

## Mainstreaming biodiversity conservation and climate change mitigation in sustainable tourism development in Cuba

### Part I: Project Information

**GEF ID**  
10670

**Project Type**  
FSP

**Type of Trust Fund**  
GET

**CBIT/NGI**  
 CBIT  
 NGI

**Project Title**  
Mainstreaming biodiversity conservation and climate change mitigation in sustainable tourism development in Cuba

**Countries**  
Cuba

**Agency(ies)**  
UNDP

**Other Executing Partner(s)**  
MINTUR/CITMA

**Executing Partner Type**  
Government

**GEF Focal Area**

Multi Focal Area

**Taxonomy**

Influencing models, Deploy innovative financial instruments, Strengthen institutional capacity and decision-making, Transform policy and regulatory environments, Convene multi-stakeholder alliances, Demonstrate innovative approaches, Capacity, Knowledge and Research, Learning, Adaptive management, Capacity Development, Gender Equality, Gender results areas, Access to benefits and services, Participation and leadership, Gender Mainstreaming, Gender-sensitive indicators, Sex-disaggregated indicators, Focal Areas, Biodiversity, Mainstreaming, Infrastructure, Certification -National Standards, Tourism, Certification - International Standards, Biomes, Sea Grasses, Mangroves, Wetlands, Coral Reefs, Climate Change, Climate Change Mitigation, Technology Transfer, Agriculture, Forestry, and Other Land Use, Renewable Energy, Energy Efficiency, Knowledge Exchange, Stakeholders, Local Communities, Communications, Awareness Raising, Public Campaigns, Behavior change, Private Sector, Large corporations, Individuals/Entrepreneurs, Civil Society, Non-Governmental Organization, Community Based Organization, Beneficiaries

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 1

**Climate Change Adaptation**

Climate Change Adaptation 0

**Duration**

72 In Months

**Agency Fee(\$)**

341,870.00

**Submission Date**

9/15/2020

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-1	GET	2,710,388.00	25,928,740.00
CCM-1-3	GET	888,242.00	4,945,000.00
	<b>Total Project Cost (\$)</b>	<b>3,598,630.00</b>	<b>30,873,740.00</b>

## B. Indicative Project description summary

### Project Objective

To contribute to the sustainability of tourism in Cuba through the mainstreaming of conservation and sustainable use of biodiversity and mitigation of climate change with emphasis on vulnerable coastal-marine areas through the design and implementation of innovative models with strengthened capacities and financial mechanisms.

<b>Project Component</b>	<b>Financing Type</b>	<b>Project Outcomes</b>	<b>Project Outputs</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
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Component 1. Strengthened institutional, regulatory and financial-economic framework for environmental sustainability of the tourism sector in Cuba	Technical Assistance	<p>Outcome 1.1 Institutional coordination for mainstreaming BD conservation and CCM measures in the tourism sector</p> <p>Targets and indicators to be confirmed during PPG phase.</p> <p>Outcome 1.2: Economic and financial mechanisms facilitate the management and conservation of biodiversity and promotion of CC mitigation in the Cuban tourism sector.</p>	<p>1.1.1 Socio-economic impact assessments of COVID on the Cuban tourism sector to guide long term policies for environmental sustainability;</p> <p>1.1.2 Comprehensive Plan for mainstreaming BD conservation and CCM in the tourism sector to promote resilience and low emission strategies;</p> <p>1.1.3 National capacities strengthened for mainstreaming BD conservation and CCM in the tourism sector.</p> <p>1.2.1 Economic valuation performed on environmental ecosystem goods and services in priority areas for the tourism sector (application of EcoValor methodology );</p> <p>1.2.2 Financial instruments developed and proposed for approval to create incentives for the sector to invest in the conservation of biodiversity and climate change mitigation strategies;</p>	GET	403,322.00	849,344.00
Component 2. Mainstreaming Biodiversity in the Tourism Sector in Cuba. [Demonstration	Investment	Outcome 2.1: Biodiversity conservation and sustainable use practices within the tourism sector generating livelihood benefits and promoting biodiversity	2.1.1 Demonstrative practices of BD conservation implemented in selected areas. E.g.: ecosystem connectivity (dunes, mangroves, forest,	GET	2,000,000.00	23,142,757.00

of BD  
mainstreaming  
within the  
tourism sector.]

conservation across  
landscapes of Cuba, as  
indicated by:

-Sustainable BD conservation  
practices demonstrated  
across a globally significant  
terrestrial (20, 727.0 ha) and  
marine (21,210.0 ha)  
landscapes.

Outcome 2.2: Effective  
knowledge management and  
awareness raising among  
tourists and tourism industry  
stakeholders about sector's  
impact on BD and its  
associated ecosystem  
services, as indicated by  
changes in baseline scenarios  
of surveys and measurements  
applied at project start and  
end:

-Increasing % of stakeholders  
indicate nature as a major  
tourism asset of Cuba  
-# project best practices and  
lessons learned developed,  
disseminated and used,  
including on gender  
mainstreaming and socio-  
cultural benefits  
-

Targets and indicators to be  
confirmed during PPG phase  
Outcome 2.3 Standards,  
procedures and programs  
integrate new approaches to  
conservation and sustainable  
use of biodiversity with BD  
conservation standards for

lagoons, etc.), road-  
landscape junctures,  
management of invasive  
alien species, gardening,  
etc.;

2.1.2 Environmental  
monitoring system  
strengthened to assess the  
impacts of project  
interventions and to support  
certification processes;

2.1.3 Standardized  
methodologies implemented  
for the design of nature  
tourism products in the  
sector.

2.1.4 Biodiversity  
conservation approach  
incorporated in awareness  
and training programs for  
key actors involved in  
tourism development;

2.1.5 Lessons learned,  
guidance and tools  
systematized for the  
development and replication  
of sustainable tourism  
services and facilities.

2.2.1 Normative instruments  
and procedures developed  
within the legal and  
regulatory environmental  
framework for tourism  
development to support the  
conservation and  
sustainable use of  
biodiversity

tourism development and operations.  
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 Targets and indicators to be confirmed during PPG phase.

2.2.2 System of citizen inspectors established to monitor compliance with environmental regulations in tourism.  
 2.2.3 Environmental certification system implemented and tested for tourism activities and facilities.

Component 3 Low emission standards, procedures and technology demonstration of CCM in the tourism sector	Technical Assistance	Outcome 3.1: Standards, procedures and operations integrate new approaches to energy conservation in the tourism sector for increased efficiency and climate change mitigation -- Targets and indicators to be confirmed during PPG phase. -- Targets and indicators to be confirmed during PPG phase.	3.1.1 Energy management certification system established for tourism facilities.  3.1.2 Benchmarking of energy consumption and key performance indicators of hotel facilities established (i.e. definition of baseline of energy use for the lighting, RE generation and cooling sectors)  3.1.3 Data-informed Policy and regulatory recommendations presented and adopted for the tourism sector to promote efficient and low emission technologies and processes.  3.2.1 Energy management systems designed and implemented based on	GET	800,000.00	4,928,200.00
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regarding low carbon development, as indicated by

energy audits and energy assessments.

3.2.2 Low-carbon technologies demonstrative cases integrating energy efficiency measures and renewable energy solutions (national co-financing)

3.2.3 Centralized digital smart metering system standardized and implemented across the hotel sector, for continuous monitoring of energy consumption, energy performance indicators and reporting and verification of results of the EE/RE program in hotels based on ISO 50001.

3.3.1 Strengthening and scale up of national capacities for energy Management System based on ISO 50001 for hotel facilities and hotel chains.

3.3.2 Strengthening technical capacities for the development of energy services companies focused on promoting energy efficiency and renewable energy in the hotel sector.

3.3.3 Compilation of lessons learned, guidance and tools systematized for the upscaling of successful



experiences of implementation energy management systems, energy efficiency measures and renewable energy solutions (for management and technical staff)

Component 4. Monitoring and Evaluation & Knowledge Management	Technical Assistance	4.1 M&E Plan (including gender action and plan and safeguards) implemented.	GET	223,945.00	475,956.00	
<b>Sub Total (\$)</b>				<b>3,427,267.00</b>	<b>29,396,257.00</b>	
<b>Project Management Cost (PMC)</b>						
				GET	171,363.00	1,477,483.00
<b>Sub Total(\$)</b>				<b>171,363.00</b>	<b>1,477,483.00</b>	
<b>Total Project Cost(\$)</b>				<b>3,598,630.00</b>	<b>30,873,740.00</b>	

**C. Indicative sources of Co-financing for the Project by name and by type**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Ministerio de Turismo	Grant	Investment mobilized	18,681,600.00
Recipient Country Government	Ministerio de Ciencia, Tecnologia y Medio Ambiente (CITMA)	In-kind	Recurrent expenditures	1,600,100.00
Recipient Country Government	Ministerio de Ciencia, Tecnologia y Medio Ambiente (CITMA)	Grant	Investment mobilized	5,532,040.00
Recipient Country Government	MINAG	Grant	Investment mobilized	5,000,000.00
GEF Agency	UNDP	Grant	Recurrent expenditures	60,000.00
			<b>Total Project Cost(\$)</b>	<b>30,873,740.00</b>

**Describe how any "Investment Mobilized" was identified**

This value corresponds to actions to promote the implementation of water reuse and fertigation, rehabilitation of natural ecosystems including recovery of the dune through the demolition and relocation of facilities and management of beaches and associated ecosystems, landscaping with native species in gardens and water bodies, outsourcing of monitoring services / laboratories, energy efficiency (EE) and renewable energy (RE). In particular, with regards to EE and RE, the co-financing will cover installation of solar heaters, introduction of LED technology in exterior and interior lighting facilities, photovoltaic panels, as well as replacement of air conditioning units with improved high-efficiency equipment. The national co-financing will also cover payment of wages and allowances, among other (social security and other compensation). The availability of national co-financing to support the implementation of the project is guaranteed through the Investment Plan of the Ministry of Tourism and the Annual Economic Plan of the Ministry of Science, Technology and Environment. Both Plans are part of the budget of the Cuban government, which is executed by the Cuban hotel chains (Investment Plan) and other national institutions (Annual Economic Plan). This national co-financing is considered Investment Mobilized since it will be allocated by the government to develop an initiative to implement actions of good practices on biodiversity management and climate change mitigation because of this project.

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	GET	Cuba	Biodiversity	BD STAR Allocation	2,710,388	257,487	2,967,875.00
UNDP	GET	Cuba	Climate Change	CC STAR Allocation	888,242	84,383	972,625.00
<b>Total GEF Resources(\$)</b>					<b>3,598,630.00</b>	<b>341,870.00</b>	<b>3,940,500.00</b>

E. Project Preparation Grant (PPG)

PPG Required



PPG Amount (\$)

100,000

PPG Agency Fee (\$)

9,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	GET	Cuba	Biodiversity	BD STAR Allocation	75,000	7,125	<b>82,125.00</b>
UNDP	GET	Cuba	Climate Change	CC STAR Allocation	25,000	2,375	<b>27,375.00</b>
<b>Total Project Costs(\$)</b>					<b>100,000.00</b>	<b>9,500.00</b>	<b>109,500.00</b>

## Core Indicators

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
20727.00	0.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
20,727.00			

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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Documents (Please upload document(s) that justifies the HCVF)

Title

Submitted

Indicator 5 Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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21,210.00			
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Indicator 5.1 Number of fisheries that meet national or international third party certification that incorporates biodiversity considerations

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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Type/name of the third-party certification

Indicator 5.2 Number of Large Marine Ecosystems (LMEs) with reduced pollutions and hypoxia

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (achieved at MTR)	Number (achieved at TE)
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0	0	0	0
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LME at PIF

LME at CEO Endorsement

LME at MTR

LME at TE

**Indicator 5.3 Amount of Marine Litter Avoided**

**Metric Tons (expected at PIF)**

**Metric Tons (expected at CEO Endorsement)**

**Metric Tons (Achieved at MTR)**

**Metric Tons (Achieved at TE)**

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**Indicator 6 Greenhouse Gas Emissions Mitigated**

**Total Target Benefit**

**(At PIF)**

**(At CEO Endorsement)**

**(Achieved at MTR)**

**(Achieved at TE)**

**Expected metric tons of CO<sub>2</sub>e (direct)**

25212

0

0

0

**Expected metric tons of CO<sub>2</sub>e (indirect)**

63960

0

0

0

**Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector**

**Total Target Benefit**

**(At PIF)**

**(At CEO Endorsement)**

**(Achieved at MTR)**

**(Achieved at TE)**

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Expected metric tons of CO <sub>2</sub> e (direct)
Expected metric tons of CO <sub>2</sub> e (indirect)
Anticipated start year of accounting
Duration of accounting

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO <sub>2</sub> e (direct)	25,212			
Expected metric tons of CO <sub>2</sub> e (indirect)	63,960			
Anticipated start year of accounting	2025			
Duration of accounting	10			

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)

Target Energy Saved  
(MJ)

