

Amended in November 2013



ADAPTATION FUND

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat
1818 H Street NW
MSN P4-400
Washington, D.C., 20433
U.S.A
Fax: +1 (202) 522-3240/5
Email: afbsec@adaptation-fund.org



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ADAPTATION FUND

CONCEPT FOR NATIONAL PROJECT/PROGRAMME TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	Regular Project
Country/ies:	Belize
Title of Project/Programme:	Enhancing the Resilience of Belize's Coastal Communities to Climate Change Impacts
Type of Implementing Entity:	National Implementing Entity
Implementing Entity:	Protected Areas Conservation Trust
Executing Entity/ies:	National Climate Change Office Coastal Zone Management Authority and Institute
Amount of Financing Requested:	\$4 Million (in U.S Dollars Equivalent)

Project / Programme Background and Context:

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.

Country Context

Belize, located on the eastern coast of Central America, has a national territory which expands across 46,620 km². The mainland of the country comprises 95% of the total territory and the remainder, approximately 1,060 km², consists of small islands and offshore cayes. The country's coastline, which extends 386 km is noted for its extensive mangrove forests, sea grass beds and the Belize Barrier Reef System.



Figure 1. Map of Belize (Belize Center for Environmental Studies).

Throughout Belize and the Caribbean, the consequences of climate change are impacting communities and national economic sectors. Given current climate projections for the region and Belize, impacts will be exacerbated and have highly noticeable effects on Belize's society and sustainable development. Changes in the intensity, distribution and frequency of extreme weather events, such as storms and hurricanes, sea level rise (SLR), increased sea surface temperature, ocean acidification, coral bleaching, drought, wildfires, and changes in crop production are but some of the impacts of climate change Belize anticipates facing. These changes will have direct and indirect impacts on productive sectors in Belize and the environment, which will in turn affect Belize's sustainable economic and social development.

Belize's geographic location and low-lying coastal areas leave it highly susceptible to the impacts of climate change. Much of Belize's northern half and a large portion of the southern third of the country, as well as the coastal areas and islands are flat and low lying, being highly vulnerable to SLR, erosion, storm surges and flooding. A 2014 assessment categorized Belize's vulnerability index to climate change as extremely high; ranking 9th on the list of 38 other countries in Latin America and the Caribbean (CAF, 2014).

As a country, Belize is economically dependent on natural resources and associated ecosystem services provided, magnifying the impending vulnerabilities to be faced as a result of climatic changes. The country's key development sectors are particularly vulnerable to the impacts of climate change due to their high reliance on natural resources and direct link to the social well-being of the citizens; sectors such as agriculture, fisheries, tourism, coastal zone, water and forest.

Over the past few years Belize has experienced many effects linked to climatic changes and variation; such as drought, flooding, change in precipitation and temperature patterns, sea level rise and coastal erosion. The country is also seasonally affected by tropical storms and hurricanes, which on average, according to scientific reports, are becoming more intense each year due to the effects of human-induced global warming and higher sea surface temperatures. Belize is also highly exposed to other natural hazards such as flooding and drought. These can lead to infrastructure and economic losses, especially in agricultural and coastal areas during the hurricane season. There has also been evidence that the average annual temperature of Belize has been rising and is projected to rise further. Temperature projections carried out by experts from INSMET Cuba, showed that annual temperature changes from 2021 – 2080 versus 1961 – 1990 for four climate projection scenarios show a steady increase in mean temperature during the XXI century for Belize nationally (Figure 2).

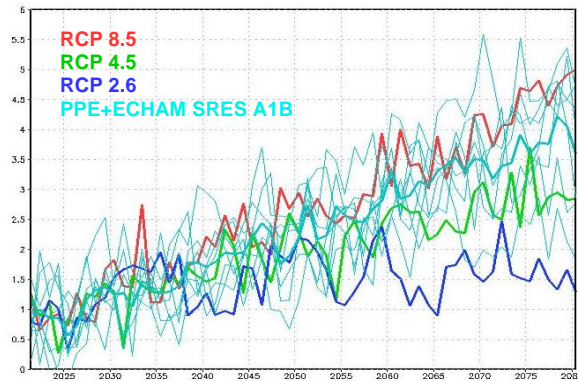


Figure 2. Interannual variations of mean temperature anomalies (°C) during the period 2021 until 2080 for four scenarios, with baseline period 1961-1990. (Centella & Benzanilla, 2019)

In order to effectively address these issues, the threat of climate change requires multilateral action from policy makers, technical experts, the private sector and the public, in order to seek solutions and make changes to reduce global emissions of greenhouse gases. However, even with mitigation efforts in place, we are going to feel the effects of climate change. Therefore, the effects currently being experienced and those expected to take place in the near future requires the country to find ways to adapt to the imminent changes in order to reduce vulnerability and enhance resilience to future climate risks and hazards.

The coastal zone of Belize, where a significant percentage of the population is located and where the bulk of economic activity takes place (tourism, fishing and agricultural production), is for the most part below the high tide level. As a result, this places the coastal zone in a very risky position regarding climate-driven sea level rise, especially when augmented by storm surges. Many Belizeans that live along the coast depend on the coastal resources for fishing and tourism, therefore, impacts to these sectors would highly affect the livelihoods of many and hinder economic and social development. Belize's Third National Communication (NCCO, 2016) states that the area most susceptible to the effects of Climate Change is the coastal ecosystem. Anticipated increases in sea surface temperatures, salinity, pH, sea level, and intensity of tropical cyclone events have direct implications on the future state of the coastal zone and the ability of Belizean people to utilize the resources it provides.

Many cross-sectoral issues exist due to the impacts of climate change, increased coastal erosion and more extensive inundation are expected from rising sea levels, leading to loss of beaches; storm surges may flood larger areas than currently takes place, thereby impacting primary production, and may cause saline intrusion up estuaries and into groundwater aquifers. These biophysical impacts will lead to loss of coastal habitats, property damage, flooding and loss of life, as well as have economic consequences for rural production and urban lifestyles and displacement of 27 coastal communities.

Changes in climatic conditions and the resulting effects are compounded by anthropogenic activities along the coast. Communities along the southern coast of Belize are being drastically affected by erosion; human activities and climatic changes and variations and other natural causes exacerbating the problem, leading to coastal line retreat.



Figure 3. Images depicting erosion in Dangriga and Hopkins, respectively (NCCO)

In these areas it was assessed by Dr. Jose Luis Juanes and Miguel Izquierdo of the Ministry of Science, Technology and Environment of Cuba that erosive processes are very evident in the two areas shown above. Mining on the rivers and improper planning have been augmenting the erosion taking place. The natural causes are also manifested in the whole region, and it may be noticed that they are related to a higher frequency and intensity of tropical storms, sea level rise and the deficit in the sand inputs to the coastal system (Juanes & Izquierdo, 2019).

The village of Monkey River is another area that has suffered significant land loss. This village has seen reduced sand delivery to the coast from upriver, this has been due to decades of intensive land use, water use and extraction, river sand mining from the middle reaches of the Monkey River network. Climate change plays an important role in exacerbating this problem. A report by the Monkey River Watershed Association and Nilcia Xi (2019) stated that insufficient sand is being delivered to the river mouth to replace the sand being lost to natural shoreline erosion.

Several factors have led played a role in the insufficiency of sand. Lower sand delivery has been affected by lower flood flows and less sand supply in the river channel. Due to water use and changes in hydrology, flood flows have been reduced causing sand to settle in the river channel, and not going past the river mouth into the sea. Mining in the area has also led to large amounts of silt in the river channel, displacing the amount of sand that can be transported because the smaller silt particles are more easily transported. Extraction of sand may also reduce the amount of sand supply available to feed the beach. Water extraction for irrigation of banana farms has also led to reduced river flow and the amount of sand that can be transported, especially during the dry season when flood flows are non-existent. These factors leave the village highly vulnerable and exposed to the impacts of a changing climate. Tropical storm and hurricanes have been associated with the fastest rates of beach erosion in the area. In 2001 Hurricane Iris cleared most of the trees in the village which led to lowering of the land surface in the area. The

Association and Xi (2019) noted that sea level rise is a slow actor in the area, but it will exacerbate the sand delivery problem and increase risks in the area during future hurricanes.

These are a few examples of the erosion crisis occurring in southern Belize. Thus, it is crucial to decrease the vulnerability of these communities and increase resilience against impacts of climate change by increasing their adaptive capacity and ability to anticipate and absorb shocks and bounce back for them. Currently, residents in these areas have not been able to adapt to changes and have been drastically affected by impacts to the coast. Thus, investments need to be made in decreasing exposure, risk reduction, building capacity and increasing resilience to reduce the impacts of future hazards and climate change.

The IPCC (2007) stated that global sea level rose at an average of 1.8 mm per year from 1961 to 2003. Domingues et al. (2007) estimated a rise of $1.5 \pm 0.4 \text{ mm yr}^{-1}$ for the same period. According to sea level rise projections for the Caribbean region, sea level will rise 0.18 – 0.59 m by 2099 (Cambers et al., 2007), while Rahmstorf (2007) projected that sea level could increase between 0.5 – 1.4 m above the 1990 level.

Large regional variations have been superimposed on mean global sea level rise rate. Table 1 demonstrates observations from tidal gauges surrounding the Caribbean basin which indicate SLR in the Caribbean is broadly consistent with the global trend (Table 2).

