levels remains critically important if ICZM is to be sustained into the coming decade. Inevitable challenges face many institutions, including making individual mandates climate resilient, addressing limited staff resource issues and combatting any lack of political will and support to strengthen their institutions. It is likely that due to the historic dependency on donor funding, that the GoB departments will need to find common strands to help integrate and fully inculcate delivery instruments across the government apparatus. This has meant that while some individual departments/agencies have developed strong capabilities in these sectoral areas (i.e.: CZMU), this has been largely diluted by a lack of similar capability across other government departments. Significantly, this has impacted upon the ability to develop a national-level capacity to address the vulnerabilities faced within the coastal zone management area plus appetite to formulate a mixture of instruments/tools that facilitate community engagement with private sector investment, both of which are now regarded as critical to meet future challenges facing GoB.

A5.4) The Way Forward

ICZM represents a journey that takes time to show results. The early Diagnostic and Pre-Feasibility work (1983-84) in Barbados allowed to bring together appropriate funds and human resources, and to "establish specific milestones" for an ICZM future. The Barbados situation now being embarked upon (post 2020) seeks to demonstrate this by setting clear evidence based outcomes that are based upon sound scientific evidence gathering.

The lessons learned to date also show the need to fine tune research findings undertaken to better help prioritise national needs and from this, to demonstrate early successes as quickly as possible (initiating and "celebrating" visible "quick wins" is very important). To this end, a focus on priority national needs is now urgently required (in light of the COVID 19 pandemic outcomes), whilst adhering to the simple analogy of picking "low fruit" in the early years to best demonstrate success. In addition, building partnerships (private, public and regional) remains of paramount importance for the long term sustainability of risk resilient ICZM in Barbados.

A series of phases (as proposed by McCue – 2018) are proposed to support delivery of risk resilient ICZM in Barbados plus providing support (as required) for MMABE to move forward into a Sustainable Ocean Based Economy that embraces risk resilience.

A5.4.1) Phasing Interventions

PHASE 1 (2020 TO END 2022): CONSOLIDATING THE DELIVERY OF RISK RESILIENT ICZM IN BARBADOS

Vision to the end of 2022: During this phase, CZMU focus effort on the delivery of coastal risk management (as now retitled Risk Resilient ICZM). This shall provide CZMU with a "consolidation phase" that specifically focuses on implementing core policies and actions presented within the updated ICZM Plan and embraced within any subsequent legislative or regulatory/policy update. Risk Resilient ICZM approaches and principles will be used to support development control decision making and to help support improved climate and disaster compatible development within the CZMA which is the core aspect of the updated ICZM Plan.

It is proposed that by the end of year 2022, Barbados (CZMU with support from other agencies) will have fully consolidated its knowledge attained since the start of the CRMP programme to help them support the implementation of policies. These should help towards delivering (for example) new nature based interventions around the island in addition to the construction of new climate resilient coastal structures (including nature based solutions) as required.

The Phase shall also embark on the transition from Phase 1 (Consolidating) into Phase 2 (Formulating SOBE). The key focus here shall reflect the macro-economic situation of the country to determine the pre-feasibility assessments and viabilities of pursuing SOBE.

PHASE 2: FOUNDATION SETTING AND TRANSITIONING TO SUPPORT REALIZATION OF A SUSTAINABLE OCEAN BASED ECONOMY (2022 TO END 2024)

Vision to the end of 2024: It is proposed that within Phase 2 (2022-2024) CZMU focuses its delivery on maintaining the consolidation of Risk Resilient ICZM (Phase 1) for the whole country (as defined within the updated Risk Resilient ICZM Plans and supporting legal instruments). In addition, new efforts (including data collection and monitoring etc) shall be placed on embarking on formulating the necessary data and support mechanisms to help MMABE launch a workable foundation for pursuing a Sustainable Oceans Based Economy (SOBE) for Barbados. In the first year of Phase 2, key activities may include those linked to the mobilization of the SOBE feasibility programme, agenda setting,

establishing the programmes identity (draft Policy Framework for SOBE), and creating the economic conditions necessary for effective delivery.

Indicative SOBE Draft Master Plans shall be prepared to identify “blue growth” development zones around Barbados, with the intent to strategically locate blue growth activities in the most appropriate sites and with the goal to promote economic activity throughout Barbados to the extent feasible. Finally, it is envisaged that the Draft SOBE Master Plan shall identify “Blue Growth Marine Centres of Excellence” around Barbados which may include topics such as Marine Services, Eco-tourism, Marine Research and Technology, Fisheries/Aquaculture; Coastal Residential and Shipping/or Industry. Land within each of the proposed development zones may then be identified along with a list of potential projects that could be provided special “Blue Growth Incentive Packages” by GoB etc. Marrying these developmental zones against the Risk Resilient ICZM Plans (Phase 1) will be an integral process.