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	9,094			
Male	11,076			
<b>Total</b>	20170	0	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Core Indicators 4 and 5 correspond to: Project activities will benefit 41,937 ha of landscapes and seascapes. Marine areas - In the two intervention areas there will be an impact on 21,210 ha of reef ecosystems and seagrasses, of which 14,300 ha are located north of Ciego de Ávila and 6,910 ha in Matanzas-Varadero. The ecosystems of coastal lagoons (3 lagoons in Cayo Coco) correspond to 196 ha currently in hypoxic conditions and with limited exchange with the sea. The reef areas, seagrasses, and coastal lagoons that will be improved with the project are currently impacted by tourism development. Contemplative diving, snorkeling, sport fishing, etc. are carried out in them and in the case of coastal lagoons, they are part of the hotel facilities or their surroundings. The development and updating of normative instruments and procedures, the strengthening of the

surveillance body of these ecosystems and the activities carried out in them will allow compliance with current legislation. Monitoring will be carried out that will make it possible to establish the degree of impact of the activities carried out in these ecosystems, assess their carrying capacity and apply proposals for good practices for the development of these activities with the monitoring of the results. Systematic training of personnel that carry out activities in these ecosystems will be implemented on issues of marine biodiversity and environmental legislation, with the application of good practice experiences, sustainable use of ecosystem goods and services, and awareness of workers and tourists. Terrestrial areas - The improved terrestrial areas that will benefit biodiversity with direct actions foreseen in the project will be 20,531 ha. These include mangroves, coastal forests and scrub, dune vegetation, landscaping of tourist facilities, and other anthropized plant formations. In Matanzas-Varadero, the project will intervene in 1,377 ha corresponding to mangrove forests, gardening and other plant covers that present a high level of anthropization. In the North of Ciego de Ávila, the project will intervene in 19,154 ha, corresponding to mangrove forests, semi-deciduous forest, coastal scrub, dune vegetation as well as gardening and other areas with a high level of anthropization. In these ecosystems, the Project will promote and apply practices that promote BD conservation and increase ecosystem connectivity to reduce the effect of landscape fragmentation. Good gardening practices will be carried out to favor the use of native species and maintain control of exotic species. Biodiversity monitoring will be carried out in the sites impacted by tourist activity based on ecosystem health indicators, as well as the results of corrective actions. Core Indicator 6: The calculation basis for reduction in GHG emissions is described in section 6) Global environmental benefits, and accounts for the life time of the technologies (10 years). The estimations shown below are preliminary and will be detailed during the PPG phase. Expected CO<sub>2</sub>e (direct) 25,212 tons of CO<sub>2</sub> Expected CO<sub>2</sub>e (indirect) 63,960 ton of CO<sub>2</sub> The estimations shown above are preliminary and will be detailed during the PPG phase. Core Indicator 11: Direct beneficiaries will total 20,170 people: 9,094 women and 11,076 men. These numbers reflect 19,940 workers (8,986 women) at the hotels in which interventions are planned, all of whom will benefit from improved sectoral practices in environmental management regarding BD conservation and CCM; 2 hotel and tourism schools with a total of 20 teachers (12 women) would be linked to training actions and the incorporation of BD and CCM approaches into the workers' study plans; 30 executives from different hotel chains that administer the pilot sites, quality management officials, territorial delegates and officials from MinTur would be trained in relation to regulatory instruments, procedures, benchmarking systems, environmental certifications and financial instruments for biodiversity conservation, among others; 20 executives and specialists in environmental management and regulation (environmental and fisheries inspectors) would also benefit from a strengthened regulatory framework and territorial development planning; 40 nautical workers (diving instructors, boatmen and fishing guides) from 3 diving centers and 3 marinas to be engaged in the intervention areas; 50 specialists and technicians from agriculture and forestry, water resources, construction, and community services would be engaged in the development of normative instruments and procedures, good practices to improve the management of water and solid waste in hotel facilities, as well as the mainstreaming of biodiversity considerations in the construction phase and the rehabilitation of ecosystems impacted by tourism development. In the intervention areas, 50 workers from the non-state sector that offer services to tourism (agricultural supplies, furniture, decorations) would be trained to promote good practices in the management of solid and liquid waste; 50 workers from areas where nature tourism activities are carried out, and 20 nature guides. It is expected that the multi-focal and integrated nature of the proposed project would contribute to the achievement of Aichi Targets 2, 3, 4, 8, 9, 10, 14 and 15.

## Part II. Project Justification

### 1a. Project Description

#### 1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description);

The tourism sector in Cuba represents 10.6% of GDP<sup>[1]</sup> and is strategic to the country's economic growth. It constitutes the main source of foreign exchange income for the country. Furthermore, the demand for goods and services that tourism generates has promoted the linkage and development of other sectors (agriculture, construction, communications, transportation, food industry, etc.), in which hundreds of thousands of jobs have been created and have promoted the introduction of new technologies and the modernization of facilities. The generation of stable jobs is one of the most notable contributions of tourism. Figueras and Perez (2015) estimated that around 335,000 workers are directly or indirectly linked to tourism. The profile of the tourism employee is a mostly young population (half are under 35 years old), with a high educational level and a high female participation (41%), who are also part of the National Tourism Training System as part of their professional development<sup>[2]</sup>.

The country's economic and social policy focuses on the accelerated growth of this sector, with greater product diversification, the development of non-state activities, municipal participation, as well as sustainable development. In 2019, Cuba received 4,475,000 visitors, constituting the second most visited tourist destination in the Caribbean. It is estimated that there is a potential for growth of the sector by a factor of six, from the current 74,211 rooms to 421,800, and it is expected that this growth will occur mainly in coastal and marine areas. However, under current practices, this growth could have a detrimental impact on the very ecosystems that serve as a main attraction for tourism. Furthermore, the sector is recognized as an important source of greenhouse gas emissions in Cuba, which would also increase with the expected growth. The opportunity to link biodiversity and climate change mitigation actions provides the necessary traction and incentives for the sector to change the business as usual operation and improve its long-term sustainability.

At the same time, the tourism sector has been severely hit by the COVID-19 pandemic. The Economic and Social Strategy to recover the economy and confront the COVID-19 global crisis includes tourism as a key area that concentrates country effort for the post-pandemic recovery. It is recognized that "even with a certain slowdown in its growth rate, tourism continues to be a locomotive for the country's development." Therefore, "the capacity of tourism to readjust to the new scenario is a vital aspect of the country's strategy."

#### Biodiversity:

Cuba is among the 5 most important biodiversity hotspots on the planet. It has more than 11,700 species of invertebrates and 655 species of terrestrial and freshwater vertebrates. 96% of mollusks, 75% of arachnids and 95.2% of amphibians and 83.2% of reptiles are endemic. It holds third place in the world in plant endemism with respect to its territorial extension with more than 3,000 exclusives<sup>[3]</sup>; of the 5,367 taxa of flora studied, 47% are under some degree of threat. Among vertebrates, there are 52 critically endangered, 42 endangered and 63 vulnerable species, while among invertebrates, mollusks constitute the most threatened group with 31 critically endangered and 34 vulnerable species. In addition to having 26 endemic bird species, due to its geographical location,

Cuba is the most important island region in the Caribbean for Nearctic and Neotropical migratory birds, several of which are threatened at the continental level<sup>[4]</sup>. The enormous variety of species and ecosystems, high endemism, scenic values and archaeological and cultural resources are important attractions for tourism in Cuba.

In an effort to conserve Cuba's biodiversity, 211 protected areas have been declared, 77 of national significance, and 119 with legal approval by the Executive Committee of the Council of Ministers<sup>[5]</sup>. Furthermore, the Ministry of Tourism in Cuba is working to diversify the options available to include city tourism, nature, nautical, health and others. However, the "*sun and sand*" modality is the most commercialized tourism activity in Cuba: 25 of the nation's 60 tourism hotspots are "*sun and sand*". Consequently, the continued development in coastal areas, which are considered the most fragile ecosystems on the planet, generates impacts that affect the environmental and landscape quality of these main tourist destinations. Indeed, the demand for *sun and beach* puts an important focus on the quality of the beaches and marine environments near the coast. With the growth in importance of nature tourism and cultural tourism modalities, the demand for well-preserved natural ecosystems, including wetlands and forests, increases as well. Among the nation's tourism hotspots are Cayo Coco in Ciego de Ávila and Matanzas-Varadero, both of which have been prioritized by the Government of Cuba for this project due to their importance for biodiversity (species and associated habitats) as well as opportunities for the implementation of climate change mitigation practices (please refer to Annex A for details).

#### *Habitat destruction and loss of biodiversity:*

Infrastructure construction for tourism (hotels, restaurants, golf courses, marinas, roads, airports, etc.) generates pressures on ecologically fragile areas, resulting in habitat destruction, loss of biodiversity and imbalance in ecosystem functions. Roads, causeways and access roads to destinations and tourist facilities fragment the habitat causing an edge effect, isolation and/or disruption of native populations and facilitating the access of exotic species. These impacts are aggravated by the use of construction technologies that are not suitable for fragile ecosystems. The development of infrastructure at the Coco, Guillermo and Varadero tourist poles forms an anthropized continuum parallel to the coast that isolates terrestrial and marine ecosystems and constitutes a barrier to the movement of fauna between these ecosystems, such as migratory birds that arrive from the north to winter in these areas. The use of filler material for soil compaction affects natural drainage and the introduction of ornamental plant species for gardening can potentially lead to competition with native species by dispersing into natural areas. The loss of key species of flora and fauna alters the stability and functioning of ecosystems and consequently deteriorates the ecosystem goods and services that are relied on by human and animal species alike. In particular, Cuba's emblematic species of birds, sea turtles, crocodiles and fish are affected by the loss and degradation of their habitats by tourism development, which in turn threatens the same industry that relies on the health and integrity of this diverse crucial natural value.

Pollution resulting from the inefficient treatment of solid and liquid waste harms the environment, causes the death of biota, and affects the landscape quality of tourist destinations. The tourism sector recognizes that there are deficiencies in the removal and treatment systems of liquid waste. The infrastructure networks for waste removal suffer from years of use without proper maintenance, resulting in unmeasured volumes of untreated waste being discharged through leaks and overflow (for example to coastal lagoons, paleocauses, etc.). The facilities in the project's proposed intervention sites (see Annex A) all have some sort of treatment system for stabilization lagoons or liquid waste treatment plants. In Jardines del Rey, there are 3 Lagoons and 3 Wastewater Treatment Plants (PTARs) that are linked to approximately 60 facilities (hotels and others). In 2019, 2,304 hm<sup>3</sup> of waste were processed in these systems. Varadero has 5 PTAR and in 2019, 9 hm<sup>3</sup> of generated liquid residuals were treated. However, the deterioration of the waste removal infrastructure networks associated with these treatment systems results in the unintentional dumping of untreated waste before it even arrives for treatment.

Landscaping maintenance engenders an additional threat as many facilities use potable water for irrigating hotel gardens rather than reuse water for this purpose. This is exacerbated by the high water consumption of non-native plant species that dominate the grounds of hotel facilities, as they are not adapted to coastal ecosystems and water stress. For example, out of the 63 hotels/ guest houses in Varadero only 15 facilities reuse water, including the golf course, so only 22% of treated water is reused. None of the 17 and 9 hotels in Cayo Coco and Cayo Guillermo respectively reuse treated water. This is due in part to the fact that several facilities do not have hydraulic infrastructure for water reuse or it is out of order. With respect to solid waste, facilities in Jardines del Rey, for example, generate 14,600m<sup>3</sup> of solid waste per year, which is deposited in a landfill located in Cayo Coco.

Erosion of the beaches is caused by the technology used to clean the beaches for tourism, the removal of vegetation from the sandy coast and the construction of infrastructure on the dunes. The degradation of coastal ecosystems increases vulnerability to sea level rise and extreme weather events resulting from climate change, which further exacerbates erosion. Additionally, the decrease in vegetation cover represents a loss of carbon sequestration potential.

Overexploitation of reefs and seagrasses for recreational purposes degrades these ecosystems that constitute a natural barrier for coastal protection. For example, uncontrolled recreational diving causes damage to corals by contact with fins and diving equipment, resulting in fragmentation of corals and sediment removal that affects the functioning of organisms - the most affected in Cayo Coco were Octocoral<sup>[6]</sup> while Gorgonians and Corals are the most affected groups in the Jardines de la Reina archipelago<sup>[7]</sup>. In addition, divers' knowledge about the reefs is insufficient and leads to the adoption of inappropriate behavior. Wildlife and coral poaching also affect the reefs of the Sabana-Camaguey archipelago<sup>[8]</sup>.

#### Climate Change:

Tourism development is an important source of greenhouse gas emissions in Cuba, where the main source of energy comes from the burning of fossil fuels and only 4.6% is from renewable energy. The tourism sector consumes 12% of the energy produced in the country and 60% of it is used for air conditioning. The tourism sector has an associated emission of around 533,000 tons of CO<sub>2</sub> per year as a result of the consumption of electricity and fuel. The Cuban government has proposed that by 2030, the energy matrix will consist of 24% of electricity generation through renewable sources of energy, mainly solar, wind and biomass energy. The tourism sector has begun the installation of solar heaters, LED lighting and non-central inverter air conditioning in some of its facilities, and the sector has developed an investment plan focused on enhancing these actions. However, current planning arrangements are still limited. This is particularly true for land use planning and the mechanisms and instruments used to guarantee the environmental and social sustainability of the tourism sector, especially those that link strategies and actions for mitigating climate change with medium- and long-term economic and financial growth.

#### Long-term solution:

Cuba's Sectoral Environmental Strategy<sup>[9]</sup> for the Ministry of Tourism recognizes that the main environmental problems of the sector are those related to the difficulty in the management and rational use of water, pollution by liquid and solid waste, the deterioration of ecosystems, and the insufficient use of renewable energy. As part of the strategies to address the effects of climate change in the framework of Cuba's "Tarea Vida" Plan, the sector has identified prioritized actions in the conservation, maintenance and integral recovery of sandy beaches, ensuring availability and efficient use of water with the improvement of hydraulic infrastructure, as well as land use planning. Furthermore, it recommends the installation of energy efficient technologies and renewable energy sources. Minimizing the negative impacts on the environment and counteracting them is essential for tourism to continue developing in a sustainable way. In Cuba, the environmental methodological bases and the actions carried out in this regard are still insufficient; these must be strengthened to guarantee the sustainability of the tourism sector in the short, medium and long terms.

Currently, there are several barriers that impede the sustainable development of tourism in Cuba:

1. **Insufficient institutional technical capacity and limited inter-institutional coordination** to integrate and implement new approaches to conservation and sustainable use of biodiversity and climate change mitigation in decision-making aimed at the development of the tourism sector. The governmental agencies responsible for tourism development and the regulation, monitoring and assessment of natural resources management have limited technical capacities. There is a lack of inter-institutional arrangements, and of harmonization between production- and conservation-oriented objectives and interests. There are no inter-sectoral mechanisms that can mainstream biodiversity and climate change mitigation objectives into sustainable tourism policies.

a. Limited institutional capacity to carry out adequate control (lack of technical capacity).

The institutions responsible for monitoring the impacts of tourism on biodiversity (i.e. during the construction and operation of the facilities) do not have the technical capacity to generate updated/ real-time information for sectoral decision-making based on environmental quality indicators. The institutions in charge of environmental legislation enforcement (Office of Environmental Inspectors and Integral State Inspection Group) have limited human and material resources which make it difficult to have an appropriate level of environmental control of tourism activities. The activity of these institutions is recognized by the tourism sector as a form of external audit that allows them to evaluate their sustainable environmental performance. These institutions are also responsible for strengthening the environmental concern and the knowledge of environmental legislation through capacity building for tourism sector workers. The interaction between scientists and planners is limited, and there is a lack of integrated and synthesized information available during the planning process of tourism facilities and activities. For example, development planning based on the number of rooms per m<sup>2</sup> of beach does not currently take into account the carrying capacity of the ecosystems in which they will be constructed. The sectors involved in generating environmental sustainability of the tourism sector have limited institutional and technical capacity for the classification and management of solid and hazardous wastes, liquid waste treatment, as well as limited environmental control.

Cuba lacks the necessary tools and technical know-how for widespread deployment of climate change mitigation measures in the tourism sector via energy efficiency and/or renewable energy. In particular, it does not have access to technological solutions aimed at better control of the use and consumption of electricity and fuels, the use of renewable energy sources and the improvement of energy efficiency. Successful sustainable implementation depends on (i) the existence of science and technology; (ii) engineering and technical services that are able to identify advanced and appropriate solutions based on international and national experience; (iii) design of their application under specific conditions; (iv) advice on acquisition of materials and services required for implementation; and (v) supervision and execution of the assembly, commissioning and maintenance of the facilities' equipment. Currently, there are more than 300 hotel facilities in Cuba, a figure that increases every year. This makes the lack of engineering and technical services crucial to the future sustainability of the tourism sector, in terms of experience and service capacity, as well as from a quantitative point of view.