Tidal Gauge Station	Observed trend (mm yr ⁻¹)	Observation period
Bermuda	2.04 (+/- 0.47)	1932-2006
San Juan, Puerto Rico	1.65 (+/- 0.52)	1962-2006
Guantanamo Bay, Cuba	1.64 (+/- 0.80)	1973-1971
Miami Beach, Florida	2.39 (+/ 0.43)	1931-1981
Vaca Key, Florida	2.78 (+/- 0.60)	1971-2006

Table 1. Sea level rise rates at observation stations surrounding the Caribbean Basin (NOAA, 2009; CARIBSAVE, 2012)

Scenario	Global Mean SLR by 2100 relative to 1980-1999 (m)	Caribbean Mean SLR by 2100 relative to 1980-1999 (+/ 0.05 m relative to global mean) (m)
IPCC B1	0.18-0.38	0.13-0.43
IPCC A1B	0.21-0.48	0.16-0.53
IPCC A2	0.23-0.51	0.18- 0.56
Rahmstorf, 2007	Up to 1.4m	Up to 1.45m

Table 2. Projected increases in sea level rise from the IPCC AR4 (CARIBSAVE, 2012)

Table 2 shows projections of sea level rise from the IPCC's AR4 report, with projections spanning from 0.18 to 0.56 m by 2100 relative to 1980 – 1999 levels. However, these ranges were challenged by several authors as being too conservative (e.g. Rahmstorf, 2007; Rignot and Kanargaratnam, 2006; Horton et al., 2008) and have provided evidence that a larger upper limit for uncertainty should exist (CARIBSAVE, 2012).

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According to a 2014 report “Analyzing Vulnerability of the Belize Coastal Tourism Sector” low lying areas in Belize, particularly those with elevations ranging from 0 – 5m, are the most vulnerable to sea level rise. As shown in Figure 4, this accounts for a significant portion of Belize’s coastal zone, especially when a 3 km inward extent along the coast is considered where most development activities occur. Figure 5 shows the location of tourism facilities (accommodations and attractions) that are in vulnerable low-lying areas. A total of 291 tourism facilities were identified along the coast, of which 263 were accommodations and 28 were attractions. Tourism facilities are located at different elevations, however, 94% of accommodations were found to be within the lower elevation (0 – 5 m) and 79% of attractions were found to be within the lower elevation (CARIBSAVE, WWF, CZMAI, ERI, BTB, BTIA, 2014). Tourism facilities and other infrastructure/ housing located within these low elevation classes are considered to be more at risk to inundation. They would also be at higher risk to erosion, soil and aquifer contamination with saltwater and to other impacts of sea level rise.

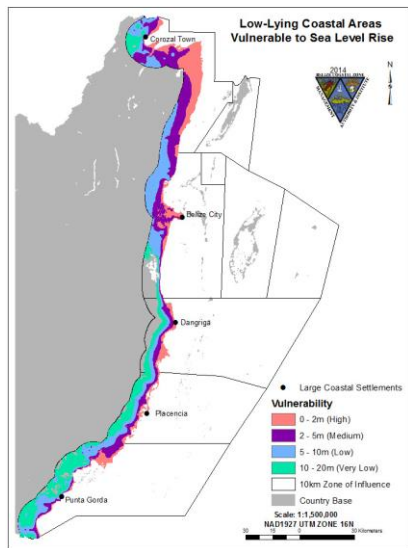


Figure 4. Vulnerability of Coastal Areas relative to sea level rise (CZMAI, 2014)

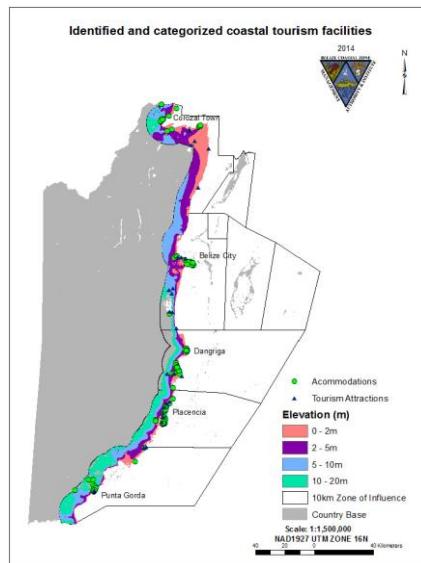


Figure 5. Location of Tourism Facilities in Vulnerable Coastal Areas (CZMAI, 2014)

It should also be noted that the coastal plain of Belize largely lies below 20m above sea level, with many areas below 10m and subject to inundation, with much of Belize City on land below 10m.

In Belize City, residential areas such as Vista del Mar, Bella Vista, Belama and Fort George which are on drained and reclaimed wetlands are highly vulnerable to projected sea level rise. Other coastal communities, such as Dangriga, Corozal Town, Placencia, Ambergris Caye and other offshore islands are threatened if sea level rise by 20 cm. For these communities to cope a constant supply of large volumes of sediment would be needed to replace sediment lost (CaribSave, WWF, CZMAI, ERI, BTB, BTIA, 2014).

Belize's 2019 midyear population estimate is 408,487 inhabitants, this includes 204,247 males and 204,240 females. This project has taken into consideration gender equality and equity by pursuing activities and measures that are beneficial to both genders and their families as well. The project will also be gender responsive by ensuring that both men and women are adequately represented at all stakeholder consultations and that the opinions of all relevant stakeholders are considered during the development and implementation of project components.

As can be seen from Table 3 in the 27 coastal communities of Belize the male to female population does not vary greatly, therefore, both genders need to be consulted equally. Based on 2010 statistical data the project will benefit 57,787 males and 60,035 females from the 27 coastal communities located in northern, central and southern Belize. The proposed project will take into account the different challenges and risks that men and women face. Along the coast of Belize, most people rely on the fishing and tourism industries. In the fishing industry mostly males are

present, facing challenges such as poor catch, decrease in fish stocks, pollution, lack of access to funds or loans, as well as others. For the tourism sector both men and women are equally represented, facing challenges such as decrease in tourist visits, changing climate, poor infrastructure, etc. Specific issues affecting both genders will be addressed when developing the full project proposal, as well as during project execution. Specific vulnerable groups in these sectors include fisherfolk, tour guides, hotel/resort owners, and hotel/resort workers. Other vulnerable groups include owners of residences, buildings and other infrastructure along the coast.

Men, women, youth and vulnerable groups in these communities are being drastically affected by changes in the climate. Residents in these communities rely heavily on the natural resources and services that the coast provides, thus ensuring that the coast is protected and that the shoreline is not further developed in an unsustainable manner is important for a thriving future in these communities. Ensuring protection of the coast depends heavily on the knowledge of the residents and users of the coast, thus component 4 of the project will strive to meet the needs of both men and women and will equally engage both genders in knowledge and outreach activities. Awareness raising will be carried out in a gender responsive manner that ensures that the attitudes, behaviors and beliefs that reinforce inequalities between men and women are changed and that both genders are given equal opportunities.

Table 3. Coastal Communities and their Population

	City/Town/Village	Total	Males	Females	Households
Corozal District					
1	Corozal Town	10,287	4,932	5,355	2,696
2	Altamira	210	105	105	49
3	Chunox	1,375	705	670	234
4	Consejo	350	178	172	117
5	Copper Bank	470	237	233	104
6	Sarteneja	1,824	919	905	431
Belize District					
7	Belize City	57,169	27,655	29,514	16,162
8	San Pedro Town	11,765	6,051	5,714	3,769
9	Caye Caulker	1,763	875	888	555
10	Gales Point	296	152	144	72
11	Ladyville	5,458	2,672	2,786	1,527
12	St. Georges Caye	656	319	337	204
Stann Creek District					
13	Dangriga	9,591	4,615	4,976	2,572
14	Hopkins	1,610	777	833	427
15	Independence	4,014	2,011	2,003	972
16	Maya Beach	229	132	97	99
17	Mullins River	235	155	80	102
18	Placencia	1,753	940	813	644
19	Riversdale	567	358	209	221
20	Seine Bight	1,310	669	641	324
21	Sittee River	439	245	194	140

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Toledo District					
22	Punta Gorda Town	5,351	2,519	2,832	1,358
23	Barranco	157	80	77	54
24	Forest Home	479	245	234	120
25	Monkey River	196	98	98	37
26	Cattle Landing	226	121	105	63
27	Punta Negra	43	22	20	11
Total		117,823	57,787	60,035	33,064

Project / Programme Objectives:

List the main objectives of the project/programme.

The objective of the proposed Project will be to increase climate resilience of coastal communities in Belize by improving coastal land use, habitation and monitoring by increasing adaptive capacity and knowledge transfer. The project will achieve this through four main components:

- i) Improving Coastal Land Use for Resilient Habitation and Sectoral Activities
- ii) Coastal Vulnerability Monitoring
- iii) Beach Stabilization of High-Risk Coastal Areas
- iv) Awareness Raising, Knowledge Dissemination and National Capacity Strengthening

The concept behind this Project is to decrease vulnerabilities in coastal areas by improving planning and decision making thus ensuring that country capacity is built to address future climate change impacts. Component One seeks to aid in the control of risks and prevention of continued infrastructure development in vulnerable coastal areas, which threatens the integrity of mangrove forests, seagrass beds and coral ecosystems as well as native biodiversity. As infrastructure continues to be built in areas that are highly exposed and vulnerable to risks and future hazards, it is important to regulate and make recommendations for future construction in these areas in avoidance of negative economic and environmental impacts and enforce national guidelines for such activities to lower vulnerabilities. The completion of this component will result in the creation and implementation of a national policy for resilient coastal habitation with the associated building codes. The Integrated Coastal Zone Management Plan and its associated guidelines for zonation will also be strengthened for implementation. This will be achieved by acquiring the necessary software and equipment for the CZMAI to collect and process data, conducting drone mapping and ground truthing to update inventory of 3 planning regions, and having site inspections and meetings.

The Coastal Vulnerability Monitoring, Component Two, will seek to integrate the impacts of climate change to coastal zone management practices by carrying out critical assessments and monitoring. This component will carry out a crucial assessment and monitoring of saline intrusion and develop a program to track its impacts. A National Beach Erosion Monitoring Program will also be initiated to monitor coastal/beach erosion, utilizing stakeholders within the national protected areas system for on the ground monitoring, with the CZMAI coordinating the related activities. This component will aid in planning for climate resilient infrastructure as it

will examine vulnerabilities of saline intrusion and erosion, thus avoiding development in areas that may be highly impacted by these.