PHASE 3: IMPLEMENTATION OF A SUSTAINABLE OCEANS BASED ECONOMY (2025-2027)

Vision to the end of 2027: It is proposed that within Phase 3 (2025-2027), CZMU focus delivery on implementing Phases 1 and 2 (i.e.: parallel work plans and steams). This will involve the continuation of Risk Resilient ICZM delivery (including an update to the Risk Resilient ICZM Plans) coupled with the actions proposed within the SOBE Draft Master Plan for Barbados (Phase 2). Indicative activities that may be proposed within Phase 3 (as part of the transitioning process) may include the following actions:

Work Stream A: Risk Resilient ICZM for Barbados

- Action A3.1: Update and improve upon Phase 1 and 2 works as required and as dictated by continued update to NCRIPP and monitoring results attained between 2024-2027 and continue to support DRM/CCA mainstreaming to continue sustainable development within the CMA of Barbados.
- Action A3.2: Update Risk Resilient ICZM Plans (produced in 2019) to better the findings of the Phase 2 SOBE Master Plan (as agreed by the National Council for CZM or equivalent).

Work Stream B: SOBE for Barbados

- Action B3.1: Carry out education and awareness for SOBE and implementing a SOBE.
- Action B3.2: Support maritime surveillance, monitoring, and enforcement activities (as agreed by the National Council for Blue Economy or equivalent), to enhance compliance with SOBE policy instruments;
- Action B3.3: Provide the support information infrastructure for an effective implementation of SOBE in Barbados (as agreed by the National Council for Blue Economy or equivalent);
- Action B3.4: Supporting research and development for the effective implementation of SOBE (as agreed by the National Council for Blue Economy or equivalent);
- Action B3.5: Supporting the needs of business to help implement and develop SOBE in terms of sustainable finance and regulatory support (as agreed by the National Council for Blue Economy or equivalent).

PHASE 4: SUPPORTING THE DELIVERY OF A SUSTAINABLE OCEAN BASED ECONOMY (2028-2030)

Vision to the end of 2030: It is proposed that within Phase 4 (2028-2030) CZMU focuses delivery on the outcome of Phase 3 (exact details cannot be determined at this time though they are likely to reflect the equivalent actions required and set out in Phase 1 of this SAP (2020-2022)).

A5.5) Chronology of Donor Interventions and Priority Tasks

The following presents an outline chronology of “events” that CZMU have undertaken to help support ICZM implementation. This also includes new initiatives required over the coming 10 years to support risk resilient ICZM delivery.

DONOR INTERVENTIONS	1980s	1990's	2000's	2010's	2020's
Diagnostic and Pre-Feasibility Study of the island's coasts	X				
Coastal Conservation Pre-Investment Programme (<i>including an Institutional Strengthening Project; Beach creation and stabilization; Water Quality Improvement and Legal and Institutional Arrangements</i>).		X			
Coastal Investment Programme (CIP)			X		
Coastal Risk Management Programme (CRMP)				X	
Implementing Risk Resilient ICZM within a Sustainable Ocean Based Economy (SOBE)					X
PRIORITY TASKS FOR ICZM DELIVERY IN BARBADOS					
Formal Cabinet acceptance of ICZM Plans and Policies					X
Strengthened Policy Framework for Risk Resilient ICZM and SOBE ICZM (Legislation and Regulations in place and being implemented effectively)					X
Coastal Setback enforcement					X
Implementation of climate resilient EIAs					X
Research and Development for Risk Resilient ICZM (including ecosystem management) and SOBE					X
Mainstreaming of Coastal Development Planning and Construction Guidance (including Coastal Access (longitudinal and lateral)					X
Implementation and maintenance of shoreline stabilization and enhancement activities					X
Reducing Risk through Improved Integrated Monitoring (Water Quality, Beach Profile and Coral Reef Monitoring Programmes)	X	X	X	X	X
Ecosystem vulnerability assessment and climate change parameter monitoring				X	X
Updating Existing Approaches towards Collecting, Analyzing and Modelling Risk Resilient ICZM focused Information (using NCRIPP)					X
Communicating Findings through Improved Reporting					X
Strengthened Institutional Arrangements for Risk Resilient ICZM and SOBE (including Training on New Topics and Techniques)				X	X
Improving Education and Outreach Message Communication			X	X	X
Adopting New Sustainable Financing Mechanisms for Risk Resilient ICZM					
Foundation Setting and Transitioning to Support realization of a Sustainable Ocean Based Economy (2021-2024)					X
Supporting the Delivery of a Sustainable Ocean Based Economy (2027-2030) (including financial options to help transition towards a SOBE).					X