The integration in tourism development plans of technological actions and measures that improve energy management, both in the new facilities and in the remodeling of existing ones, requires strengthening of existing capacities in both the tourism sector as well as other associated sectors. In particular, capacities are required for the systematic auditing and assessment of current levels of energy consumption by area of final use, so as to define and calculate energy performance indicators that characterize hotel facilities, and identify the most feasible solutions for higher performance/efficiency to ensure continuous improvement. Without these capacities, the tourism sector is unable to establish a solid baseline of greenhouse gas emissions and formulate a climate change mitigation program that incorporates energy efficiency (EE) and renewable energy (RE) implementation to reduce these emissions across the sector.

b. Incomplete clarification of roles and responsibilities of key actors

In Cuba, there are numerous institutions within the Ministry of Science, Technology and Environment (CITMA) that carry out biodiversity monitoring in natural and anthropized ecosystems<sup>[10]</sup>. However, the clarification of roles and responsibilities of these institutions with the sectors in charge of tourism activity (i.e. planning, investment, construction and exploitation, as well as environmental regulatory entities) is limited and thereby hampers the effective application of scientific information in decision-making and/or control measures. Territorial entities do not prioritize consultation processes with duly certified experts and environmental assessments.

Furthermore, the inclusion of a climate change mitigation component in the tourism sector development strategy requires the participation of multi-sectoral actors. These include actors from the tourism sector that are linked to energy planning and management in the hotel facility; business and ministry groups; CITMA work teams to support the planning and implementation of actions for the mitigation of climate change; ONURE as a regulatory agency for the rational use of energy at the national level; and research & development centers, universities and engineering companies with experience in RE and EE. Currently, the roles and responsibilities of these actors regarding actions aimed at mitigating climate change in the sector are unclear. The clear articulation of roles and responsibilities would require a shared understanding of the problem, means of approach and the goals to be achieved. The availability of shared concepts, methodologies, tools and practices for reducing GHG emissions would also be crucial to this.

**2. Limitations in the application and development of normative instruments and procedures** within the legal and regulatory framework that incorporate BD conservation and CC mitigation (CCM) in the development of the tourism sector to ensure environmental sustainability from the planning stages of investment all the way through project design, construction and operation.

There is a lack of normative and regulatory instruments with updated methodological bases that incorporate BD conservation and CC mitigation at all stages of tourism development, as well as limitations on the application of existing environmental regulations. Consequently, BD and CCM approaches are not adequately contemplated in the early stages of tourism development (project planning and design). Furthermore, the Environmental Impact Studies that are carried out after project design are not based on a methodology that standardizes the identification and classification of impacts. During the construction phase, temporary facilities are created in non-buildable areas and subsequently are oftentimes not properly rehabilitated, thereby affecting the potential of natural areas to be used for more appropriate means such as landscaping. This occurs because there are no normative instruments regarding the rehabilitation of ecosystems affected by tourism development.

**3. Lack of implementation and validation of procedures and financial mechanisms for key tourism actors** that promote the protection, conservation and sustainable use of biodiversity, ecosystem services and climate change mitigation.

a. Lack of procedures and instruments for the implementation of financial solutions and environmental investments of the state and non-state sector

While Cuba's BIOFIN initiative (see Section 6 on Coordination) provides an important base with regards to economic and financial mechanisms for biodiversity, and ECOVALOR (BD, LD and SFM) promotes the generation of multiple environmental benefits based on the economic valuation of ecosystem goods and services, they have yet to be applied to the Tourism sector. These initiatives establish procedures and instruments for the implementation of financial solutions and environmental investments of the state and non-state sector, aimed at the conservation and sustainable use of biodiversity and ecosystem services. Nevertheless, the implementation and validation of these solutions in all the productive sectors that intervene in the development of tourist destinations needs to take into account the characteristics of tourism activities.

Furthermore, the solutions created by these two initiatives do not incorporate CC mitigation measures for the tourism sector as a tool for investment in energy efficiency and renewable energy. In Cuba, as a rule, the ownership of hotels belongs to a state real estate company that leases them for exploitation to a national hotel company, which then signs joint operation contracts with foreign companies. This separation between the owner of the building (responsible for



the technological infrastructure, in particular that which determines energy consumption), and the operators (responsible for the operating costs, including energy), is a real barrier to investment in the introduction of the use of renewable energy sources and the improvement of energy efficiency. The awareness of different key actors is insufficient with respect to the need to adapt and apply financial solutions to the multi-faceted context of the tourism sector in Cuba.

b. Absence of an environmental recognition and certification system for the sector

This limits the visibility and promotion of differentiated tourism products. A series of environmental recognition initiatives have been applied in Cuba for hotel facilities ("Environmental Beach" recognition, Territorial Environmental Recognition and the Award of the Cuban Sciences Academy). Their objective is to stimulate the sustainable environmental performance of the tourism sector. However, application of certifications in Cuba have only been at a local level and there are no good practice procedures and guidelines established at the level of the tourism sector that correspond to international standards. The administrators of the hotel installations generally do not know that environmental certifications are a voluntary alternative to reduce the negative impacts of the tourism activity on biodiversity and ecosystems (contributing to the sector sustainability) and that they also contribute to cost reductions and a distinction of the companies in International markets. The Project will evaluate and promote environmental certifications (such as Sustainable Tourism Certification, Blue Flag Certification and Ecotourism Certification). as a necessary requirement in the tourism sector as the implementation of these certifications will contribute to the generation of GEBs.

Today it is known that certified tourism companies obtain triple return on investment at global level by taking into consideration the three pillars of sustainability (environmental, socio-cultural and economic) and incorporate an interesting market segment of destinations concerned with sustainability. They acquire the capacity to implement good practices related to the efficiency in resource management and in cost management and reduction. They also benefit consumers that will be able to trust products and services offered and choose freely among the sustainable companies that are certified to back their choices. In the tourism market more awareness of good business practices is achieved and certified companies are forced to provide a better-quality service which is a benefit for tourists. Certification promotes the necessary credibility to be called sustainable tourism and demonstrate real compromise of companies with their own policies (Source: Bien, 2008. A basic guideline about accreditation of sustainable tourism certification programs).

For example, in the particular case of the tourism facilities in Cuba that have the Environmental Beach Certification, differently of the non-certified facilities, show a better environmental quality of their beaches, of biodiversity, and of the associated ecosystems. This is due to the certification promoting the conservation of an important ecosystem called "sandy coast vegetation complex". This ecosystem integrates native plant species such as *Ipomea pes-caprae*, *Canavalia rosea*, *Uniola paniculatra*, *Iva imbricata*, *Suriana maritima* and *Heliotropium gnaphalodes*; it is also the habitat of a large diversity of insects, mollusks, reptiles and birds adapted to its extreme ecological conditions (high salinity and temperature). The mollusk species are highly endemic at the local level and are included in different IUCN threat categories. The certification also contributes to cost reductions and a distinction of the companies in International markets. The Project will evaluate and promote environmental certifications (such as Sustainable Tourism Certification, Blue Flag Certification and Ecotourism Certification). As a necessary requirement in the tourism sector as the implementation of these certifications will contribute to the generation of GEBs.

The vegetation complex provides non-substitutable environmental services, among which the following: their vegetation offers dune protection to the sand facing eroding agents (wind, rain); its species are part of local trophic webs; maintain important reproduction services such as pollinating; constitute the primary source of food, rest and refuge to neotropical migrating birds in their North-South migrations and also for permanent resident birds. This certification also promoted the elimination of exotic species and invasive species that could affect the structure and dynamics of the ecosystem.

4. **Lack of a proven methodological model of how to incorporate BD conservation and CC mitigation** in the tourism sector in Cuba to ensure environmental sustainability in tourism sector planning.

Currently, there is no tried and tested methodological model for incorporating standards and principles of BD conservation and/or CC mitigation in the sustainable development of the tourism sector. In particular, the integration and streamlining of CC mitigation and biodiversity is virtually non-existent and even possibilities of win-win solutions are not being considered. There are no models of different types of BD- and CCM-friendly tourism practices that have been validated for the “*sun and sand*” modality in Cuba. Furthermore, there is insufficient consideration of the potential of municipalities to design diversified products and services aimed at reducing pressures on natural capital due to the expected increase in tourism.

#### **5. Limited management and exchange of knowledge on BD conservation and CC mitigation measures in the tourism sector in Cuba.**

Current biodiversity studies do not incorporate indicators that are relevant and informative to the sector’s decision-making process. There are insufficient mechanisms for managing and disseminating knowledge about viable options for sustainable tourism. This hampers solid evaluations of the tourism sector and local decision makers, and puts the medium- and long-term sustainability of tourism development at risk. As part of the Sabana-Camagüey Project, for example, Integrated Coastal Management Centers were formed that trained the population of the municipalities involved in the area of intervention, but these training actions have limited scope and are not systematic. There are Tourism Training Centers in which tourism workers are trained in environmental conservation and sustainability issues, but there is no mechanism to ensure the systematic updating and deepening of training plans with the linking of CITMA entities on issues of BD conservation and CC mitigation. The preparation of hotel personnel in charge of quality management of BD conservation and CC mitigation is limited or non-existent, and the training actions in the facilities are not systematic.

The tourism sector and local communities have insufficient knowledge to promote BD-friendly tourism development strategies and mitigate CC through the implementation of legal and financial tools to adopt sustainable sectoral practices while maintaining or increasing the sector’s income. In addition, the staff of national and local institutions in charge of guiding, developing and implementing land use plans have not yet adequately exploited the potential offered by ecological conservation and mitigation schemes (i.e. wildlife passages, mangrove ecosystem rehabilitation, ecological restoration in quarries of construction materials, etc.), which are necessary to maintain connectivity throughout the landscape and allow the continuous movement of wildlife between the main habitat blocks. Without a systematic effort to inform and educate local communities and government officials, few of the project interventions will function adequately and sustainably.

#### **2) The baseline scenario and any associated baseline projects**

Cuba has the following baseline in relation to tourism, biodiversity and climate change.

##### Ministry of Science, Technology and Environment (CITMA):

—————National Plan for Economic and Social Development 2020-2030 is the guiding instrument of development planning until 2030. It contains the proposal for the vision of the nation, the axes and strategic sectors, among which the tourism sector is defined. This is related to all the components of the project based on the implementation of benchmark systems and environmental certifications, good practices that ensure the conservation of natural resources, proposals that promote energy efficiency and use of renewable energy sources, as well as ways of sustainable consumption.

- State Plan for Confronting Climate Change 2021-2030 (*Tarea Vida*). This is based on a multidisciplinary scientific base and consists of progressive investments in the short (2020), medium (2030) long (2050) and very long (2100) term. It has 5 strategic actions related to the territorial reorganization of vulnerable coastal settlements, development of constructive conceptions in infrastructure adapted to coastal flooding for low-lying areas, the adaptation of agricultural activities, particularly those with the greatest impact on food security in the country, and changes in land use as a result of sea level rise and drought. It also has 11 tasks aimed at counteracting CC effects in vulnerable areas. It focuses on 15 prioritized areas of the country based on the preservation of people's lives, food security and tourism development. It does not offer the mechanisms, procedures or methodological bases for compliance, so it would be complemented with the three components of the project. The project can contribute to the implementation of this State Plan within the tourism sector,

especially in the areas of intervention, based on the strengthening of the normative and regulatory framework, the clarification of roles and responsibilities of actors involved in tourism development, the implementation of financial solutions that allow the progressive investment of the sector in actions aimed at confronting climate change, promoting continuous improvement and competitiveness of the sector, and rehabilitation of coastal ecosystems impacted by tourism development.

- Law 81 “Environmental Law” / 1997 is the main environmental law in the Cuban legal system. Its objective is to establish the principles that govern environmental policy and the basic norms to regulate the environmental management of the State, and the actions of citizens and society in general, in order to protect the environment and contribute to achieving development goals. sustainable of the country. This law is being updated and is linked to Component 1 with regards to strengthening the mechanisms and instruments for law enforcement by key actors involved in the development of tourist destinations and promote the conservation and sustainable use of natural resources that support tourism development.

- Law 85/1998. Forestry Law Regulates management regarding the protection of mangroves or other coastal vegetation; it promotes afforestation. Component 1 of the project would complement this law by contributing with normative instruments related to the reduction of impacts of tourism-related infrastructure construction and exploitation on mangroves and other coastal vegetation. The rehabilitation of mangrove ecosystems, forests, thickets and dunes, as well as the management of exotic species in the environments and within the tourist facilities included in Component 2 would comply with this law and bolster it with examples of tested, good practices.

- Law 345/2019 “On the development of renewable sources and the efficient use of energy” sets the goal of reaching 24% of electricity generation with renewable energy sources in 2030 across the country (through bio power plants, solar technology, photovoltaics, wind farms and hydroelectric plants). Project interventions would align with the Law’s aims to establish regulations for the development of renewable energy sources in order to contribute with:

a) The increase in the share of renewable energy sources in electricity generation

b) The progressive replacement of fossil fuels.

However, the creation of the regulatory environment favorable to its implementation is still incipient, in particular in the aspects of:

- Setting the prices of energy produced with renewable sources of energy

- Technical standards

- Technical regulations

- Financial mechanisms

- The formulation of tax incentives.

- Decree-Law 212 Management of the Coastal Zone / 2000 defines the extension of the coastal zone and regulates the activities carried out in it and in its protection zone. Components 1, 2 and 3 contribute to the implementation of the law and the project’s experiences would provide inputs for its improvement, especially the results of the interventions in pilot sites, all located in coastal areas. In particular, the financial mechanisms to be implemented would favor the conservation of coastal ecosystems and the application of good management practices of the coastal zone for tourist use. The information system generated from the monitoring of BD indicators would serve as a tool for decision making.

- Decree-Law 201/1999 establishes the legal regime for the approval and management of protected areas, and the powers and functions of CITMA in this matter. Project intervention areas are adjacent to and impact on Protected Areas. Component 2 would support the application of good practices and initiatives to improve terrestrial and marine ecosystems exploited by tourism, thereby enhancing compliance with this law.

- National Environmental Strategy concludes in 2020 but this year begins the formulation of the new cycle to 2030. The current cycle to 2020 has a budget estimated by the BIOFIN methodology of \$1.506 Million USD, of which there is a confirmed financing of \$721,000 and a financial gap of 785,000<sup>[11]</sup>. It defines the main environmental problems of the country, and the processes for its attention. Its mission is to identify and establish priorities to help stop the pace of loss of Cuban biological diversity through its conservation and sustainable use, as a significant contribution to human well-being, adaptation to climate change and the maintenance of ecosystem goods and services. It is a key instrument of Cuban environmental policy and the "umbrella" under which sector strategies are developed, including tourism. However, it does not establish an integration of the values of biological diversity in development planning processes or the ecosystem and integrative approach in the analysis of the main threats to biological diversity. The Strategy is linked to all project components. The project would contribute to the strengthening of environmental policy instruments for the tourism sector (for example, through the development or strengthening of economic instruments, management, strategic environmental assessment, recognition system for best practices and certification); offer an ecosystem approach and integrated analysis of the main environmental problems; and the strengthening of sustainable production and consumption initiatives at the sector level.