The Monitoring component will also include a coastal early warning system for storm surges and flooding. This will lead to a system being established for observation (monitoring), data collection and information management, information dissemination and raising public awareness, as well as implementing appropriate adaptation measures. A subsequent coastal preparedness and response plan for storm surges and flooding will also be developed, highlighting preventative measures that can be taken to decrease vulnerabilities and the severity of impacts. The plan will aid the National Meteorological Service in preparing for storm surges and flooding and to be able to make the best use of resources, time and efforts.

Component three, Beach Stabilization of High-Risk Coastal Areas, will seek to recover beach loss due to erosion and reach shore stabilization in two communities of southern Belize. This component will directly benefit the members of the two selected coastal communities (Dangriga and Hopkins) via securing local infrastructure, increasing tourism and recreation activities tied to beach use and intrinsic national value. At the national scale lessons learnt will be documented and reported for scaling up to other communities with similar coastal attributes. This is a critical component in increasing adaptive capacity of coastal communities that have suffered extensive erosion, hence aiding in protecting the shoreline from future erosion and from the negative impacts of increased storm intensity, attributed to climate change, in addition to improving the livelihoods of many people.

Under Component four, Awareness Raising, Knowledge Dissemination and National Capacity Strengthening; information on climate change impacts to the coastal zone and appropriate mechanisms for climate change adaptation will be made easily accessible to the public, private and government sectors. This will lead to increased adaptive capacity and knowledge, thus strengthening the institutional and local capacity to address the risks associated with climate induced impacts on the coastal zone of Belize. A National Climate Change Communication Strategy and Action Plan will be developed, aimed at facilitating effective communication on climate change information at all levels in order to enhance management of climate change impacts and explore measures for adaptation and mitigation and related opportunities. Training modules will also be developed, to inform and build capacity of stakeholders for best coastal adaptation practices for Belize. This component also aims to increase the institutional capacity of the CZMAI by strengthening their GIS capabilities.

These above components are crucial for the proper management of vulnerable coastal areas in Belize, in the absence of proper planning, legislations and policies unsustainable development will continue unchecked along the coast, increasing vulnerabilities and exacerbating the impacts of climate change. Knowledge transfer and capacity building are also necessary to ensure that relevant stakeholders can increase their adaptive and absorptive capacity and are willing to comply with the necessary adaptation actions to increase national resilience.

The objectives of this project are strategically aligned with the Adaptation Fund Strategic Results Framework in that its overall aim will reduce vulnerability and increase adaptive capacity to respond to the impacts of climate change in coastal areas of Belize. It will increase resiliency at

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the community and national level by implementing the different components of the project. The projects alignment with Outcome 1 is evident in the number of activities that will generate vital climate related data, which will be used to devise impactful climate responses. The early warning system will produce real time data linked to the departments website for analysis and dissemination to the general public. Analyzed data from the coastal monitoring beach program will enable proactive responses to reduce the loss of property and infrastructure. In particular, it is aligned with Outcome 2 through the implementation of Component Two, with activities to establish a community network to monitor beach erosion and increasing capacity of the CZMAI to coordinate monitoring and analyze the causes and impacts of erosion, therefore increasing capacity of a targeted institution and the public. Outcome 2 is also addressed through the enhancement of an early warning system for storm surge and flooding, which will increase the capacity of the National Meteorological Service to inform the public of these risks and be better able to respond. The project will also address Outcome 3, through its awareness raising, knowledge dissemination and national capacity strengthening component, through which different audiences from the population will be targeted, different communication channels will be used, and public awareness and outreach will be key for increasing knowledge on appropriate responses to climate change and how to adapt to its impacts. The project is also aligned with Outcome 5 as it will address the maintenance of ecosystem services of coastal areas by improving coastal land use and habitation and activities and implementation of the ICZMP and associated guidelines for zonation, these will ensure future sustainable development of the coast, maintaining the services it provides. Outcome 7 is also addressed as the project will introduce the creation of national policy for resilient coastal habitation, which will take into consideration climate change and ensure that future development does not occur in areas that are not suitable. Further information can be found in Annex 1.

Project / Programme Components and Financing:

Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.

For the case of a programme, individual components are likely to refer to specific subsets of stakeholders, regions and/or sectors that can be addressed through a set of well-defined interventions / projects.

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Improving coastal land use for resilient habitation and sectoral activities	1.1. Development of national policy for resilient coastal habitation based on vulnerabilities 1.2. Strengthening the implementation of the Integrated Coastal Zone Management Plan and associated management guidelines for zonation	1.1.1. Reduce instances of habitation in vulnerable coastal areas 1.1.2. Decrease incidence for the loss of infrastructure investments 1.1.3. Protect the lives of 40% of the country's population that live and work within the coastal zone	885,000

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<p>2.Coastal Vulnerability Monitoring</p>	<p>2.1. Development of a national coastal saline intrusion program</p> <p>2.2. Develop and implement a National Beach Erosion Monitoring Program</p> <p>2.3. Develop and implement a coastal early warning monitoring system for storm surge and flooding</p>	<p>2.1.1. Enhance evidence-based knowledge to determine best use practices for freshwater supply for the coastal areas (water and agricultural sector); Reducing probability of further saline intrusion</p> <p>2.1.2. Implementation of a long-term monitoring program which utilizes advanced techniques for annual monitoring, which would enable proactive response to coastal erosion</p> <p>2.1.3. Strengthen the capacity of CZMAI to coordinate and maintain a beach erosion monitoring system</p> <p>2.1.4. Improve national system for forecasting and signalling storm surge and flooding events in order to respond in a timely manner and minimize impacts</p>	<p>1,143,687</p>
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3. Beach stabilization of High-Risk Coastal Areas	<p>3.1. Conduct baseline assessment for best options for nourishment/rehabilitation</p> <p>3.2. Development of an engineering plan for the nourishment/ rehabilitation of selected beach with storm and erosion protection mechanisms</p> <p>3.3. Pilot nourishment/ rehabilitation of selected coastal communities</p>	<p>3.1.1. Development of a mechanism for the nourishment/ restoration of areas lost to erosion which can be modified for replication in other areas of the country.</p> <p>3.1.2. Extension of storm and erosion protection in rehabilitated areas, thereby increasing the selected community's adaptation potential</p> <p>3.1.3. Decrease probability of infrastructure loss in rehabilitated areas Decrease probability of infrastructure loss in areas rehabilitated</p>	1,032,719
4. Awareness raising, knowledge dissemination and capacity strengthening	<p>4.1. Development of a National Climate Change Communication Strategy and Action Plan</p> <p>4.2 Development of training modules for best coastal adaptation practices for Belize</p> <p>4.3 Strengthening of GIS capabilities within the CZMAI</p>	<p>4.1.1. Increase general public knowledge on mechanisms for climate change adaptation in communities</p> <p>4.2.1 Increase adaptive capacity of public and private sector</p> <p>4.2.2 Build institutional capacity of CZMAI</p>	275,000
5. Total Components			3,336,406
6. Project/Programme Execution cost (9.5%)			350,230
7. Total Project/Programme Cost			3,686,636
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (8.5%)			313,364
Amount of Financing Requested			\$4 Million USD

Projected Calendar:

Indicate the dates of the following milestones for the proposed project/programme

Milestones	Expected Dates
Start of Project/Programme Implementation	July 2020
Mid-term Review (if planned)	August 2022
Project/Programme Closing	July 2024
Terminal Evaluation	January 2025

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

Component One, Improving coastal land use for resilient habitation and sectoral activities, focuses on strengthening the governance of 27 coastal communities and can provide a formal structure to address the challenges that arise due to continued growth in coastal areas. The objective of creating a national policy for resilient coastal habitation will be achieved by:

- i) identifying coastal habitation vulnerabilities and trends via the analysis of past coastal alignment spatial data
- ii) developing a risk profile based on vulnerabilities identified
- iii) creating a building code for the coast
- iv) establishing a pilot for simulation of a resilient coastal building/ home
- v) development of the policy on resilient coastal habitation in collaboration with all relevant stakeholders
- vi) socialization and communication of the policy through community outreach consultations and workshops.

These activities will aid in reducing instances of habitation in vulnerable coastal areas and in decreasing social and infrastructure cost due to increased resilience. It will also prevent and reduce the effects of natural hazards and of climate change on vulnerable coastal areas, which can be exacerbated and induced by human activities.

Currently, there is widespread expansion of communities into vulnerable coastal areas, as well as tourism infrastructure such as hotels and resorts, which is leading to the unsustainable development of the coast. While the coast is a desirable location for development, as many economic activities occur there, proper management of coastal areas, especially highly sensitive and vulnerable habitats is necessary, as they also provide high value for conservation and public enjoyment. With this policy in place it will aid in regulating coastal habitation in vulnerable areas, leading to more informed decision-making. In the absence of the policy, human

modification of the coastal zone for habitation and development will continue to increase, exacerbating existing threats and future threats of a changing climate. Continued development in highly vulnerable areas increases the number of people and built infrastructure that are exposed to the impacts of climate change and natural hazards. The policy will provide a clear understanding of potential impacts of development in areas, which are at risk to coastal flooding, erosion, sea level rise etc.

Through Component One the implementation of the Integrated Coastal Zone Management Plan (ICZMP) and associated guidelines for zonation will also be strengthened. This will take into consideration analysis of coastal alignment and trends linked to habitation and vulnerabilities. To do this past coastal alignment spatial data will be collected and analyzed to determine trends in coastal erosion, which is directly linked to component two, Coastal Vulnerability Monitoring. This activity intends to build mechanisms for informed and wise planning of Belize's coast for sustainable future development and shall set forth and enforce goals and objectives to govern the use of land and water in Belize's coastal zone through implementation of the ICZMP. The component will build on and support the implementation of the guidelines for zonation that already exist under the CZMAI. This will be achieved through:

- i) procure necessary software and equipment for data collection and processing
- ii) Conduct drone mapping and ground truthing exercise to update Coastal Land Use Inventory to update the register for three planning regions in the northern, central and southern Belize.
- iii) Conduct site inspections, meetings with Community Wardens and Coastal Advisory Committees to monitor compliance with the Coastal Zone Management guidelines.