- Plan of the National System of Protected Areas (SNAP), its current cycle ends in 2020 with the beginning of the formulation of a new cycle. SNAP is an instrument of strategic, normative and methodological nature in which, through objectives, norms and programs, actions to be carried out in the short term are established for the management of the National System of Protected Areas, which guides the coordination of the activities at provincial level and of the PAs. It is linked to Components 1 and 2. The areas of intervention of the project are adjacent to protected areas, so the project would have a positive indirect impact on the management effectiveness of nearby protected areas. The application of good practices and initiatives to improve marine and terrestrial ecosystems accessed by tourism would favor connectivity between ecosystems and the buffer area.

#### Ministry of Tourism (MINTUR):

- Sectoral Environmental Strategy 2017-2020 is the guiding document for the implementation of Cuban environmental policy in the tourism sector formulated to move towards sustainable development with high standards of efficiency, quality and competitiveness. It establishes the principles, objectives, actors and identifies the main environmental problems that affect tourism activities, proposing actions for their prevention, solution or minimization, in correspondence with guidelines of the VII Congress of the Communist Party of Cuba. An update cycle begins in 2020. This instrument serves as the basis for the design of the annual investment and maintenance plans executed by the sector. These interventions are carried out throughout the country, including actions for efficient energy use, solid and liquid waste management, etc. The Strategy identifies the sector's main environmental problems, which serve as the premise for the design of this project. The project would strengthen the capacity and mechanisms necessary to implement the Strategy. It is expected that the updated Strategy will be complete during the PPG phase and thus allow a more precise definition of which aspects will be put into action through the project.

- Resolution 48/2014 establishes types of diving and norms for the preservation of marine biodiversity. Components 1, 2 and 3 would support efforts to establish regulations for diving based on load capacity of dive sites. Currently, the monitoring of ecosystem health indicators is not visualized as a tool for assessing impacts and for proper management of sites. The Resolution also does not consider financial solutions applied to underwater activity that could serve as a mechanism for investing in conservation.

- Resolution 50/2014 establishes the procedure for the approval of Nature Tourism, Adventure Tourism and Rural Tourism products, with the aim to promote ecosystem conservation. It recognizes financial incentives as a solution to promote conservation and local development. It promotes the use of renewable energy. However, it is limited to the procedure for the approval of Nature Tourism, Adventure Tourism and Rural Tourism products. Component 1 would consider ways to implement financial incentives for these alternative forms of tourism, i.e. Nature tourism modalities such as: Hiking, Bird Watching,

Horseback Riding, Naturalist Navigation, among others, which offer alternatives to sun and beach tourism and facilitate the investment of the sector in biodiversity conservation. The project will help establish procedures and manuals of good practices applicable to nature tourism This hamper products and disseminate initiatives that promote the conservation of biodiversity.

The total amount of baseline projects is USD\$ 6,757,332 and comes from the following partners:

Centro de Investigaciones en Bioalimentos/CITMA:

- Rehabilitation of coastal dunes in the Jardines del Rey archipelago (2017-2020). This initiative manages the rehabilitation of coastal dunes from informative campaigns and pilot experiences of native plant nursery. This has a value of USD \$ 124,400. It is only limited to rehabilitation of coastal dunes, not to other coastal ecosystems (mangroves, reefs where tourism activity takes place). They use only 2 species of plants in reforestation actions. It does not incorporate a system of good practices for the management of the coastal zone, nor does it include a landscape vision. This would provide important lessons and experiences to consider during the PPG for the design of the Full project, and coordination with this initiative through Component 2 could help resolve gaps in the initiative, to be confirmed during the PPG.
- Integrative Environmental Management with an ecosystem approach in the Great North Wetland of Ciego de Ávila (GHNCA) for its adaptation to Climate Change (2021-2023). This aims to establish and implement an integrated management program within the GHNCA to achieve its sustainability and adaptation to change climate. This has an annual value of USD \$ 1,759,580. This would provide important lessons and experiences to consider during the PPG for the design of the Full project.

Centro de Investigaciones de Ecosistemas Costeros/ CITMA:

- Monitoring System of the Sabana-Camaguey Archipelago (2020-2023). Design of a biodiversity monitoring system in the Sabana Camaguey archipelago with a value of USD \$ 1,600,100. This would provide important lessons and experiences to consider during the PPG for the design of the Full project.
- Evaluation of the impacts of Hurricane Irma on the biota of Cayo Coco and Paredón Grande (2018-2020). This involves monitoring the effects of Hurricane Irma on the biota and resilience of communities in keys with accelerated tourism development. Although it takes into account the effect of anthropization, it does not offer indicators that directly measure this effect. This evaluation represents a value of USD\$ 273,252. This would provide important lessons and experiences to consider during the PPG for the design of the Full project.

Ministry of Energy and Mines:

UE/ONUDI "Energy Efficiency and Conservation". Implementation: 2019 – 2023. Support the implementation of the government program for energy management and conservation, including energy efficiency. The UE/ONUDI (ONURE) Project is a multisectoral project aimed fundamentally at strengthening the country's capacity to implement the Energy Management Norm ISO 50001. The project works in the public sector in general and is present in 8 provinces (of which Matanzas is the only one that coincides with the GEF project). The main actions of this project are:

- Establishing national procedures and methodological tools for the implementation of this norm.
- In significant cases, evaluate the potential energy efficiency of facilities related to production and services.
- Capacity building of stakeholders
- Capacity strengthening of the ONURE as a result of the strengthening of their provincial work groups and the training of energetic auditors.

In the tourism sector they have carried out actions to implement norm ISO 50001, some energy audits and capacity building of the main hotel facilities in the sector. The contribution of the GEF project is aimed at extending the application of energy management according to ISO 5001 to the hotel chains as a work method and demonstrate the potential of its application supported on energy consumption monitoring systems in real time and the calculation of performance indicators. This is a good starting point for the GEF project, as the EU project is limited to carrying out energy audits in the tourism sector without carrying out interventions aimed at demonstrating the technological solutions that addresses opportunities in these assessments. In this GEF project these demonstrations will be very important as they consider action for the improvement of the energy efficiency with better data management and monitoring of energy performance indicators in real time. The EU project is centered in regulations linked to the residential sector and the norms applicable to the implementation of the Energy Management Norm ISO 5001. The methodological experiences on assessments (energy audits) and the initial energy performance indicators generated by the EU/UNIDO project will be used by GEF project to structure an energy consumption benchmarking more focused in the hotel building typology. This will allow the tourism sector to have information about how to manage more efficiently its energy use and where to invest resources for lower payback times and better cost benefits. In this way, the GEF project will contribute in the long term to increasing ambitions in reducing emissions

3) the proposed alternative scenario with a brief description of expected outcomes and components of the project;

While tourism represents a multimillion-dollar global market, it also represents one of the main threats for biodiversity and climate change. The improvement of environmental sustainability represents an important opportunity to promote BD- and CCM-friendly practices in tourism development that depends on ecosystem integrity and associated biodiversity as their main attraction.

The baseline scenario and programs (described above) aim to consolidate effective conservation and sustainable use of biodiversity to increase connectivity, reduce pressure on ecosystems and encourage the adoption of energy efficiency and renewable energy, while promoting greater environmental culture and awareness.

The GEF increment will complement these programmes by establishing and systematizing monitoring for BD and CCM, harmonizing their objectives and facilitating their implementation. This will translate into effective management, increased area under sustainable use and conservation of species. The effective operation of selected tourism sites is expected to result in their environmental sustainability in the long term.

The objective is to contribute to the sustainability of tourism in Cuba through the mainstreaming of conservation and sustainable use of biodiversity and mitigation of climate change with emphasis on vulnerable coastal-marine areas through the design and implementation of innovative models with strengthened capacities and financial mechanisms. The identified barriers and causal pathways are as follows:

*Barriers:*

1. *Insufficient institutional technical capacity and limited inter-institutional coordination*
2. *Limitations in the application and development of normative instruments and procedures*
3. *Lack of implementation and validation of procedures and financial mechanisms for key tourism actors*
4. *Lack of a proven methodological model of how to incorporate BD conservation and CC mitigation in the tourism sector*
5. *Limited management and exchange of knowledge on BD conservation and CC mitigation measures in the tourism sector*

Causal Pathway 1: Increased access to sustainable and profitable value chains for tourism (including national and international markets) > sustainable management of biodiversity > decreased capture/disturbance pressure on selected species > species populations are maintained or increased > BD conservation mainstreaming.

Causal Pathway 2: Improved information management systems and tools + increased capacity for incorporating BD conservation in the tourism sector at the site level > systematization of best practices/lessons on BD conservation in the tourism sector>informed planning of tourism development > ecosystem connectivity.

Causal Pathway 3: Improved information management systems and tools + increased capacity for incorporating CCM in the tourism sector at the site level > informed planning of tourism development > low carbon technologies + low-carbon anthropogenic activities + decreased GHG Emissions> increased climate change mitigation.

Causal Pathway 4: Improved monitoring tools+ low-carbon anthropogenic activities + sustainable practices More efficiently monitored and participatory KM on environmental sustainability in the tourism sector > Informed decision-making > ecosystem integrity + more resilience.

The proposed pathways are based on the analysis of structural/root causes and barriers. The supporting outputs and outcomes for each Pathway are illustrated in Figure 1. These links, and the assumptions that they are built upon, are sufficiently explicit and properly address the problems and barriers, as described above.

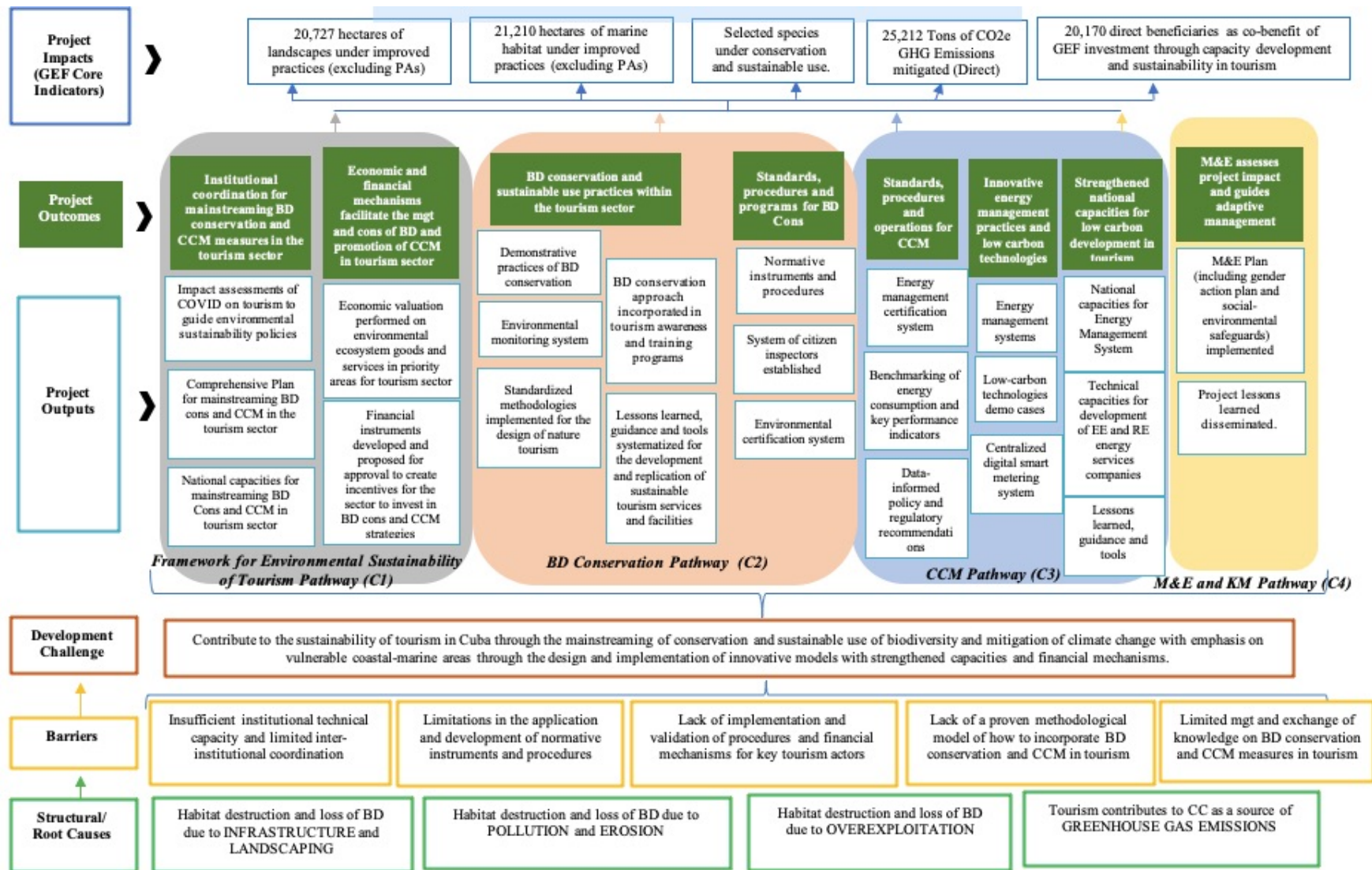
Figure 1, below, illustrates the Theory of Change for this project. It has been constructed following the recommendations of the Theory of Change Primer (STAP document 2019). This intervention aims to generate multiple biodiversity and climate change mitigation benefits by mainstreaming environmental sustainability in the tourism sector by conserving globally significant biodiversity and increasing energy efficiency. The pathways to achieve the project's impacts are based on identifying barriers and linking to the structural/root causes of biodiversity loss and climate change. The above-indicated assumptions underpin the proposed pathways to enable the development of environmentally sustainable tourism in Cuba and give rise to the project outcomes and impacts (GEF Core Indicators).

The ToC will serve multiple objectives, such as

1. improving the Project's design during the PPG phase and support adaptive management during implementation;
2. engage all stakeholders and develop ownership;
3. communicate the rationality of the Project's goals, outcomes, outputs, and activities to relevant internal and external audiences; and
4. ensure that adequate data is collected to enable sound monitoring and evaluation throughout the life span of the Project and beyond.

The ToC will be further refined during the PPG Phase.