The implementation of the Plan and guidelines of zonation is crucial in decreasing vulnerability as it will allow the rational and orderly development of coastal land in an environmentally sound manner to ensure the sustainable development of human settlements and infrastructure that are resilient to climatic changes and its impacts. The latter is of high importance as the ICZMP indicates that six of the ten major residential centers in Belize are located on the coast. "Despite a stated policy to relocate housing inland due to sea level rise and hurricane vulnerability, all coastal centers are experiencing growth to varying degrees, and frequently into flood-prone areas. Development is undertaken by both the public and private sectors, with the latter involved primarily in sub-divisions in several coastal locations, often targeting foreign markets and retirees" (CZMAI, 2016). Therefore, the Plan is crucial to deter such development. Through the zonation guidelines it will allow the needs of the population, in terms of housing, infrastructure, tourism development etc., to be met within areas that are suitable for each type of activity with minimal or no negative impacts on the terrestrial and/or marine environments. It will ensure that areas vulnerable to natural hazards or disasters, areas with unsuitable terrain (such as swamps) or areas that endanger the health and safety of the population are not further developed. With proper implementation and enforcement, areas identified for different activities (residential, industrial, tourism etc.) can be divided into zones in which specific land uses will be permitted or prohibited. It may also regulate the size and placement of buildings and other conditional uses of the land.

Component Two, Coastal Vulnerability Monitoring, will support the assessment of coastal saline intrusion to determine the saline intrusion zone along the coast and its impacts on freshwater and ground water supplies. This monitoring program is crucial in determining best

uses for the land and the spectrum of activities which are appropriate for zones with high salinity. It is also beneficial to the agriculture sector for determining crop cultivation zones. The study will provide vital information for the development of a National Water Master Plan, Water Quality Control Plan and Water Vulnerability Profile. Activities included within this assessment include

- i) information collection and analysis
- ii) preliminary groundwater flow assessment
- iii) saline intrusion risk mapping
- iv) developing and executing field program
- v) evaluating the results of the assessment and completing the risk mapping and report.

A national coastal Monitoring Program for Beach Erosion will also be implemented to assess the causes and impacts of coastal erosion and safeguard coastlines for rapid erosion in the future. Available techniques will be analyzed to determine suitability. Activities include:

- i) analyzing techniques available to assess erosion to determine best options
- ii) analyzing aerial films of the coastline in possession of the LIC
- iii) establishing a community network for on the ground monitoring
- iv) building capacity of the CZMAI to coordinate, maintain, conduct analysis and do outreach for the monitoring program
- v) providing training to the community network on protocols for monitoring and reporting
- vi) develop database for the data collection and storage
- vii) develop a mechanism to ensure sustainability and funding for the community network after the project has been completed.

Development of a mechanism and identifying funding sources is key to ensuring sustainability of this monitoring program. By identifying these sources CZMAI will then be able to work towards accessing funding for continued monitoring. It is also necessary to ensure that key personnel from the CZMAI are properly trained and have the necessary equipment to continue monitoring after completion of the project.

An Early Warning Monitoring System for storm surge and flooding will also be enhanced under Component Two. This will lead to the forecast and signaling of storm surge and flooding events, which will allow emergency response in a timely manner to minimize impacts. The system will build upon and be integrated into the activities of the National Meteorological Service. Activities to be conducted under this output include:

- i) assessment and mapping of coastal flooding hazards
- ii) purchasing of equipment for data collection, monitoring and maintenance
- iii) assessment to determine the best option available for an automated dissemination process
- iv) development of risk indicators from collected and observed data
- v) development of database for collection and storage of data
- vi) trainings for the maintenance and use of the early warning system and
- vii) development of a response plan for storm surges and flooding,

The above activities will lead to an efficiently coordinated response which will protect human life and therefore ensure their wellbeing.

Component Three, Beach Stabilization of High-Risk Coastal Areas, seeks to recover beach area lost due to coastal erosion. Recovery of beach area will allow for the development of a mechanism to recover areas lost to erosion which can be replicated in areas with similar attributes and modified to fit specific needs. It will also lead to the extension of storm and erosion protection in the selected areas, increasing their adaptive capacity and will decrease the probability of infrastructure being lost in the area in the future. To carry out this component activities include:

- i) a baseline assessment conducted to determine the best options for rehabilitation
- ii) an engineering plan with the necessary surveys will be developed for the rehabilitation of selected communities and
- iii) the development of a mechanism to recover areas lost to erosion which can be replicated in areas with similar attributes.

Through this Component it will be determined what is the best option to stabilize the beaches of the two selected communities and carry out the necessary activities in a sustainable manner with minimum impacts to the environment and society.

Component Four focuses on awareness raising, knowledge dissemination and national capacity strengthening. It will strengthen the capacities of local government officers, the private sector and communities. This will be done by developing a National Climate Change Communication Strategy and Action Plan. The strategy and action plan will facilitate effective communication on climate change information at all levels in order to enhance management of climate change impacts and explore measures for adaptation and mitigation and related opportunities. This will be carried out by:

- i) consultations with relevant stakeholders to determine needs, gaps and weaknesses
- ii) develop communication objectives and establish target audiences
- iii) establish communication channels
- iv) develop a communication strategy and action plan for climate change and
- v) developing and implementing a public awareness campaign.

Public awareness and outreach will be carried out to increase knowledge on mechanisms that can be implemented and actions that can be taken for climate change adaptation, especially along the coast. Lessons learnt from the project will also be documented and form part of knowledge products to be disseminated. Under the component training modules will be developed for best coastal adaptation practices. These training modules will be put into practice through workshops and trainings, to be carried out in order to strengthen local capacity to be able to assess impacts of climate change on the coast and how to develop best coastal adaptation practices. This will lead to the strengthening of awareness and ownership of adaptation and climate risk reduction processes. Activities under this output include:

- i) consultations with stakeholders to determine their level of knowledge and needs
- ii) development of training modules
- iii) development of an inclusive community-based toolkit
- iv) documenting of lessons learnt and dissemination through appropriate means
- v) trainings and workshops carried out based on training modules for best coastal adaptation practices.

The CZMAI's capabilities to utilize GIS will also be strengthened, building institutional capacity. Specific activities to be carried out include:

- i) identification and attainment of infrastructure and materials, including computer hardware and software and data gathering equipment for the CZMAI
- ii) training of the community network carried out for the operationalization of the National Coastal Monitoring Program under Component Two
- iii) training and utilization of GIS equipment for national monitoring of erosion carried out with CZMAI, to be used for risk mapping and mapping coast susceptibility to erosion.

Throughout components one, two, and four of the project the target beneficiaries include residents of all 27 coastal communities identified, this includes the 57,787 males and 60,035 females in these communities. A list of these specific communities can be found on Table 3. All communities and residents of these communities are targets as the project is focusing on increasing resilience of the entire coastline through resilient habitation, monitoring activities along the coast and awareness raising, knowledge exchange and capacity building. Specific target groups in each community will be identified by developing criteria for selection, these groups will be crucial for component 4 of the project in order to be able to meet their specific needs and tailor outreach, awareness raising and capacity strengthening. Component three is targeting 2 communities, these being Hopkins and Dangriga. These communities were chosen as this component will be carried out in continuation of a pilot project being executed under the NCCO's Fourth National Communication (FNC) Project. The FNC project will carry out the initial preliminary assessments and field work necessary to inform the beach stabilization component under the Adaptation Fund and provide needed data.

B. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

Coastal and marine ecosystem provides substantial goods and services to Belize and the coastal zone is an area of high economic activity. The coastal area contains abundant natural resources, supporting several productive sectors, such as tourism and fisheries. The coast is also home to about 40% of the population, its ports, and developments for industry, agriculture and aquaculture (CZMAI, 2016). Based on 2010 population statistics, there are 53,234 males and 55,039 females residing in the nine coastal planning zones across 27 coastal communities in the country. However, despite the importance of coastal ecosystems and the services they provide, they are often mismanaged and lack the proper investment and policy decisions. Belize's reefs, as well as other coastal habitats, are threatened by unchecked coastal development, overfishing, tourism pressures and climate related changes (WRI, 2008).

Economic Benefits

As the coast provides highly economically valuable services to Belize and is an area of high economic activity, the proper management and protection of the coast is crucial to ensure sustainable economic development. Belize's Tourism Industry is highly focused within the

coastal zone, with three quarters of hotels found along the coast and the cayes. Tourism based activities contribute 23% of Belize GDP, employing over 17,000 Belizeans. Indirect economic impacts of the Tourism sector, such as locally manufactured materials that support the industry, earns and additional 26 to 69 million USD a year (WRI, 2007). The beach rehabilitation project will provide economic benefits by increasing tourism in the selected southern communities and by decreasing the probability of infrastructure loss due to erosion.

The Fisheries Sector, which employs over 2,000 licensed fisherfolk, is also dependent on a healthy coastal ecosystem and is also one of Belize's main industries. In 2016 the Fisheries sector contributed 5% of Belize's GDP. Between 2005 and 2015 lobster generated an average annual income of BZ\$15.13M from export; while conch averaged an annual income of approximately BZ\$8.32M from export (Belize Fisheries Department, 2015; Belize Fisheries Department, 2017). Thus, in order to keep this industry alive and prospering it is important to safeguard the coastal ecosystem and ensure that capacities are built so that adaptive measures can be put in place and better-informed decision making occurs regarding the coastal communities. The project will aid in implementing necessary tools for coastal planning and management as a method to effectively protect the lives of fisherfolk that live within vulnerable coastal areas including the Creole, Mestizo and Garifuna people. Fisherfolk and their families will economically benefit as future development in areas that are unsuitable for habitation will be avoided, decreasing costs from exposure to climate risks.