**Figure 1. Theory of Change CUB-Tourism (*To be further refined during the PPG Phase*)**



## Project components

Component 1. Strengthened institutional, regulatory and financial/economic framework for environmental sustainability of the tourism sector in Cuba

Outcome 1.1 Institutional coordination for mainstreaming CCM and BD conservation measures in the tourism sector

This outcome aims to implement the baseline studies and assessments necessary to update the Environment Strategy of the tourism sector, focused in mainstreaming both biodiversity and climate change mitigation. This outcome will address the needed interinstitutional coordination to guarantee the integration of the two focal areas and to engage and consult with the diverse stakeholders of the tourism sector in Cuba.



### Output 1.1.1 Socio-economic impact assessments of COVID on the Cuban tourism sector to guide long term policies for environmental sustainability;

This output will identify and summarize the pre Covid-19 macro and micro contexts regarding the tourism sector and industry in Cuba, considering the pre-pandemic financial, economic, social, cultural, and governance contexts. The assessment must identify and highlight the pre Covid-19 tourism and nature-based related policies, strategies and institutional action plans. The socio-economic impacts assessment will be evaluated in terms of loss of revenue, business closure, income and employment, and where relevant, livelihoods of the most vulnerable groups amongst others. This will include an assessment of the impacts on nature-based tourism and enterprises and categorization of the source of the tourism/nature-based value chains being considered in the analysis. With the assessments and findings, recommendations for socio-economic recovery measures for addressing the sectoral needs to rebuild the tourism sector and industry in a sustainable manner will be presented, approaching: Identification and prioritization of recovery needs, including a projection of three possible/likely future scenarios; Differentiated strategies and options for rebuilding nature-based tourism; Issues of local vulnerable groups, and interventions carried out by local communities, particularly women and indigenous group; Current Covid-19 economic and social relief measures, social protection measures, and their associated benefits or impacts on the tourism sector recovery, if any. Consideration of different trades (accommodation & hospitality, travel, tourism operators, arts crafts, cultural performances).

### Output 1.1.2 Comprehensive Plan for mainstreaming BD conservation and CCM in the tourism sector to promote resilience and low emission strategies (biodiversity, green recovery, energy efficiency, renewables, sustainable mobility).

This output would support the development of a Comprehensive Plan to complement the Environmental Strategy of the tourism sector in Cuba. It would take into account the recommendations of the socio-economic impact assessments and include benchmarks for the mainstreaming of biodiversity conservation and climate change mitigation. The Plan would aim to increase resilience to withstand future shocks and help achieve necessary transformation towards its longer-term development objectives. It would identify favorable policies, terms of trade and appropriate legal frameworks that must be introduced and maintained post-COVID 19 in order to: (a) Rebuild the tourism sector and industry; (b) Increase the contribution of the tourism sector and industry to the national economy; (c) Create demand for value chains associated with nature-based tourism; and (d) Protect rights and benefit entitlements of Communal Conservancies' beneficiaries.

The inclusion of a benchmark system would stimulate the competitiveness and efficiency of the hotel chains/ facilities based on the measurement / evaluation of environmental quality management processes and systems that include biodiversity conservation and climate change mitigation (i.e. energy generation and consumption) based on indicators or parameters adapted to the Cuban reality as a reference point and would determine the distance between the compared chains/ facilities. This would promote the continuous improvement of good practices in the management of the tourism sector through initiatives, innovations and investments aimed at achieving greater performance and sustainability in the short, medium and long term. Details will be determined during the PPG.

With regards to CC mitigation, this output would entail the identification of the technical and economic potential for a low emission development path of the tourism sector in Cuba. It would include the identification of the current energy consumption patterns of the hotel sector (to be defined by benchmarking), including other possible end-use activities associated with emission reductions. Measures would be identified with regards to the use and consumption of fuel and power, the improvement of energy efficiency and the use of renewable energy sources (including the organic component of urban solid waste for energy cogeneration) and the opportunities low emission mobility (e.g. fleet electrification).

A CC mitigation plan for the hotel sector would be prepared, including an economic/technical analysis of selected measures, an action plan, an implementation schedule, a cost estimate and an evaluation of the GHG emissions reduction associated with its implementation. The results of the plan would be based on the activities undertaken in Component 3, but would go beyond energy efficiency to set up a long-term vision for a low emission green recovery and development path for the tourism sector in the country.

The Comprehensive Plan would be linked to the national development goals and existing sectoral planning frameworks to tease out the role of tourism in achieving the Sustainable Development Goals and NDC commitments. The Plan would take into account the UN framework five pillars (health first, protecting people, economic response and recovery, macroeconomics and social cohesion), and the entry points of the Green Economy within the UNDP's four pillars (green economy, digital disruptions, governance and social protection) beyond recovery towards 2030.

Output 1.1.3 National capacities strengthened to mainstream BD conservation and CC mitigation in the tourism sector.

This output would support the strengthening of the capacities of the Technical Advisory Council of the Ministry of Tourism as a body to advise the country's tourism development. The project will help the experts who are members of this body to strengthen their knowledge and skills in incorporating approaches to conservation and sustainable use of biological diversity and mitigation of climate change in advising the sector, contributing to its sustainability. The project will help the Technical Advisory Council of the Ministry of Tourism to apply those for the recovery of the sector from COVID-19 with a focus on Green Recovery and resilience to climate change. The project will promote exchange between this body and experts from key national institutions on biodiversity and climate change issues (research centers, universities, and business groups), and will promote feedback on national and international experiences.

**Outcome 1.2:** Economic and financial mechanisms facilitate the management and conservation of biodiversity and promotion of CC mitigation in the Cuban tourism sector.

Output 1.2.1 Economic valuation performed on environmental ecosystem goods and services in priority areas for the tourism sector (application of EcoValor methodology).

This output consists of the valuation of the goods and services of the ecosystems of the study areas with the application of the methodology designed by EcoValor<sup>[1]</sup>, in the pilot sites. Ecosystem goods and services to be considered by this valuation would include carbon capture, timber and non-timber forest products (in nearby forests and scrublands), erosion prevention in marine environments by mangrove, reef and seagrass prairies, as well as commercial fish breeding and breeding sites, and recreational services for tourism, among others to be confirmed during the PPG. The project would tailor the EcoValor tool to the specific needs and concerns of the tourism sector. In addition to hotel facilities, the importance of nature tourism as a complement and/or alternative to “*sun and sand*” tourism would be evaluated to further its development as a viable alternative for tourism development. Nature tourism initiatives could favor local development where the private/non-state sector is involved, and thereby constitute a potential opportunity to enhance the productive value chain through the promotion of, cultural experiences, and landscape connectivity, among others.

Output 1.2.2 Financial instruments developed and proposed for approval to create incentives for the sector to invest in the conservation of biodiversity and climate change mitigation strategies.

Financial instruments would be designed to promote investments in conservation and sustainable management of biodiversity, energy efficiency and renewable energy. With regards to BD, the project would consider ways to implement financial incentives for the alternative forms of tourism promoted by Resolution 50/2014, i.e. diverse nature tourism modalities, that diversify offers within “*sun and sand*” tourism and facilitate investment in BD conservation and CC mitigation, with the aim of promoting ecosystem conservation. The project would ensure that the financial mechanisms to be implemented would favor the conservation of coastal ecosystems and the application of good management practices of the coastal zone for tourist use as defined by Decree-Law 212 Management of the Coastal Zone / 2000. With regards to energy in particular, emphasis would be placed on the hotel sector facilities. This could be in the form of a type of ‘performance contract’ or similar schemes that share the savings of EE projects with the facility before the whole investment is paid back. It would be a financial tool that supports the energy service company concept, and would include a performance contract, the independent power producer (IPP)

and the power purchase agreement (PPA). Project interventions would align with Law 345/2019's aims to establish regulations for the development of renewable energy sources. The financing schemes would take into account the specific conditions of the sector in aspects such as risk, profitability and the magnitude of financial needs for the abovementioned types of investments.

## **Component 2. Mainstreaming Biodiversity in the Tourism Sector in Cuba.**

### **Outcome 2.1: Biodiversity conservation and sustainable use practices within the tourism sector generating livelihood benefits and promoting biodiversity conservation across landscapes of Cuba.**

Output 2.1.1 Demonstrative practices of BD conservation implemented in selected areas. E.g.: Ecosystem connectivity (dunes, mangroves, forest, lagoons, etc.), road landscape junctures, management of invasive alien species, gardening, etc.;

The Project would support the development and demonstration of BD-friendly practices for landscaping and gardening, management of exotic species, water management, liquid and solid waste management (including repair and upgrading of networks), restoration and rehabilitation of coastal ecosystems, environmentally sustainable constructions, environmental training systems, environmental certification systems, among others. Sustainable BD conservation practices demonstrated across 3,390 ha terrestrial and 1,274 ha marine landscapes of global significance. Site-specific interventions will be identified during the PPG.

Output 2.1.2 Environmental monitoring system strengthened to assess the impacts of project interventions and to support certification processes;

The Biodiversity Monitoring System to be developed for tourism through Output 1.3.1 would be implemented in the facilities of the pilot sites. This would entail a standardized methodology for monitoring different ecosystems, including a system of biodiversity indicators in tourist development areas so as to identify environmental problems caused or exacerbated by tourism. The results would be crucial to the definition and implementation of actions to be taken to counteract or minimize them with a system of good practices to foster continuous improvement. The monitoring system would be used to characterize marine and coastal biodiversity and ecosystem health in the pilot sites, the state of natural communities, the processes that sustain them, as well as the threats that affect their conservation and sustainable use. The information generated would be used to propose mitigation and adaptation measures (management) for the facilities to implement to address threats and impacts on the natural communities and ecosystems of the intervention areas.

Output 2.1.3 Standardized methodologies implemented for the design of nature tourism products in the sector.

Nature-based tourism constitutes a priority for the economic recovery of Cuba post-Covid 19. At the same time, it represents an opportunity to implement financial incentives for the alternative forms of tourism promoted by Resolution 50/2014, i.e. several modalities of nature tourism, that diversify offers within "*sun and sand*" tourism and facilitate investment in BD conservation, with the aim of promoting ecosystem conservation. Nature-based tourism initiatives could favor local development where the private/non-state sector is involved, and thereby constitute a potential opportunity to enhance the productive value chain through the promotion of, cultural experiences, and landscape connectivity, among others. The project would support efforts to promote nature tourism by establishing standardized methodologies to design and implement various modalities such as: Hiking, Bird Watching, Horseback Riding, Naturalistic Navigation, among others that may be explored during the PPG phase.

Output 2.1.4 Biodiversity conservation approach incorporated in awareness and training programs for key actors involved in tourism development;

This Output would support the incorporation of the BD conservation approach within the training programs of key stakeholders in the tourism industry, particularly with regards to mainstreaming biodiversity conservation within tourism practices. It would emphasize successful experiences, including documentation and experiences of tourism service providers best practices and socio-cultural benefits. The project would develop awareness actions to increase the importance of nature as a major tourism asset in Cuba and to promote changes in thinking and practice based on knowledge of sustainability options for tourism. This would be carried out with the help of tools such as videos, signage, brochures, etc. aimed at raising the awareness of key actors regarding the value of Cuba's biodiversity, the importance of its conservation, as well as national regulations on biodiversity. These actions would involve hotel chains, travel agencies, airlines, airports, access routes to destinations and tourist facilities, including Self-Employed Workers. These communication products would be developed from the systematization of the existing knowledge on the biodiversity of Cuba and the information generated by the monitoring system conceived as a result of the project. The effectiveness of these interventions would be measured by changes in baseline scenarios of surveys and measurements applied at project start and end.

Output 2.1.5 Lessons learned, guidance and tools systematized for the development and replication of sustainable tourism services and facilities.

This Output aims to systematize lessons learned, guidance and tools that promote knowledge and flow of information on good practices validated in pilot sites that stimulates its extension to the entire sector. The project would collect and systematize best practices and lessons learned regarding mainstreaming of BD within tourism development so as to disseminate and replicate sustainable tourism services and facilities. This would include best practices on gender mainstreaming and socio-cultural benefits. Dissemination of biodiversity conservation methodologies would be done at the level of the participating hotel groups and their selected companies.

**Outcome 2.2: Standards, procedures and programs integrate new approaches to conservation and sustainable use of biodiversity *with BD conservation standards for tourism development and operations.***

Output 2.2.1 Normative instruments and procedures developed within the legal and regulatory environmental framework for tourism development to support the conservation and sustainable use of biodiversity

The National Environmental Strategy for Tourism identifies the sector's main environmental problems and serves as the premise of this project; the project would strengthen the capacity and mechanisms necessary to implement the Strategy. Through this output, the project would support the creation of procedures for environmental management that incorporate biodiversity conservation and climate change mitigation within tourism development. The project would strengthen the implementation of quality standards to ensure the integral and systematic nature of sustainable environmental practices. In particular, the project would support the sector's efforts to strengthen nature tourism, as a way to diversify tourism and reduce pressures on coastal ecosystems. The project would develop proposals for normative instruments and procedures that allow the clarification of roles and responsibilities of actors involved in tourism development and influence the environmental problems identified above. For example, the project would contribute with normative instruments for Forestry Law 85/1998 to reduce impacts on coastal ecosystems during infrastructure construction and exploitation, to be demonstrated in Component 2. Likewise, the project would strengthen Resolution 48/2014 on Diving by supporting efforts to establish regulations for diving based on load capacity of dive sites."

Output 2.2.2 System of citizen inspectors established to monitor compliance with environmental regulations in tourism.

This output would promote the implementation of a system of citizen inspectors (via organizations, associations and other institutions recognized by law and in the general public) that support the work of state environmental inspectors in monitoring compliance with the Environmental Regulations. These inspectors carry out monitoring based on the environmental quality indicators of the facilities and the fulfillment of the Environmental Law, Decree Law 212 Management

of the Coastal Zone, as well as other environmental regulations in force in tourist destinations. They constitute an external audit of the sustainable environmental tourism performance and incorporate recurrent environmental capacity building actions on the legal and regulatory environmental framework as well as good practices for sustainable environmental management. Periodic training would be provided through Output 1.3.1 below.

#### Output 2.2.3 Environmental certification system implemented and tested for tourism activities and facilities.

The project would also support the implementation of the Blue Flag Certification (as an international certification). The Blue Flag Certification is applied to beaches, ports and boats and is developed by the Non-Governmental Organization "Environmental Education Foundation (FEE)". It is made up of four criteria: Information and Environmental Education, Water Quality, Environmental Management, and Safety and Services. Some of the indicators of this certification for 2021 include:

- Algal vegetation or natural debris must be left on the beach.
- Marine and freshwater sensitive habitats (such as coral reefs or sea grass beds) in the vicinity of the beach must be monitored.
- The beach must fully comply with the standards and requirements for water quality analysis.
- Facilities for the separation of recyclable waste materials must be available at the beach.
- Environmental education activities must be offered and promoted to beach users.
- Information about bathing water quality must be displayed.
- Industrial, waste-water or sewage-related discharges must not affect the beach area.
- Emergency plans to cope with pollution risks must be in place.