The project will also provide economic benefits for the tourism and fisheries sector by avoiding unsustainable clearing of mangroves, which act as nurseries, protect the shoreline and support other wildlife. Shoreline protection from reefs and mangroves prevent erosion and wave induced damage, which accounts for about 231 to 347 million USD in avoided damages each year. However, without the proper measures in place unsustainable development and clearance of mangroves will continue. The project will aid in the prevention of continued development in vulnerable coastal areas and ensure that future development and land use is appropriate and leads to minimal negative impacts. It is crucial to prevent future deterioration of vulnerable habitats such as mangroves, seagrass bed and reefs. The implementation of coastal guidelines and the institutionalization of a coastal habitation policy and building codes coupled with the coastal erosion monitoring program, will contribute to the minimization of infrastructure and financial loss. The latter mechanisms will serve to protect financial investments by minimizing the probability of unwarranted development in vulnerable areas that would result in loss of coastal lands and/or infrastructure. The national beach erosion monitoring program will also contribute to minimizing economic loss, by enabling national and local government to devise proactive mechanisms to minimize the impacts of erosion that can result in the loss of beach areas as well as houses and hotels built on beach areas. The coastal early warning system also provides an additional monitoring mechanism, which will enable persons living in the 27 coastal communities to prepare for the negative impacts of intensified storms, including storm surges. The pilot beach stabilization components will benefit houses under threat of collapse due to extensive erosion, which has results in portion of some homes being inches away from the water's edge, in coastal communities such as Hopkins and Dangriga.

The saline intrusion assessment is vital for the production of potable water and for the determination of suitable areas for farming. As an economic benefit for farmers, the assessment

of soil salinity will provide information that can be used to deter the negative impacts of increased salinity which results in lower crop yield. This will result in the avoidance of areas with high salinity and reducing financial inputs into such areas thus improving financial gain. The goal of this task is to assess and map soil salinity and link this to current and future crop productivity vulnerability and risk.

Environmental Benefits

The project would provide substantial environmental benefits to Belize's coast. The project will lead to the protection of vulnerable coastal areas from future unsustainable and unregulated habitation, tourism, infrastructure and industry development. The latter will in turn result in increased environmental protection as the implementation of nationally identified guidelines and corresponding regulations will minimize detrimental effects of improper development. As the guidelines include provisions that avoid development in areas of high ecological value and those particularly vulnerable to climatic changes, by negating development in these areas the natural environment should be protected. Biodiversity in coastal areas will also benefit through the improved management and proper planning of coastal areas, habitation and land use. The prevention of unsustainable clearance of mangrove forests will positively affect fish stocks and invertebrates as they provide nurseries for them, shoreline protection from storms, waves, floods etc. will also be expected, which will help prevent erosion in other areas.

Also, the proposed rehabilitation project will protect the shoreline of the chosen communities from storms and erosion. This will indirectly benefit other communities, as the measures can be modified and replicated in other areas in need of beach rehabilitation.

The saline intrusion and groundwater assessment will better enable the country to protect its vital ground water resources. The activity will allow for an initial assessment of the groundwater flow regimes within the study area. It will also contribute to the minimization of potential saline water encroachment into fresh water systems caused by the unregulated use and over extraction from groundwater aquifers. The study will also assess the quality of ground water in relation to agricultural influences.

Social Benefits

Social benefits include reducing the vulnerability of the 27 coastal communities to climate change and decreasing the chances of infrastructure investment losses by preventing future development in vulnerable areas. This will protect the lives and livelihoods of Belizeans, by adhering to national coastal development guidelines thus minimizing unwarranted development in unsuitable areas. The implementation of coastal development guidelines also ensures the maintenance of ecosystems and the associated services they provide to the coastal communities, including regulating provisioning and protection services on which the communities are heavily dependent.

Coastal protection and stabilization activities will also have a positive effect on the welfare of communities by protecting their homes from potential losses due to erosion and storm damage. This will benefit the entire population living along the coastline by improving management. The

provision of the coastal habitation policy and the building codes can be scaled up for replication through-out the remainder of inland communities. Building codes with a strong emphasis on climatic factors, will improve the ability of all communities to build climate worthy infrastructure which can withstand the impending climatic factors such as extreme heat, drought, SLR, storm intensity and frequency, flooding increased wave action and erosion.

Groundwater assessments enhance the long-term availability of water by ensuring that water is being utilized and extracted in a manner consistent with sustainability. In the absence of such periodic assessments water extraction could threaten groundwater aquifers leading to saline encroachment and ultimately the loss of potable water extraction for specific sources.

Awareness and knowledge of the public will also be increased for mechanisms that can be implemented for climate change adaptation, thus decreasing their vulnerability to erosion and other negative impacts of climate change. The Early Warning System that will be enhanced will protect essential household and community assets. It will also reduce exposure to storm surges and flooding events and increase the ability to prepare for and respond to these disasters. Reduced exposure to storm surges and flooding events will also decrease associated negative impacts on health of the population in areas that are more vulnerable to these hazards by supporting efforts to fight outbreaks of waterborne diseases such as cholera.

Project design and implementation will take into consideration the Environmental and Social Policy of the Fund. Safeguards to minimize potential impact will be instituted, these will be further elaborated in the fully developed project proposal.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.

The proposed project intends to build on existing structures and identified initiatives to ensure cost effectiveness. The enhancement of systems and mechanism already in place, such as the Early Warning System and the Coastal Zone Guidelines, decrease time and cost associated with the formulation of these systems from an initial concept. In avoidance of duplicated efforts, synergies will be formed with other ongoing and/or planned projects to maximize efficiency. Further enhancing the technical capacity of the entities involved in project implementation also provides for the long-term sustainability of national initiatives beyond the four-year timeframe of the Project.

The cost effectiveness of Component One is seen in the utilization of existing institutional structures (technical groups) and identified sectoral needs to guide the development of a coastal habitation policy and building codes. The Ministry of Housing has incepted the initial process for the creation of a national policy and legislation, which enable adaptation to the impending climatic factors, via the completion of preliminary consultations and assessments as well as an initial analysis (discussion paper) of building requirements based on environmental changes. These preliminary activities will be built upon under this Component. Additionally, the activities linked to the initiative will incorporate the lessons and technical findings of similar policy and building codes from the region for sound climate proofing. Furthermore, the policy and

associated building codes being developed under this proposed project can be modified for scaling up in the other regions of country for climate adaptation. The development of a housing prototype will better enable the Ministry and municipal government to enforce stringent practices to ensure the safety of human life to climatic threats. The cost of this activity is USD \$698,108.

The implementation of coastal guidelines for three planning regions based on coastal zone development guidelines, which are available, allows the country to make scientifically sound development decision in coastal areas taking into consideration economic growth and environmental protection. As the guidelines have been developed for the sustainable development of the area in line with the principles of environmental protection and climatic changes, its implementation should improve the long-term adaptive capacity of coastal infrastructure by avoiding development in areas susceptible to climatic changes; thereby minimizing the financing needs to address the negative impacts of unsuitable development in climate vulnerable areas. The cost of this activity is USD \$186,892.

The proposed project intends to utilize existing monitoring activities of localized NGOs to carry out the national beach erosion monitoring program. Organizations within the various districts with reputable and strong working relationship with CZMAI will conduct periodic coastal monitoring assessments for analysis by the CZMAI. The utilization of existing monitoring activities of NGOs decreases costs related to transportation and human resources for conducting such activities by an outside source. Entities will be provided with training and equipment, thus enabling a smooth transition of the additional monitoring initiatives within already established protocols. Training will not need to be extensive as personnel already have experience in conducting period monitoring in the areas. The cost of this activity is USD \$220,000. Similarly, the early warning monitoring system improvement will incur minimal cost as the vast majority of the equipment and monitoring mechanisms are already in place and/or are being updated under other initiatives. The cost of this activity is USD \$215,000. Initial capacity assessments of the Hydrology Department have also been completed, informing the department of viable mechanisms for strengthening. The procurement of materials and equipment under the national coastal saline intrusion program will minimize the long-term cost of hiring a consultancy firm to conduct periodic assessments within the program. The cost of this activity is USD \$708,687.

During the initial assessments to be conducted for the beach nourishment under Belize's Fourth National Report to the UNFCCC, engineers will provide viable alternatives for shoreline stabilization and beach nourishment based on the analysis of available topographical and environmental data. The completion of most preliminary assessments within the scope of the above mentioned project, will decrease project cost and improve the scientific basis for the implementation of concrete adaptation actions for stabilizing beach areas susceptible to high wave impact, erosion and SLR; thereby protecting coastal infrastructure. The possibility of scaling up the project in other areas with similar topographical characteristics is high. The cost of implementing the pilot activity is USD \$1,032,719.

The engagement of communities and stakeholders within each of the proposed project components will significantly enhance the impact, sustainability and cost effectiveness of the project to achieve the desired outcomes. The latter will require the development of a communications/engagement strategy for the NCCO. The strategy will serve as guidance

document for improving the knowledge of all communities across the country to climate change including adaptation and mitigation activities. The strategy will have a long-term focus for climate change education, which can be applied during the implementation of other climate related initiatives, making it sustainable. The cost of this activity is USD \$275,000.

The multisector approach to Project design enables the harmonization of activities and the pooling of resources for the implementation of a comprehensive Project, which addresses a multitude of coastal resiliency adaptation needs. At the concept stage synergies between components provided a strong basis for inclusion of activities within the proposal.

- D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The proposed project was developed for strategic alignment with national and sectoral development strategies as well as obligation under international conventions to which the country is a Party. In line with national priorities for development, the Project has been aligned to the **Growth and Sustainable Development Strategy** (GSDS) 2016 – 2019, which is the overarching strategy aimed to comprehensively guide national development.