In addition, the project would support the identification of opportunities within the country to create and implement a two-pronged certification system for the tourism sector: one for the physical facilities of a hotel and another for its management performance. The first certification would be for hotel buildings based on the energy efficiency of the installation both in terms of its building envelope and air conditioning equipment, hot water supply, etc. This would include the standards for energy consumption and for the operation of the installation, as well as GHG emissions, creating a stimulus to the owner to invest in increasing the energy efficiency of the available infrastructure.

The second certification is the Certificate for Sustainable Tourism (CST) recognized by the Global Sustainable Tourism Council. This certification is applicable to many different types of companies linked to tourism. This certification is applicable to a variety of tourism services, such as: lodging facilities, transportation and tour operators, theme parks and thermal waters and spas. The implementation of this certification will be done in hotel facilities that will be identified during the PPG phase. The CST would allow the implementation of the Sustainability Management System in the long term, including the compromise to minimize the negative impacts of its activity on the environment. It is based on specific category indicators, indicators to measure the continuous improvement and indicators to measure the social impact of the companies, which will allow the monitoring and evaluation and learning of the certification process.

The Certificate for Sustainable Tourism will promote environmentally friendly consumption, energy efficiency and use of renewable energy in the hotel facilities, the efficient water management and the reduction of waste management contamination. While co-financing for waste management has not been identified at the PIF stage this will be considered during the PPG phase considering the importance of the impact of this sector. It incorporates criteria

related to biodiversity conservation, involves native flora and fauna conservation policies, promotes landscaping action of facilities incorporating native species. The certification will generate GEBs such as the reduction in GHG emissions, reduction in water use and biodiversity conservation, especially endemic and threatened species

### **Component 3: Low emission standards, procedures and technology demonstration of CCM in the tourism sector**

#### **Outcome 3.1: Standards, procedures and operations integrate new approaches to energy conservation in the tourism sector for increased efficiency and climate change mitigation**

##### Output 3.1.1 Energy management certification system established for tourism facilities;

The international standard 50001 specifies requirements to establish, implement, maintain and improve an energy management system to achieve continual improvement of energy performance, including energy efficiency, energy use and consumption and renewables. ISO 50001 provides a framework of requirements for organizations to develop a policy for more efficient use of energy, fix targets and objectives to meet the policy, use data to better understand and make decisions about energy use, measure the results, review how well the policy works, and continually improve energy management. This methodology is not new for the Cuban market in general but only a few initiatives in the hotel sector. This output will disseminate this methodology in the tourism sector, working upon the activities of the EU/UNIDO project, and select champions to scale up the internationally recognized procedures aiming at certification. To support compliance with ISO 50001 and facilitate replicability, the project would strengthen technical capacity of the facilities specialists responsible for energy management, including training courses aimed at managers, maintenance teams and specialized technical professionals (multipliers).

##### Output 3.1.2 Benchmarking of energy consumption and key performance indicators of hotel facilities established (i.e. definition of baseline of energy use for the lighting, RE generation and cooling sectors)

This would entail the identification of current energy consumption patterns of the hotel sector, detailing the end-use activities associated with them. Measures would be identified with regards to the use and consumption of fuel and power, lighting, cooling systems, renewable energy and CO2 emissions. Because of the diversity in the sector even within national categories of hotels, energy benchmarks can be complex, however, during the PPG a simplified approach that can be still a powerful tool for planning and management will be identified. For hotel buildings, the benchmarks are related to the total hotel gross floor area or the number of guest rooms. The Energy Use intensity of hotels is typically expressed in units of:

- Building energy consumption per floor area per year (kWh/m<sup>2</sup> per annum);
- Building energy consumption per guest room per year;
- Building energy consumption per guest night.

These indicators will be assessed and identified to allow comparison initially in project action area, and later to be upscaled to other provinces and nationally. The methodological experiences on assessments (energy audits) and the initial energy performance indicators generated by the EU/UNIDO project, will be used by GEF project to structure the benchmarking focused in the hotel building typology. This will allow the tourism sector to have information about how to manage more efficiently its energy use and where to invest resources for lower payback times and better cost-benefits.

##### Output 3.1.3 Data-informed policy and regulatory recommendations presented and adopted for the tourism sector to promote efficient and low emission technologies and processes.

Based on the findings of the benchmarking and the definition of energy performance indicators a set of policy and regulatory measures will be elaborated or updated. This is to guarantee the sustainability of operations of the facilities selected for demonstrative actions but mainly to replicate and scale up sustainability measures by other actors focused on mitigation. These recommendations will be fed to the comprehensive Climate change Mitigation plan to structure the Environmental Strategy of the tourism sector in Cuba.

### **Outcome 3.2: Innovative energy management practices and low carbon technologies generate reduction of greenhouse gas emissions in the tourism sector**

#### Output 3.2.1 Energy management systems designed and implemented based on energy audits and energy assessments.

This output would design, implement and evaluate the technical and economical feasibility of demonstrative actions aimed at improving the energy performance of hotel facilities. To achieve this, a set of hotels would be selected to serve as a case study for the proposed model for monitoring and management through a centralized system. This output would be executed in close relationship with output 3.1.2. The energy audits are necessary to structure benchmarking and will define the most cost-effective measures for energy management and equipment retrofitting. An analysis of previous energy audits (EU/UNIDO project) might be undertaken to guide already investment activities (elaboration of economic and financial viability and payback period of proposed measures). Options to be considered include: LED lighting, automatization of energy (through sensors), energy management through smart meters (at the provincial or national level), and cooling systems, among others. Additionally, specialized measurement equipment would be acquired to carry out energy audits and technical staff would be trained to use this equipment.

#### Output 3.2.2 Low-carbon technologies demonstrative cases integrating energy efficiency measures and renewable energy solutions implemented with the participation of national and international co-financing

These actions would follow the micro-grid concept and focus on deployment of equipment and technologies that improve energy efficiency and promote the use of renewable energy sources (with cofinancing resources) that reduce the consumption of conventional energy sources. Potential solutions for the improvement of energy efficiency would be chosen based on cost effectiveness and payback periods, such as air conditioning and cooling systems, lighting and heat production. Attention would be paid to the role of automatic controls, the use of waste heat and cold sea water, cold accumulation, etc. The demonstrative cases would implement an array of renewable energy solutions based on local conditions and government approved plans, such as: solar water heating systems, photovoltaic systems, heat production technologies based on the use of biomass wind turbines and other commercially-mature technologies.

#### Output 3.2.3 Centralized digital smart metering system standardized and implemented across the hotel sector for continuous monitoring of energy consumption, energy performance indicators and reporting and verification of results of the EE/RE program in hotels based on ISO 50001.

A real-time energy management system would be developed and demonstrated based on the Smart Micro-grid concept where demand management is combined with the production of electricity, heat and cooling resulting from the integration of conventional sources and renewable energy sources. ISO 50001 requires the use of an energy management system in order to use energy more efficiently. The standard is based on a management system model of continual improvement to be established in Output 3.1.1 and tested in this Output 3.2.3. The project would accomplish this by strengthening the measurement of variables related to energy consumption by area and end-use activity at pilot site facilities. The software and hardware (meters) would allow the calculation and analysis of energy performance indicators in real-time for the benchmarking. Furthermore, the management of the hotel facility, as well as the parent company, would have remote access to this information in order to set targets for continuous improvement of energy performance. The incremental investments in smart metering systems will make possible the cost-effective investments for retrofitting and upgrading the most inefficient systems of selected hotels.

**Outcome 3.3: Strengthened national capacities for the tourism sector in Cuba regarding low carbon development, as indicated by:**

Output 3.3.1 Strengthening and scale up of national capacities for energy Management System based on ISO 50001 for hotel facilities and hotel chains;

The project would strengthen the technical capacity and training of specialists (trainers) for multiplication and implementation of the Energy Management System (EMS) at hotel facilities. Managers would be trained in the methodological aspects of energy management and practical actions for implementation in the workplace; identification, formulation and rationale of measures that improve the energy performance of their organizations. They would strengthen their proficiency of ISO 50001 and the applications required for its implementation. Maintenance and operation staff would be trained on good practices for maintaining the efficient operation of the new technology. A body of auditors would also be trained to evaluate the performance of the facilities, identification of measures and the supervision of their compliance based on the ISO 50001 standard.

Output 3.3.2 Strengthening technical capacities for the development of energy services companies focused on promoting energy efficiency and renewable energy in the hotel sector.

This is aimed at strengthening the capacity to provide energy services to hotel facilities and business groups for the implementation of energy efficiency and renewable energy measures and promote the preliminary enabling conditions for the establishment of state and non-state energy services companies specialized in the tourism sector. Specialists, technicians and managers linked to the energy services of the hotel sector would be trained in processes and technologies aimed at improving energy efficiency and renewable energies, in financial and economic potentials assessments, and on practical elements for the continuous monitoring and management of energy for an efficient operation of hotel facilities. Business models would be assessed for the creation of state and non-state energy services companies specialized in the hotel sector. A preliminary identification of non-state energy service providers would be carried out during the PPG.

Output 3.3.3 Compilation of lessons learned, guidance and tools systematized for the upscaling of successful experiences of implementation energy management systems, energy efficiency measures and renewable energy solutions (for management and technical staff)

To support compliance with ISO 50001 and facilitate replicability, the project would document the experiences related to strengthening technical capacity of the facilities and specialists responsible for energy management, including training courses aimed at managers, maintenance teams and specialized technical professionals. Best practices and an exchange of experiences with other facilities nationally and regionally would increase proficiency of ISO 50001 and the applications required for its implementation. Good practices for maintaining the efficient operation of the new technology would be disseminated among maintenance and operation staff. Furthermore, technical guidelines of operation and maintenance would be elaborated and lessons learned from their application would be disseminated.

**Component 4. Monitoring and Evaluation and Knowledge Management**

**Outcome 4.1: M&E assesses project impact and guides adaptive management**

Component 4 would systematize project knowledge and lessons learned and promote monitoring and evaluation of project interventions. It would also disseminate successful experiences including documentation and dissemination of tourism service providers best practices, as well as gender mainstreaming and socio-cultural benefits. Within the framework of the project, awareness campaigns aimed at key actors and tourists would be developed to promote changes in thinking and practice based on knowledge of sustainability options for tourism. The project would promote knowledge and flow of information on good practices validated in pilot sites that stimulates its extension to the entire sector.

Output 4.1.1 M&E Plan (including gender action plan and social-environmental safeguards) implemented.



#### Output 4.1.2 Project lessons learned disseminated.

##### 4) Alignment with GEF focal area and/or Impact Program strategies;

The project is aligned with the GEF7 Biodiversity (BD) Focal Area Objective 1: *Mainstream biodiversity across sectors as well as landscapes and seascapes*, Focal Area Strategy 1: *Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors*. In doing so, it addresses priorities and outcomes identified by CBD COP-13; the proposed interventions in the target areas will contribute toward: A) *Improve policies and decision-making, informed by biodiversity and ecosystem values* and its Expected Outcome 1: *Financial, fiscal, and development policies, as well as planning and decision-making take into account biodiversity and ecosystem values, in the context of the different tools and approaches used by Parties to achieve the Aichi Biodiversity Targets*.

The proposed project is fully aligned with the GEF7 Climate Change Mitigation (CCM) Focal Area Objective 1: *Promote innovation and technology transfer for sustainable energy breakthroughs*, namely through *Accelerating energy efficiency adoption* (CCM1-3). In particular, this project would provide much needed support to accelerate the adoption of EE/RE measures within the Tourism Sector, with demonstration sites in the selected areas.

*CBD Aichi Biodiversity Targets*. The proposed project, due to its multi-focal and integrated nature, will contribute to the achievement of numerous Aichi Targets:

- **Target 2** is supported by the work under Component 1 on natural capital accounting, urban planning and marine spatial planning, supporting the integration of biodiversity in local decision-making.
- **Target 3** is supported by the application of positive incentives for the conservation and sustainable use of BD in component 1 (economic and financial incentives) and would be done in Component 2 (through the environmental certification system).
- **Target 9** is related to control and eradication of exotic species in Component 2 through Good landscaping and gardening practices with native species and management of exotic species.
- **Targets 4, 8 and 10** are supported by the reduction of solid and liquid waste ending in the coastal-marine environment through pilot interventions in Component 2.
- **Target 14** is supported by the entire project, which is geared towards reducing environmental impacts and resource consumption and will help safeguard the recreational services provided by the natural ecosystems (most notably the coral reefs with their colorful biodiversity) – which are key for the tourism sector in Cuba and hence for the livelihoods of its people.
- **Target 15** is supported by increasing the capacity of ecosystems as carbon reserves for CC mitigation. Mitigation can be achieved through the actions of recovery and rehabilitation of mangroves, forests associated with tourist facilities, landscaping and gardening with species that capture carbon in Component 2.

##### 5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

GEF funding will provide the incremental resources needed to transform the Tourism Sector's environmental strategy into replicable groundtruthed models of management of biodiversity resources, energy efficiency and renewable energy that are key to the sector's sustainability. The business-as-usual scenario for Cuba's tourism sector is characterized by unsustainable growth that (1) ultimately degrades the very biodiversity and ecosystem services that attract tourists,

while (2) generating additional greenhouse gas emissions that contribute to climate change, which again is a threat to the coastal-marine ecosystems that attract tourists. The interventions in the proposed project will address these threats by instilling the technological and methodological capacity necessary to foster growth in the tourism sector, while generating BD conservation and CC mitigation benefits.

In the CCM activities, GEF resources will cover incremental costs related to the acquisition of smart metering systems that will mainstream energy efficiency and energy management in the hotel sector. The incremental investments in smart metering systems will make possible the consolidation of energy indicators in the sector that will be key in the prioritization of the cost-effective investments for retrofitting and upgrading the most inefficient systems of selected hotels. GEF resources will complement energy audits already implemented by the EU/UNIDO Project, which are needed to structure the benchmarking and a sector wide energy management program. The EU/UNIDO project is more focused on the public sector in general, with some specific activities focused in the hotels sector which will be used as inputs for GEF project. The GEF project will benefit and disseminate manuals for capacity effective investments development in ISO 50001 and consolidate training of multipliers (training for trainers). The few energy management systems certifications implemented in hotels will be a reference for establishing performance indicators and for building the energy consumption benchmarking.

The cofinancing that has been identified for this Project consists of a combination of programs that support conservation of biodiversity and ecosystem integrity and mitigation of climate change.

With regards to BD, the cofinancing will support:

- Recovery of the dune through the demolition and relocation of facilities on the dune.
- Implementation of water reuse.
- Rehabilitation of natural ecosystems.
- Payment of wages and allowances.
- Outsourcing of monitoring services / laboratories.
- Other (Social security and other compensation).

With regards to CC, the cofinancing will support:

- Installation of solar heaters.
- Introduction of LED technology in exterior and interior lighting installations.
- Renewable Energy Source (RES) System based on solar energy (photovoltaic panel).
- Replacement of air conditioning equipment with more efficient ones.
- Payment of wages and allowances.
- Other (Social security and other compensation).

6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and

The set of actions that the Project will develop and the synergistic effect between them will contribute to generate global environmental benefits, as follows:

- The theme of biodiversity will be mainstreamed in normative, procedural and planning instruments for the development of the tourism sector. The implementation of these instruments will contribute to promoting the conservation and sustainable use of biodiversity in the tourism sector at national scale.
- The project would also support the implementation of the Certificate for Sustainable Tourism (CST), recognized by the Global Sustainable Tourism Council. This certification is applicable to various companies related to tourism: lodging facilities, transport and tour operators, theme parks and hot springs and SPA. The application of this certification will be carried out in hotel facilities, which will be identified during the PRODOC phase. The CST will allow the long-term implementation of the Sustainability Management System, which includes the commitment to minimize the negative impacts of its activity on the environment. CST will promote environmentally friendly forms of consumption, energy efficiency and the use of renewable sources in the facilities, efficient water management and the reduction of pollution by solid waste. It incorporates criteria related to the conservation of biodiversity, involves policies for the conservation of native flora and fauna, and promotes the use of native species in the landscaping of the facilities. The certification will generate global benefits such as the reduction of GHG emissions, reduction in water consumption and the conservation of biodiversity, especially endemic and threatened species. Therefore, these environmental certification systems will influence the continuous improvement of the sector to reduce its impacts on biodiversity and ecosystems, as well as increasing its energy efficiency and reducing its greenhouse gas emissions.
- The alliance between the tourism sector and the strengthened environmental inspection body will strengthen (through the activities planned to achieve compliance with output 2.2.2 “System of citizen inspectors established to monitor compliance with environmental regulations in tourism”) the compliance with environmental legislation, as well as training and the correct implementation of initiatives for the conservation and management of biodiversity.
- The development of actions to improve the quality of ecosystems and the connectivity of the landscape will benefit 41,937 ha of landscapes and seascapes. Actions such as: reforestation, elimination of invasive alien species and the substitution of species commonly used in gardening with native species will reduce habitat fragmentation, benefiting native flora and fauna species, especially endemic and migratory ones. The improved landscapes will offer better conditions for the feeding, rest and reproduction of the species. The two project intervention areas are located in the Atlantic coastal route migratory corridor, which is used by more than 200 species of birds from North and South America.

<b>Terrestrial ecosystems</b>	<b>Total</b>	<b>North of Ciego de Ávila</b>	<b>Matanzas- Varadero</b>
Vegetation Formations (Mangroves, forests, Matorral Xeromorfo and anthropic vegetation)	20727	19 154	1 377
Coastal lagoons		196	
<b>Total</b>	<b>20727</b>	<b>19 350</b>	
<b>Marine ecosystems</b>		<b>North of Ciego de Ávila</b>	<b>Matanzas- Varadero</b>
Coral reefs and seagrasses	21210	14 300	6 910
<b>Total</b>	<b>21210</b>		
<b>Total Area</b>	<b>41937</b>		

- Coastal lagoon management actions such as mangrove reforestation and efficient management of liquid waste will contribute to reestablishing the stability and functioning of these currently eutrophied ecosystems. In the lagoons there are marine phanerogams that together with the mangroves fix the sediments in suspension and prevent them from reaching and affecting the marine reefs. In addition, the roots of the red mangrove are the habitat of sponges, mollusks, crustaceans and fish and, like seagrasses, are breeding sites for reef species.

- Improving the management of marine areas such as reefs and sea grasses, through procedures and good practices for nautical activities, contributes to maintaining biodiversity, the integrity of the functioning of these ecosystems as a barrier to coastal erosion, refuge sites, breeding and feeding of numerous species of mollusks, crustaceans, echinoderms and fish, some important fishing resources.

With regards to CCM1, the project will reduce emissions through the replacement of lighting with LED technology; the replacement of air conditioning equipment with more efficient ones; the installation of solar heaters and photovoltaic installations (with government co-finance); and through energy management facilitated by smart meters. The definition of measures will be mainly based in the results of the data gathering, compilation and analysis to structure the benchmarking, which will aim to identify the most cost-efficient measures and high saving potential facilities for investment, based on informed decision-making and planning. The estimates for these calculations are preliminary and based on the following (to be confirmed during the PPG):

*Reduction of direct emissions:*

The consumption of electricity generated by the National Electric System (NES) is expected to decrease in targeted hotels due to the project's introduction of energy management systems mainly focused on efficiency measures. Electricity generation technologies with renewable energy sources (solar) will also be implemented in the hotel sector as planned in other Governmental plans to leverage the mitigation efforts of the project. For emissions calculations, the proponents use the index of 0.82 ton CO<sub>2</sub> / MWh generated by the NES. With regards to energy efficiency, the project aims to intervene in 4000 rooms with management or investment measures, which represents 16 hotels with average of 250 rooms per hotel. An electricity consumption index of 35 kWh/day (12MWh/year) per occupied room is estimated and an annual linear occupation of 80%. As such, the electricity consumption of these six hotels that would receive direct assistance of the project would be in the order of 14400MWh/year. Considering that management and low to medium investment measures generate a conservative range of 10% energy savings: 1440 MWh/year estimated savings. For direct emissions reductions a total of 1152 tons of CO<sub>2</sub> directly mitigated through project demonstrations. Considering the replication (post direct) in 10 hotels with 2500 rooms the total energy use is estimated in 24000MWh/year and with energy savings of 10% (2400MWh/year) post direct emissions reductions will generate 19200 tons CO<sub>2</sub>. The total direct emissions reductions from energy efficiency measures are: 20,352 tons of CO<sub>2</sub>. During PPG the facilities will be identified and the electricity consumption index will be reviewed. The estimate of the contribution of renewable energy actions, to be implemented through cofinancing from the government, is based on the equivalent of 166 kW of photovoltaic generation being installed through the project. In Cuban conditions, 5 photovoltaic peak hours systems are intended to be installed, generating an estimated 304 MWh / year, which would avoid 243 ton CO<sub>2</sub> / year as of Year 4. The total direct emissions for RE systems to be installed with leveraged investments (government co-finance) are: 4,860 tons of CO<sub>2</sub> (20 years). The total direct emissions reductions from EE (20,352) and RE (4,860) is 25,212 tons of CO<sub>2</sub>.

*Reduction of indirect emissions:* The strengthening of the policy framework related to minimum energy standards for energy use and consumption (supported by the benchmarking) and the continuous management system replicated in the in the hotel sector will account for the EE indirect emissions reductions. Related to renewable energies, in particular, the implementation of Decree Law 345 on the Promotion of Renewable Energy Sources, would create the conditions for the tourism industry to implement this type of measures across the sector. In particular, Decree 345 is expected to (i) recognize IPPs; (ii) indicate the establishment of a purchase price for stimulating electricity; and (iii) guide the power utility and MINTUR to introduce renewable technologies in the sector as widely as possible. Furthermore, the demonstration activities of the project and the establishment of a baseline of consumption will facilitate the prioritization of measures in facilities with higher inefficiencies and biggest potential for EE and RE and CO<sub>2</sub> reductions. Together with EE measures, the Decree is expected to result in a sustained increase in the installed photovoltaic generation capacity. For this PIF exercise a top down approach was used and assumptions will be improved in PPG. Total emissions of the hotel sector are 533.000 tons and it is expected that the enforcement of ISO 50001 management systems, the upscale of the RE Decree in the hotel sector and the specific policy measures to be elaborate with support of benchmarking findings would result on a 2% reduction of the overall sector: 10660 tons of CO<sub>2</sub> year (Causality factor 60%)= 6396 tons of CO<sub>2</sub> indirect emissions per year. Total indirect emissions reductions of the project are: 63,960 ton of CO<sub>2</sub>.

## 7) Innovation, sustainability and potential for scaling up.

Innovation: The innovative nature of this Project lies in the identification and implementation of combined biodiversity and climate change mitigation practices within the planning and sustainable development of tourism in Cuba. The project will introduce innovative solutions for developing sustainable biodiversity-friendly tourism operations across the targeted landscape, which is a significant shift in the approach to current management. These mechanisms will be applied across the landscape to strengthen habitat connectivity and address landscape-wide threats to biodiversity, including habitat destruction and biodiversity loss.

Actors from various sectors that are key to tourism development, including the private sector, will be engaged in non-state management of tourism services. The project will promote environmental certifications in the tourism sector that are innovative and incorporate international standards that promote the application of good practices for BD conservation as part of the management of hotel chains. A climate change mitigation program will be incorporated into the sector's management, as well as the ISO 5001 standard not previously applied in this sector, and benchmarking systems as novel tools for Cuba. The project will support the creation of energy service companies for the sector that do not currently exist in Cuba. Furthermore, the project will foster the implementation of financial mechanisms for the conservation of biodiversity and mitigation of climate change with the novelty of adjusting to the sector's conditions in Cuba.

Ultimately, the project provides an opportunity for a paradigm shift from the prevailing model that pays limited importance to biodiversity conservation and low carbon development to a sustainable model that mainstreams both BD and CCM within standard sectoral planning and practices.

Sustainability: The project includes considerations that promote the continued achievement of its objectives and outcomes long after direct implementation. The integrative approach of the project with the incorporation of biodiversity conservation and climate change mitigation in tourism development ensures the sustainability of this important economic activity for Cuba in the short, medium and long term. Several key principles support sustainability such as country ownership, which will include improved governance, mainstreamed biodiversity and low carbon development, supporting interventions that reinforce government plans and activities, that can be integrated into government policies making project interventions and consequences more relevant to government institutions, and in line with government plans and priorities to increase sustainable development of the tourism sector.

For example, Output 3.2.3 implementation of a standardized digital smart metering system across the hotel group/ chain level, for continuous monitoring of energy consumption and reporting and verification of results of the EE/RE program in hotels based on ISO 50001. The capacity building of the Project will also contribute to long-term support beyond project duration, instilling necessary technological and methodological tools both at the sector level and *in situ*.

The creation of technical and technological capacities in the key institutions for the development of tourism and the institutional, sectoral, and systemic dimension of the actions will guarantee lasting results with great scope in the country, strengthened with normative instruments and procedures that incorporate these approaches from the planning stage until the exploitation of tourist destinations and their natural resources. The resulting mitigation program guarantees the application of Cuba's energy policies. The systems of good practices on biodiversity conservation and benchmarking for CC mitigation actions constitute tools that promote the improvement of hotel chains and the private sector linked to the development of tourism. The incorporation of nature tourism offers alternatives that decrease the exploitation of tourist destinations, diversify the service and promote local development.

The incorporation of financial mechanisms in the management of the sector that promote investment in biodiversity, energy efficiency and renewable energy will guarantee the economic sustainability of the actions. The monitoring systems designed with impact indicators of tourist activity and an information system based on its results offers a tool for decision-making at all levels. The implementation of international environmental and energy certifications in Cuba

applicable to the tourism sector not only promotes environmental improvement but will also raise the quality of the Cuban destination. The training systems created for the Tourism Training Schools will ensure the incorporation of knowledge and results with the project approaches in the sector workers. The results of the project will be incorporated into the environmental strategy of the tourism sector in Cuba.

Scaling-up: The success of the project components on the regulatory and policy framework will be a key factor for scaling up, since it will favor the replication of the outcomes in other parts of the country. The development of methodologies, baseline information and proposals will have a positive impact on the mainstreaming of biodiversity and mitigation policies in the broader tourist sector. While the project's CCM interventions will focus on selected hotels, it is envisioned that energy consumption benchmarking can be applied in the whole country sector as Cuba has one bioclimatic zone. The elaboration and proposition of regulations intend to define thresholds for consumption and to demand that hotels above the average of national energy consumption levels implement energy efficiency measures. Beyond the targeted area of the project, the structuring of a benchmarking and key performance indicators are expected to drive a positive 'competition' fostered and demanded by government policies and regulations to increase the efficiency of hotel facilities in the National territory. MINTUR considers that this system should be replicated throughout the entire sector, where in principle all facilities could be compared with those of its category, within its own chain and with other chains etc.

The scale up activities will be mainly based in the enforcement of the Policy for the "Development of Renewable Sources of Energy and Energy Efficiency"(that establishes the goal of reaching a participation of 24% of renewable energy sources in the country's electricity generation) and the update and enforcement of December 2019 Decree Law 345 and Resolution 124 of the Ministry of Energy and Mines , which, among other aspects, establishes in relation to the project scope: 1. The new constructions use architectural designs that contribute to energy savings; 2. The implementation of Energy Management Systems by all entities and their certification by large energy consumers is mandatory. 3 State institutions establish a "Program for the development, maintenance and sustainability of renewable sources and efficient use of energy", renewed every 5 years. 4. The entities that participate in tourist activity plan, and according to their feasibility, install technologies that take advantage of renewable energy sources and energy efficiency. 5. In tourist development areas, such as the keys, the corresponding analyzes are carried out for the installation of technologies that take advantage of renewable sources for the generation of electricity to contribute to the reduction of fossil fuel consumption, costs and increase environmental sustainability. 6. The business systems of the transport and tourism sectors develop programs for the gradual introduction of electric vehicles.

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[1] The objective of the GEF's EcoValor project (2016-2022) is to promote the generation of multiple environmental benefits based on the integrated economic valuation of ecosystem goods and services, as a tool for decision-making at different levels. Tourism is one of the sectors identified under the EcoValor project and it is expected that a methodology or tool would be available by the time the proposed Tourism project is ready for implementation.

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[1] <https://knoema.es/atlas/Cuba/topics/Turismo/Contribuci%3%b3n-Total-de-Viajes-and-Turismo-al-PIB/Contribuci%3%b3n-Total-al-PIB-percent-de-las-acciones>

[2] Figueras M. A. and Y. Pérez. 2015. Competitiveness of the tourist destination Cuba: economic impact. *Economy and Development* 153: 178- 189

[3] González H. 2002. Biodiversidad de Cuba. Ediciones Polimita S. A, Guatemala. 320 pp

[4] González H. 2002. La migración de las aves. En: *Aves de Cuba* (H. González ed.) UPCPrint, Finland pp: 16- 19.

[5] Estrategia Ambiental Nacional 2016- 2020. Ministerio de Ciencia Tecnología y Medio Ambiente

[6] Hernández- Fernández 2008

[7] Hernández Fernández *et al.* 2016

[8] Alcolado et al 2006

[9] The Resolution No. 129/17 (Gaceta Oficial-2018-157-010), contains the Sectoral Environmental Strategy of MINTUR (2017-2020) and includes a description of the environmental problems associated with the sector.

[10] Institute of Ecology and Systematics (IES), Institute of Marine Sciences ICIMAR), Center for Environmental Services of Matanzas (CSAM), Center for Coastal Ecosystem Research (CIEC), National Aquarium, among others.

[11] BIOFIN-Cuba. Componente 3. Analisis de las necesidades de financiamiento de la biodiversidad (FNA). 2019

**1b. Project Map and Coordinates**

**Please provide geo-referenced information and map where the project interventions will take place.**

Please refer to Annex A.