The proposed project is centered on the implementation of Belize's **National Climate Change Policy, Strategy and Action Plan** (NCCPSAP) which aims to guide the short, medium and long-term processes of adaptation and mitigation of Climate Change and to ensure the mainstreaming and integration of Climate Change considerations at all levels of the development planning and operational processes of governance (NCCPSAP, 2015). Necessary adaptive mechanisms identified in Belize's Third National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) and eight of Belize's adaptation targets from its **Nationally Determined Contribution (NDC)** to UNFCCC have been incorporated within the Project thereby to improve the countries resiliency.

The Project also contributes to the achievement of Sustainable Development Goals (SDGs) 6 - Clean Water and Sanitation, 11 – Sustainable Cities and Communities and 13 – Climate Action.

- E. Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

The project meets the standards of environmental assessment, which will be enforced by the Department of Environment via Environmental Impact Assessments (EIA). The EIA Regulations of the Subsidiary Laws of Belize (2003) contain a list of activities for which an EIA is required. The project will ensure that the activities contained within are properly assessed to determine the necessity for an EIA or a limited level study. If required all stipulated conditions will be met to ensure the Project activities are in full compliance with its requirements.

The project will also obtain all necessary permits for specific activities requested by the different sector authorities for development and execution of the proposed activities. Activities that do not require an EIA or limited level study will have high standards of environmental management in order to avoid negative impacts on coastal ecosystems, biodiversity and people's health. The project will adhere to the Environmental and Social Policy and devise mechanisms to be in full compliance with all human rights including those of marginalizes and vulnerable groups and indigenous peoples.

Under Component One of the Project national mechanisms to address coastal habitation will involve the formulation of building codes for infrastructure within coastal areas. These innovative codes will be the first of its kind in the country, to take into consideration the anticipated impacts posed by climate change and variability, inclusive of increased temperature, storm intensity and sea level rise.

The project has also been prepared in accordance with some of the stated sectorial intentions to adapt to climate change from the Nationally Determined Contributions, Belize's Third National Communication and the National Climate Change Policy, Strategy and Action Plan, as stated previously in Part II D.

F. Describe if there is duplication of project / programme with other funding sources, if any.

There is no duplication of efforts from other funding sources at the time of concept development. Rather the project creates synergies with other projects and implement actions that will complement and enhance other projects further contributing to Belize's resiliency. Relevant projects include:

The 'Marine Conservation and Climate Adaptation Project' (MCCAP), financed by the Adaptation Fund, aided the CZMAI to implement components of the Integrated Coastal Zone Management Plan (ICZMP) to increase protection of coastal ecosystems: mangroves, seagrasses and tidal marshes. The MCCAP supported implementation of mechanisms to improve the adaptive capacity of communities dependent on fragile marine resources by reducing the local community's dependence on fishing stocks via alternative livelihoods and educational campaigns. This Project would further enhance the execution of the Plan via implementation of newly developed regulations and coastal development guidelines for zonation outlined within the Plan and to enhance education and awareness on climate change adaptation. This project will focus on addressing the issue of development and habitation on vulnerable areas, creating advanced mechanisms for adaptation in areas already developed and deterring future development in vulnerable areas based on the coastal guidelines taking into consideration the need for an adequate buffer zone dependent on specific coastal features and vulnerabilities.

Another initiative which the project can create synergies with is the 'Capacity Building for Climate Vulnerability Reduction' in Belize being funded by the Inter-American Development Bank. Through this project studies will be carried out to develop a coastal risk profile for erosion and flooding and to recommend risk management actions for Belize's coastal zone. The project,

which commenced in July 2019, is expected to be completed by February 2020 covering assessments of hazards, exposures, vulnerabilities and identification of high-risk-hotspots as well as recommendations of mainly nature-based solutions to address natural hazards. Results from components under the IDB project will be directly linked to this Project and aid in provision of necessary baseline data and mechanisms for improvement. Outputs will directly complement this project and aid in informing decisions.

There is also the possibility of creating synergies between the concept note that was submitted to GCF, “Mainstreaming Coral Reef Resilience and Restoration as an Ecosystem-based Adaptation Strategy to Climate Change in the Caribbean Region” (MaCREAS). This is a regional concept, which includes Belize, Dominican Republic, Jamaica, Saint Vincent and the Grenadines, Saint Lucia and Barbados. The project will focus on rehabilitation through reef restoration activities in areas of ecological significance in the region. Strengthening of the reef system will directly benefit this AF project concept as reef systems provide substantial shoreline protection, which ties in directly to resilient coastal habitation and decreasing vulnerability of the coast. While both projects are focusing on decreasing the impacts of climate change there is no duplication of efforts.

Another concept note, “Enhancing Coastal Resilience Against Climate Change” is also in the pipeline with GCF, to be implemented in Antigua and Barbuda, Barbados, Belize, Grenada, Jamaica, Saint Lucia and Saint Vincent and the Grenadines. This concept focuses on three main areas for adaptation; it will focus on enhancing livelihoods of the most vulnerable people and communities, increase resilience of health and well-being, and food and water security, and enhancing coastal protection and improving the resilience of ecosystems. Synergies with this pipeline project can be created in their objective to enhance coastal protection. This may be achieved by coastal stabilization through mangrove rehabilitation, coral reef restoration and integrated coastal stabilization and integrated watershed management and coastal area management. These will be achieved by identifying and selecting initiatives and subprojects that are consistent with criteria that they will set. Although the initiatives are not in place yet, it is possible to note that synergies can be established to increase resilience in vulnerable coastal communities and duplication can be avoided through communication of efforts. The proposal for this concept is now being developed for submission.

In the case of National Meteorological Service, identified internal gaps will serve as the basis for improvement of the NMS’s web-based data management system. Capacity of the NMS will also be improved through the improvement of their early warning system protocols through the development and implementation of a coastal early warning system for storm surge and flooding. This will enhance the system they already have in place for monitoring and improve risk management.

Complementary activities under this Project will enhance the operation of the climate risk information system being developed through the Climate Risk Vulnerability Reduction Program being executed by the Ministry of Works. This will be through the strengthening of data collection mechanisms of the National Meteorological Service to feed into the system.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

Component Four focuses on awareness raising and knowledge dissemination. This will be a key part of ensuring sustainability of the project by building local capacity. Prior to implementation lessons learnt from similar projects/activities will be integrated. All lessons learnt during the project development and implementation phases will be documented and shared to ensure wide dissemination of results, best practices and lessons.

Capturing of lessons learnt will also allow for knowledge products to be developed which can be incorporated and used in the Public Awareness Campaign and can inform the Climate Change Communication Strategy and Action Plan. This can lead to case studies, short videos, posters, which can be specifically tailored to different communities and different user groups. The national communication strategy will boost climate change awareness within sectors and all coastal communities for improved coastal planning, habitation and monitoring. As the effects of climate change are visible in some communities and sectors, but the linkage to climate change and its future effects are not clearly understood, awareness raising initiatives are important to build the resilience of local communities to adapt to imminent threats and promote ownership on initiatives.

There are provisions for knowledge management within each component. Under Component One the development of a coastal habitation policy and the formulation of regulations for Belize's coastal guidelines will be heavily reliant on active stakeholder consultations in coastal communities. The entities undertaking the activities will provide the public with information via national media houses and social media platforms. Information obtained from the implementation of Component Two will be linked to existing web-based platforms as well. Data collected from tidal gauges and the National Meteorological Service's automated stations will be linked to the Service's web-based data management system providing real time data for Belize. The web-based system will inform other initiatives of the Service such as the common alert protocol and the early warning system alerting protocols thereby protecting the lives of Belizeans. Similarly, the Beach Erosion Monitoring Program, which will be spearheaded by the CZMAI, will provide data for analysis at periodic intervals for the proactive formulation of mitigation and adaptation mechanisms to coastal erosion. Lines of communication will be open during the implementation of Component Three in the two selected coastal communities. This will keep communities abreast of activities and ensure active participation, transparency and knowledge sharing.

- H.** Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

In order to prepare this concept all relevant stakeholders were consulted to discuss national needs and priorities in relation to climate change and the coastal zone. Their inputs were introduced into agreed upon components and were further developed based on output, outcomes and activities. Several stakeholders were consulted with during meetings were priorities were further discussed. Initial stakeholders consulted for the development of the concept include the National Climate Change Office (NCCO), Protected Areas Conservation Trust (PACT), Caribbean

Community Climate Change Centre (CCCCC), National Emergency Management Organization (NEMO), Meteorological Department, Coastal Zone Management Authority and Institute (CZMAI), Department of Environment, Lands Department, Hydrology Department, Ministry of Housing and Urban Development, Building Sector Reform Project, Ministry of Natural Resources, GAMMA S.A., Ministry of Science, Technology and Environment of Cuba (CITMA), NGO's and managing authorities of two coastal communities, Dangriga and Hopkins.

The preparation of the concept, which is based on priorities of stakeholders, required the establishment of two committees. A "High-Level" committee which included the CEO of the Ministry of Agriculture, Fisheries, Forestry, the Environment and Sustainable Development, guided the process of concept creation. A Technical committee was also established, comprised of technical experts from various sectors. The technical committee provided their knowledge from working on the ground with their stakeholders, sharing stakeholder needs, gaps and priorities and any relevant information that they possessed.

Throughout the development of the project stakeholders have been informed and kept abreast of the development process. It is the aim of the proposed project to further expand the scope, by conducting extensive stakeholder consultations and continue the work which has commenced with all relevant stakeholders' communities, including indigenous communities, during development of the full project proposal. Consultations will take into consideration the gender policy of the Fund.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Ongoing measures to address national needs for adaptation and coastal habitation have produced some results and increased the country's resilience. However, these initiatives need to be built on further to fully ensure climate resilient coastal communities, thereby protecting the lives of over 160,000 Belizeans. The effects of improper planning void of climate variability considerations, poor infrastructural development and coastal erosion compounded by sea level rise are already visible within heavily populated coastal areas of the country. These have resulted in the loss of cultural assests in some communities, housing, community infrastructure and beaches. As such there is the need to devise concrete long-term solutions to address the safety of these coastal communities.

At the national level, stakeholders have recognized the need to create legal instruments for the implementation of national development guidelines, contained within the ICZMP, which will be developed under the MCCAP. Currently, the guidelines have no legal power and are being used merely as a suggestive recommendation for coastal development. The absence of a legal framework for their implementation has resulted in the unwarranted development in climate vulnerable areas of the country. This proposed project will further aid the CZMAI to implement and enforce the provision of the coastal planning guidelines within three of the national planning regions, North, Central and Southern. This activity will be carries out during and beyond the life span of the project, totalling USD \$186,892. The absence of a coastal habitation policy has similarly resulted in the construction of climate vulnerable housing and infrastructure. The project intends to address both issues under Component One by enabling the implementation of

coastal guidelines for three planning regions and the creation of a habitation policy with building codes that would better enable coastal communities to adapt to the adverse effects of climate change. The cost of activities under this component is estimated at USD \$885,000 over the lifespan of the project. As some activities will require extensive stakeholder consultations and technical reviews, it is anticipated that the activities will be completed between year three and four.

The success of Component One will be supported over a long-time frame by the implementation of activities under Component Two for coastal monitoring. After the country has implemented mechanisms for coastal habitation and development, it is necessary to monitor activities within the area to ensure that proactive solutions can be created to protect lives and infrastructure. Monitoring activities including i) annual saline intrusion assessments to determine water quality ii) beach erosion monitoring, through the creation of a national network with stakeholders and iii) enhancement of the early warning system for storm surges and flooding. The cost of activities under this component is estimated at USD \$1,143,687 over the timeframe of the project.

Financing from the Adaptation Fund will also enable the formulation of viable mechanism to restore coastal communities and beaches loss under Component Three. The cost of activities under this component is estimated at USD \$1,032,719 for the four years of implementation. A preliminary assessment will devise best solutions to restore/nourish areas lost to erosion, which has resulted in the detrimental effects to coastal communities that are affected.

Additionally, under Component Four an extensive public awareness raising, knowledge dissemination and capacity building activities will increase local understanding of climate adaptation mechanisms and build local support for the implementation of national coastal adaptation activities under the Project. Capacity building for national executing entities, will also ensure the long-term sustainability of Project activities, thereby improving the country's ability to achieve adaptation targets. This is particularly important for the maintenance of the national beach erosion monitoring program. The cost of activities under this component is estimated at USD \$275,000 for the four years of implementation.

Total funding requested from the Adaptation Fund is US \$4 million, including the project execution cost of (USD \$350,230) and the Implementing Entity Fee (USD \$313,364).

J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project / programme.

The proposed project intends to maintain the sustainability of all components via the integration of components within the institutional functioning of implementing entities (NCCO and CZMAI) and key partners (PACT, Ministry of Housing, Hydrology Department, Lands Department). The components of the project are embedded as national adaptation priorities and the priorities of partner institutions. Long term implementation and monitoring will be managed by the key partners with the aid of participating community groups, which will be strengthened under the capacity building activities of the proposed project.

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Sustainability will be ensured in the execution of Component One through the development of a building code for the coast that will serve as tool for the long-term development habitation and infrastructure in of coastal areas. The building code will ensure that the health and safety of the public and the natural environment is protected from negative impacts. posed by climate change, SLR, increase in temperature, and increase in frequency and intensity of storms. The Ministry of Housing and individual municipalities in conjunction with the CMZAI will ensure that future development in the area in in compliance with building codes. The development of a housing prototype within this component, enables the country to better understand the dynamics of construction in relation to all climate vulnerabilities and validate the newly developed building codes. The long term implementation of the Integrated Coastal Zone Management Plan and its associated guidelines for zonation will also be sustained through the day to day operations of the CZMAI linked to the enforcement of the guidelines, inclusive of monitoring and compliance.

The sustainability of Component Two has been taken in account by ensuring that national institutional capacities will be built for monitoring. Under activities for the initial coastal saline intrusion assessment, equipment will be purchased for execution of the studies during implementation of the project and for continued monitoring after completion by the Hydrology Department within the Ministry of Natural Resources. The purchasing of necessary equipment enables the government agency responsible for this assessment to carry out future studies beyond the life span of the project, which will be used to inform and support the formulation of a sustainable water resources development plan for Belize's groundwater resources and key aquifers. Internal capacity of the department will also be improved by providing the necessary training to replicate the assessment in other watersheds and target areas. Similarly, the development and implementation of a National Beach Erosion Monitoring Program will ensure sustainability by creating a community network to collect data and conduct on the ground monitoring to feed into the Coastal Zone's developed monitoring program for long term assessment. The training of persons from NGOs active in the areas (Toledo Institute for Environment and Conservation (TIDE), Southern Environmental Association (SEA) and Sarteneja Alliance for Conservation and Development (SACD) to name a few) with an established strong working relationship with the CZMAI, will improve data collection and analysis. These NGOs are strong advocates for environmental protection in local communities and the protected areas they manage. They have established protocols for environmental monitoring, including climate related factors. The training and provision of equipment for selected NGOs, within this program, will ensure sustainability and cost effectiveness as the monitoring parameters can be integrated into their monthly and annual monitoring protocols. Monthly monitoring will allow for the real time information generation and will enable the CZMAI and NCCO to proactively respond to threats and risks. Additional parameters for monitoring can be included as needed and expanded to other areas.

Commented [DM1]: Who's lab will be used for sample processing

Activities under Component Three, for beach stabilization, are scaling up initiatives of a project to be conducted under the NCCO's Fourth National Communication to the UNFCCC. As coastal erosion is prominent in most coastal communities the NCCO intends to conduct preliminary assessments of two selected sites, Dangriga and Hopkins, with the aid of the Caribbean Community Climate Change Center (CCCCC) and Inversiones Gamma S.A. The initial assessments will provide substantive data for the development of a suitable shoreline recovery and beach stabilization plan. The assessments will include the identification of engineering

alternatives for erosion control and shore protection. Under the activity there are provisions for the long-term monitoring of geomorphological indicators. The two selected sites will serve as pilots for the stabilization plan and will also inform future replication at other project sites.

In order to ensure the long-term sustainability of the project, as well as the development of local and institutional capacity to effectively implement and enforce the regulations and policy put in place under the project Component Four is directly targeted toward awareness raising, knowledge dissemination and national capacity strengthening. This will include a National Climate Change Communication Strategy and Action Plan to facilitate effective communication on climate change information at all levels to enhance proper management of climate change impacts and ensure that possible opportunities are explored. The strategy and action plan will also serve as a tool for the NCCO to implement components of its National Climate Change Policy, Strategy and Action Plan, which are in line with this Project. The public awareness campaign, to be implemented, will be used to inform highly vulnerable communities about climate change, adaptive mechanisms that can be implemented and of the proposed project activities to increase resiliency. Additionally, through the dissemination of information and knowledge building initiatives on the importance of adhering to the coastal habitation policy, coastal zone guidelines and regulations, the Project aims to minimize the occurrence of habitation in vulnerable areas. In providing communities with information on environmental threats such as increased storm intensity and SLR and current adaptation mechanisms the Project hopes to create a cultural shift from building directly on beaches. Knowledge sharing of this kind will ensure that sustainability is achieved by increasing public participation and ensuring they are continually updated and informed.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

The proposed project aims for full alignment with the Environmental and Social Policy (ESP) and the Gender Policy of the Adaptation Fund. The initial screening detailed below addresses the safeguard areas of the ESP, identifying any potential environmental and social risks and impact that proposed project components may pose.

The design and implementation of Components One, Two and Four of the proposed project will ensure adherence to all environmental, social and gender requirements of the Fund and will ensure the representation and consultation of all beneficiary groups including indigenous peoples, marginalized and vulnerable groups. The proposed project is endeavoured to produce positive economic, social and environmental impacts to the 27 coastal communities and the key economic sectors, tourism, in the coastal zone of the country.

The proposed project has been categorised as Category B with respect to the potential environmental and social impacts that can be generated during the implementation of Component Three. Activities under this component for beach stabilization may result in some changes to the natural environment within the two selected sites of Dangriga and Hopkins. However, these impacts are minimal and can be easily mitigated. At the concept stage mechanisms for addressing environmental impacts have been identified, including the completion of an

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Environmental Impact Assessment. These impacts and risks will be fully addressed in the subsequent fully developed Project Proposal.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	X	<p>Low/No Risk</p> <p>The development of the final project document and the implementation of activities under the proposed project will ensure compliance with all relevant national legislations and international laws.</p>
<i>Access and Equity</i>	X	<p>Low/No Risk</p> <p>The proposed project intends to increase the availability of basic human services such as housing, water and sanitation directly through the implementation of project components. The proposed project will in no way compromise access of communities to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions and land rights.</p>
<i>Marginalized and Vulnerable Groups</i>		<p>Low/Moderate Risk</p> <p>The needs of these marginalized and vulnerable groups would be better understood during the initial social assessment to be conducted during the full proposal development phase. Additionally, the extensive stakeholder consultations to be held during the implementation of components will provide further context to the needs of these groups.</p> <p>The proposed project will not impose any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS.</p> <p>The proposed project is expected to improve the ability of all groups including marginalised and vulnerable groups to adapt to the adverse effects of climate change by building the resilience of communities to address issues such as sea level rise, coastal erosion, storm intensity and frequency.</p>
<i>Human Rights</i>	X	<p>Low/No Risk</p> <p>The proposed project will respect and adhere to all relevant national legislation and international</p>

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		conventions on human rights.
<i>Gender Equity and Women's Empowerment</i>		<p>Low/No Risk</p> <p>Further assessment required during the full proposal development phase under the Gender/Social Assessment.</p> <p>The development of the proposed project will ensure the inclusion of issues related to gender and women's empowerment. All participatory and consultative processes will ensure the representation of women groups from all communities, gender experts and NGOs. Gender-disaggregated data will be analysed for inclusion.</p>
<i>Core Labour Rights</i>	X	<p>Low/No Risk</p> <p>The proposed project will adhere to core labour laws and rights of all parties.</p>
<i>Indigenous Peoples</i>		<p>Low/Moderate Risk</p> <p>The design of all components within the proposed project will ensure that local communities and indigenous peoples benefit. Extensive stakeholder consultations form the basis for all project components; some relying on the participation of local communities for implementation and long-term sustainability. These consultations will improve the involvement of indigenous people in the project development phase respecting their needs.</p> <p>Further interventions from indigenous peoples can be obtained under the initial social assessment during the full proposal development phase.</p>
<i>Involuntary Resettlement</i>	X	<p>Low/No Risk</p> <p>The components for the proposed project do not include involuntary resettlement. It is the aim of Component 3 to restore coastal beach areas in an effort to avoid the displacement of local communities such as Dangriga and Hopkins.</p>
<i>Protection of Natural Habitats</i>	X	<p>Low/No Risk</p> <p>The implementation of the coastal guidelines under Component One and the national assessments for coastal salinity and beach erosion monitoring program under Component Two and the beach stabilization under Component Three, serve dual purposes of protecting the lives and livelihoods of coastal communities and their members as well as improving the protection of natural coastal habitats by regulating development based on sound scientific principles. The coastal guidelines, for instance, provides for sustainable development which</p>

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		takes into consideration environmental protection. The latter limits development in areas with highly vulnerable ecosystems and those where development would have a high negative impact on the natural environment.
<i>Conservation of Biological Diversity</i>	X	<p>Low/No Risk</p> <p>No activity under the proposed project will pose any significant reduction or loss of biological diversity or facilitate the introduction of known invasive species.</p> <p>Furthermore, to avoid any potential harm or significant loss of biodiversity, all activities within the proposed project, such as Component 3, will require the completion of a EIA, which includes parameters for biodiversity assessment.</p>
<i>Climate Change</i>	X	<p>Low/No Risk</p> <p>The proposed project will contribute to Belize's climate change adaptation and mitigation efforts. The proposed project, in no way, is intended to increase greenhouse gas emission or contribute to any drivers of climate change.</p>
<i>Pollution Prevention and Resource Efficiency</i>	X	<p>Low/No Risk</p> <p>The proposed project will ensure the maximization of energy efficiency, strive to avoid any potential pollution and minimize the production of</p>
<i>Public Health</i>	X	<p>Low/No Risk</p> <p>The proposed project contributes to the enhancement of public health via the provision of climate efficient building codes, limiting development in adequate zones in line with the coastal zone guidelines, strengthening of a warning system and by monitoring saline intrusion in coastal communities, thus ensuring the provision of potable water to all coastal communities. The proposed project will in no way compromise public health in project sites.</p>
<i>Physical and Cultural Heritage</i>	X	<p>Low/No Risk</p> <p>The proposed project aims to protect physical and cultural heritage in the coastal communities being targeted via the implementation of components 1, 2 and 3. It is the aim of the project to increase the adaptive capacity of the communities to address issues such as coastal erosion that would result in the loss of land and thus physical and cultural</p>
<i>Lands and Soil Conservation</i>	X	<p>Low/No Risk</p> <p>The proposed project intends improve the productive capacity of productive lands in the coastal zone, by providing viable solutions for addressing the impacts of</p>

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		climate changes to farming activities via the analysis of data obtained from the saline assessment program under Component 2. The strengthening and implementation of the coastal zone guidelines, under Component One, will for instance ensure that coastal development occurs only in selected areas in an effort to avoid any adverse impacts to land and soil conservation, which would occur as a result of vegetation removal.
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PART III: IMPLEMENTATION ARRANGEMENTS

At this concept stage the Belize's National Climate Change Office (NCCO) and the Coastal Zone Management Authority and Institute have been identified as the executing entities for the Project. The Protected Areas Conservation Trust will function in the capacity of Implementing Entity with financial, monitoring and reporting responsibilities. At this concept stage, the Project has garnered the support of numerous governmental entities inclusive of the Ministry of Natural Resources (Hydrology Service and Lands Department), Ministry of Housing, National Meteorological Service and the Department of Environment.

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

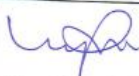
A. Record of endorsement on behalf of the government^c Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

<p>Joseph Waight Financial Secretary Ministry of Finance</p> 	<p>Date: August 1, 2019</p>	
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B. Implementing Entity certification Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (Belize's Growth and Sustainable Development Strategy, National Climate Change Policy Strategy and Action Plan and Belize's Nationally Determined Contributions to the UNFCCC) and subject to the approval by the Adaptation Fund Board, commit to implementing the project in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project.

^c Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

 <i>Mrs. Nayari Diaz-Perez</i> <i>Executive Director of the Protected Areas Conservation Trust</i> <i>Implementing Entity Coordinator</i>	
Date: <i>2nd August 2019</i>	Tel. and email: (501) 822-3637 ed@pactbelize.org
Project Contact Person: Ms. Denaie Swasey	
Tel. And Email: (501) 822-3637 / cc.techofficer@pactbelize.org	



GOVERNMENT OF BELIZE
Ministry of Finance
Belmopan, Belize

C/GEN/120/01/19(3) VOL I

August 1, 2019

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Dear Sir/Madam:

Subject: Endorsement for Enhancing the Resilience of Belize's Coastal Communities to Climate Change Impacts

In my capacity as designated authority for the Adaptation Fund in Belize, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Belize.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by Protected Areas Conservation Trust (PACT) and executed by the National Climate Change Office (NCCO) and Coastal Zone Management Authority and Institute (CZMAI).

Sincerely


JOSEPH WAIGHT
Financial Secretary



Annex 1: Alignment of Proposed Project Objectives/Outcomes with Adaptation Fund Results Framework

Project Objective(s) ¹	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
1. Improving coastal land use or resilient habitation and sectoral activities		Outcome 1: Reduced exposure to climate-related hazards and threats	1.1 Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	<u>\$885,000</u>
		Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	
		Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	
			3.2. Percentage of targeted population applying appropriate adaptation responses	
		Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.1. Responsiveness of development sector services to evolving needs from changing and variable climate	
			4.2. Physical infrastructure improved to withstand climate change and	

¹ The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

		Outcome 7: Improved policies and regulations that promote and enforce resilience measures	variability-induced stress 7. Climate change priorities are integrated into national development strategy	
2. Coastal Vulnerability Monitoring	Number of coastal communities conducting monthly erosion monitoring	Outcome 1: Reduced exposure to climate-related hazards and threats	1.1 Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	<u>\$1,143,687</u>
		Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	
		Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	
			3.2. Percentage of targeted population applying appropriate adaptation responses	
3. Beach stabilization of High Risk Coastal Areas	Number of coastal communities with stabilized beaches	Outcome 1: Reduced exposure to climate-related hazards and threats	1.1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	<u>\$1,032,719</u>
		Outcome 5: Increased ecosystem resilience in response to climate change and variability induced stress	5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress	

			stress	
		Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure access to livelihood assets 6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods	
4. Awareness raising, knowledge dissemination and capacity strengthening		Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	\$275,000
			2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
		Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	
			3.2. Percentage of targeted population applying appropriate adaptation responses	
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
1.1 Development of national policy for resilient coastal habitation based on vulnerabilities		Output 3: Targeted population groups participating in adaptation and risk reduction awareness	3.1 No. of news outlets in the local press and media that have covered the topic	\$ 698,108

		activities		
		Output 4: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	
		Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No. of policies introduced or adjusted to address climate change risks (by sector)	
			7.2. No. of targeted development strategies with incorporated climate change priorities enforced	
1.2 Implementation of the Coastal Zone Management guidelines for zonation in three coastal planning regions (North, Central and Southern Belize)		Output 1.1: Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	<u>\$186,892</u>
		Output 2: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
2.1. Development of a national coastal saline intrusion program		Output 1.1: Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	<u>\$708,687</u>
		Output 2: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
2.2. Develop and		Output 2: Strengthened	2.1.2 No. of targeted	<u>\$220,000</u>

implement a National Beach Erosion Monitoring Program		capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
		Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1 No. of news outlets in the local press and media that have covered the topic	
2.3. Develop and implement a coastal early warning monitoring system for storm surge and flooding		Output 1.1: Risk and vulnerability assessments conducted and updated	1.2. No. of early warning systems (by scale) and no. of beneficiaries covered	<u>\$215,000</u>
		Output 1.2: Targeted population groups covered by adequate risk reduction systems	1.2.1. Percentage of target population covered by adequate risk-reduction systems	
		Output 2: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
3.1. Conduct baseline assessment for best options for nourishment/rehabilitation		Output 1.1: Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	<u>\$1,032,719</u>
3.2. Development of an engineering plan for the nourishment/rehabilitation of selected beach with storm and erosion protection mechanisms		Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	
3.3. Pilot nourishment/rehabilitation of		Output 6: Targeted individual and	6.1.1.No. and type of adaptation assets (tangible	

selected coastal communities		community livelihood strategies strengthened in relation to climate change impacts, including variability	and intangible) created or strengthened in support of individual or community livelihood strategies	
		Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)	
4.1. Development of a National Climate Change Communication Strategy and Action Plan		Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1 No. of news outlets in the local press and media that have covered the topic	<u>\$275,000</u>
4.2. Development of training modules for best coastal adaptation practices for Belize		Output 2: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	
			2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
4.3. Strengthening of GIS capabilities within the CZMAI		Output 2: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	