## 2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Cuba does not have Indigenous Peoples, however, the project intervention areas will engage local communities, as indicated in the checked box above. As such, during the identification of the project idea and development of the PIF, the intervention areas were visited in the provinces of Matanzas and Ciego de Ávila, which facilitated the exchange of information with local actors. This has also included initial consultations with local governments, sectoral decision makers, academic, scientific and tourism operators.

During the formulation of the project, the actors that will be involved in the development of the pilot experiences associated with the productive chain of the tourism sector with other economic activities developed by the private sector in the local space, such as Self-Employed Workers and agricultural producers, will be consulted. The table below depicts relevant stakeholders from the government as well as civil society that have been involved in project development thus far and their potential responsibilities during implementation:

Institution	Entity	Institutional responsibility and role in the project
Ministry of Sci	CITMA/ central level	GEF focal point and environmental sector head. Responsible for directing, executing and controlling environmental policy, furthering its contribution to sustainable development.  It has the mission of directing, executing and controlling the State and Government policy in the field of science, technology, environment; promoting the coherent integration of these to contribute to the sustainable development of the country.
	Delegaciones Territoriales	Environmental authority, advises, coordinates and controls compliance with legal and regulatory framework. Coordinates environmental training actions.
	Centro de Investigaciones y Ecosistemas Costeros (CIEC)	Main executor of the project. Coordinates, advises and controls the execution of the project.
	Agencia de Medio Am	Promotes the results, recommendations and lessons learned from the project.

ence, Technology and the Environment (CITMA)	biente (AMA)	Present and discuss project recommendations with other sectors.
	Centro de Gestión de la Información y Desarrollo de la Energía (CUBAENERGIA)	Coordinates and advises activities on climate change mitigation.
	Dirección de Medio Ambiente (DMA)	Responsible for preparing and proposing the environmental policy and monitoring compliance. Coordinates and controls at national level the implementation of the Environmental Strategy and the State Plan for Confronting Climate Change.
	Centro de Servicios Ambientales de Matanzas (CSAM)	Coordinates and monitors biodiversity actions in the Matanzas- Cárdenas- Varadero area of intervention.
	Oficina Nacional de Normalización (ONN)	Will advise on standards and certification in correspondence with the purposes of the project.
Ministry of Tourism (MINTUR)	Dirección General de Desarrollo	Coordinates activities related to tourism, environment, investment and business development programs.
	Dirección de Servicios Técnicos	Coordinates the activities of energy efficiency, renewable energy, fuel, water management.
	Dirección de Calidad	Responsible for environmental quality management of tourist facilities. It plays a key role in the application of good practices, certification.
	Empresa de Prestación de Servicios al Turismo (EMPRESTUR)	Company that develops a broad profile of products and services related to the beautification, maintenance, repair and construction of small and medium-sized works, the functionality of its facilities and its equipment. Within the project plays an important role in the management of solid waste and forestry.
	Organización Superior de Dirección Empresarial (OSDE) Cadenas Hoteleras	Approve and implement the actions proposed by the project in the selected institutions in the pilot sites.
	Inmobiliaria del Turismo (INMOTUR)	Responsible for MINTUR installations. Responsible for the investment process. It will have an important role in component 1, related to instruments and mechanisms for the investment process.
	Marina Turística (MARLIN)	Responsible for implementing the actions derived from the project concerning diving and marine areas.
	Escuelas de Capacitación para el Turismo	Within the project, the training of workers from different areas of the tourism sector will be carried out based on the knowledge and results generated by the project. It can contribute to the replication of good practices for the sector.

		ject. It can contribute to the replication of good practices for the sector.
Ministry of Energy and Mines (MINEM)	Oficina Nacional para la Conservación y el Uso Racional de la Energía (ONURE)	Advises and controls compliance with the regulatory framework on energy efficiency, and good practice procedures.
Ministry of Higher Education (MES)	Facultad de Turismo de la Universidad de La Habana	Incorporate project results in undergraduate and postgraduate training programs. This guarantees a better preparation of future professionals for Tourism. It will be liaison with other faculties of this university for the analysis of proposals derived from the project components. For example, the Faculty of Biology (Marine Research Center in support of monitoring actions on seagrasses and reefs), the National Botanic Garden that participates as an advisor on landscaping and gardening issues and the UNESCO Chair on "Environment and Development" on issues of adaptation to CC.
Central Bank of Cuba (BCC)	BCC / nivel central	Responsible for the oversight of financial and economic management and therefore a key target institution to design and approve the financial mechanism.
Ministry of Economy and Planning (MEP)	MEP / nivel central	Responsible for directing, executing and controlling the application of policies related to economy, planning, statistics, normalization, quality control of communal services, physical planning and industrial design; therefore, a key target institution to design and approve the financial mechanism.
Ministry of Finance and Prices (MFP)	MFP/ nivel central	Responsible for defining budgetary assignments and economic/financial instruments with implications for sector development and natural resource management, and therefore a key target institution to design and approve the financial mechanism.
National Office of Statistics and Information (ONEI)	ONEI / nivel central	Will play a key role in managing the results of information which is needed to design and establish financial mechanisms, and for ensuring access to this information among decision-makers and planners in other institutions.
Institute of Physical Planning (IPF)	Territorial Delegations	Responsible for methodological and procedural orientation and oversight of spatial planning, and therefore a key actor in supporting the incorporation of the results of economic valuation into planning procedures. Within component 1, it ensures that biodiversity issues are integrated into planning. Approve land planning plans.
National Institute of Hydraulic Resources (INRH)	Territorial Delegations	Advises and executes actions on hydraulic use and liquid waste treatment. Serves as the rector of the Water Balance nationwide.
Ministry of Co		Advises and executes constructive actions for the tourism sector. Component

Instruction (MILCONS)	Territorial Delegations	1 ensures that biodiversity issues are integrated into constructive processes in coastal ecosystems.
Ministry of Agriculture (MINAG)	Provincial Delegations	Organism responsible for directing, executing and controlling State and Government policy in relation to the use, conservation and improvement of soils, the conservation, management, rational use of the forest estate and the conservation of wild fauna and flora.
	Directorate of Forestry, Flora and Wildlife and offices of Forestry Services at provincial and municipal levels (MINAG)- (DFFFS/MINAG)	Responsible for ensuring compliance with the Forestry Law (#85) and its regulations, ensure the appropriate use of FONADEF, approve projects submitted to FONADEF for the forestry estate and wildlife and carry out certifications of resource holders in forests and protected areas.
	Provincial and municipal State Forest Service (SEF/MINAG)	Promotion of the sustainable use of forest resources and the conservation of ecosystems and biodiversity, and for overall oversight and administration of FONADEF. Responsible for certifications for FONADEF.
Local government	Representatives of local government (Local Organizations of Popular Power: Councils of Municipal Administration; Popular Councils)	Control and administer resources at local level: will play a vital role in the definition of priorities for local development and the validation of proposals of natural resource management strategies within their areas of jurisdiction.
Private Sector	Self-employed workers	These actors will be identified during project formulation as part of the definition of the specific sites where these pilot interventions will be developed. They provide lodging, food, transportation services, among others that support the tourism activity. The operation of its businesses as an economic activity is articulated with the development projections defined by the Local Government Bodies for the territory.
	Agricultural producers	Key actors for the design and implementation of pilot interventions related to the productive chain between hotel chains and agricultural farms that market their productions directly with hotel facilities. They are grouped into Agricultural Production Cooperatives (CPA) and Credit and Services Cooperatives (CCS).



### 3. Gender Equality and Women's Empowerment

**Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

The project will mainstream gender considerations into the financing, technical assistance, capacity building and policy dialogue activities of the project through the following:

- The PMU will be composed of gender-sensitive staff, whose awareness of the importance of gender equality and skills in incorporating gender into their work are enhanced through capacity development; recruitment will also consider gender balance in the selection of candidates.
- Stakeholder engagement will ensure all consultations be designed in a gender-responsive way and women will be equally consulted and participate in all discussions related to the project.
- The project will give a priority to women-owned enterprises to be supported with technical assistance.
- All capacity building activities will ensure equal participation of women and men.
- In the project intervention areas, women are an important component of the tourism sector. According to the preliminary information analyzed, women represent around 44% of the permanent labor force. The Project will give priority to gender equality and the empowerment of women in line with national policies and priorities. Women will be active in policy formulation processes and consultations.

Project preparation will ensure that gender considerations become an integral part of the proposed project strategy through a full gender analysis, development of a project gender mainstreaming plan and assigning of a UNDP gender marker. This will include an analysis of how the project plans to achieve its environmental objective by addressing the differences in the roles, needs and priorities of women and men, as well as promote participatory methodologies for both men and women. The project will include gender disaggregated indicators as part of the Project Results Framework. The project design will ensure that financial and human resources are set aside for gender mainstreaming during project implementation and for monitoring the effectiveness of this mainstreaming.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes**

**closing gender gaps in access to and control over natural resources;**

**improving women's participation and decision-making; and/or Yes**

**generating socio-economic benefits or services for women.**

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes

#### 4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

The tourism sector in Cuba is characterized by unique public-private or state/non-state partnerships, particularly in the hotel industry. A number of private international hotel chains have a branch in Cuba which is managed via a hybrid public-private partnership. These are characterized by investments with entirely Cuban capital or with mixed investments formed by Cuban capital and foreign investors. There are hotel management contracts with foreign firms such as Meliá, Iberostar, Muthu, ROC and others, but the physical infrastructure of these hotels is Cuban-owned. Foreign Hotel Administrations such as Meliá, ROC, etc., as well as mixed-capital hotel companies must comply with both the Cuban Environmental Legislation and the Environmental Strategy for the Tourism Sector published in the Official Gazette No. 10 of April 2, 2018. Among the mandatory actions is the saving of water and energy, the treatment and disposal of solid and liquid waste, and other actions related to the conservation of ecosystem rehabilitation. The Project will involve both types of hotel facilities (with mixed capital and entirely Cuban capital) in Cayo Coco and Varadero in order to carry out BD conservation and management actions and CC mitigation actions in these facilities and their surrounding environments. Furthermore, the project will use these experiences to engage these international hotel chains with regards to their practices *vis-à-vis* mainstreaming biodiversity conservation and climate change mitigation opportunities within their management and facilities, not only in Cuba but perhaps in other branches in the Caribbean and elsewhere.

The non-state sector is incorporated into the tourist development in Cuba, offering services to tourists, such as accommodation and gastronomy. It also supplies products to tourist destinations, provides services and supplies related to solid waste management in hotel facilities as well as links to new types of tourism such as nature tourism, the latter projected to occupy an important space as tourism offers in Cuba are increasingly diversified. Good practices for this sector will be incorporated into the framework of the project during the PPG.

## 5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Description of risks that might prevent the project objectives from being achieved	Level	Mitigation measures
Vested interests – especially from selected tourism operators – will oppose and work to undermine the adoption and enforcement of stricter environmental regulations and practices focused on mainstreaming biodiversity and climatic change mitigation.	I = 3 P= 3	Cuba has set very ambitious targets for the expansion of its tourism industry. The achievement of these targets, particularly “sun and sand”, relies on long-term competitiveness (especially in the Caribbean) which depends on good environmental quality standards, which in turn rely on landscape and biodiversity features. During project implementation, the project will mitigate the risk of obstruction from vested interests by maintaining a continuous constructive and informed high-level dialogue with key decision-makers and by engaging all concerned stakeholders, including policy makers, the tourism sector and community members, to convey the importance of systemic planning changes aimed at balancing economic development and environmental matters.
Decision makers could give higher priority to the economic development criteria of the tourism sector than to the incorporation of environmental considerations of biodiversity and climate change mitigation in the development projection.	I = 2 P= 2	The Project will develop tools to support the training / sensitization process of decision makers on the need to take into account in the decision-making about tourism sector development projections environmental considerations of biodiversity and climate change mitigation.
Institutional changes in the context of the process of updating the economic and social model in Cuba generate modifications in the key stakeholders of the Project and their respective responsibilities.	I = 3 P= 3	Systematic monitoring of the institutional situation and timely adjustments to roles in Project coordination and implementation.
Delay in the processes of implementation due to the complexities in the procurement process and financial transactions related to the external context.	I = 3 P= 3	Timely Identification of bottlenecks associated with import processes.  Define and implement actions to speed up the import process (shipment) jointly with the actors involved in the process.
Failure to reach agreement among the key actors of the Project on the opportunities that the incorporation of	I = 2	The Project will develop tools to support the training / sensitization process of key actors on the opportunities represent



<p>f biodiversity and climate change mitigation approaches represents for the sector could limit the introduction / appropriation of methodologies, practices and regulations in the tourism sector, adversely affecting in achieving the objectives set out in the project.</p>	<p>P=2</p>	<p>ed by the incorporation of environmental considerations of biodiversity and climate change mitigation for the development of the tourism sector.</p>
<p>Financial mechanisms may not be favorable to stimulate the introduction of practices and technologies that support the incorporation of biodiversity and climate change approaches in the tourism sector.</p>	<p>I = 2 P=2</p>	<p>The project will support implementation of pilot projects to demonstrate the technical and financial feasibility of EE/RE technologies and practices that favor BD mainstreaming. The project will carefully select hotels for implementation of RE&amp;EE technologies and practices that support BD that are ready to support such activities. Furthermore, the project will develop increased awareness and understanding of such solutions among management and technical staff of selected hotel facilities and groups. The pilot projects' results will be documented and shared with other hotel groups to promote replication.</p>
<p><b>Description of potential social and environmental risks that may result from project implementation</b></p>		<p><b>Mitigation measures</b></p>
<p><b>Risk 1:</b> There may be potential gender gaps in the tourism sector which limit their economic empowerment and participation in project activities. If during the development of the activities in support of the implementation of the project the possibility of equal participation of men and women is not facilitated, the access of men and / or women to the benefits / opportunities offered by the project could be limited.</p> <p><b>Principle 2</b></p>	<p>I = 2 P = 2</p>	<p>During the development of the project, this risk and all others will be assessed and captured in an Assessment and Gender Plan. This will aim to define the activities that guarantee the involvement of women in the project.</p>
<p><b>Risk 2:</b> Project activities could impact critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. Varahicacos Ecological Reserve (located north of Matanzas), Cayo Coco East Central Ecological Reserve and Los Caimanes National Park (located north of Ciego de Avila)).</p> <p><b>Standard 1</b></p>	<p>I = 4 P=2</p>	<p>The design of the project interventions will take into account the specific regulations defined for the management of these natural areas according to their management categories, as well as what is defined in the Protected Areas Management Plan.</p> <p>The formulation phase of the PIF has engaged experts from national institutions with experience in the investigation and management of biological diversity such as the National Botanical Garden, the Center for Research on Coastal Ecosystems of Ciego de Ávila and the Center for Research and Environmental Services of Matanzas. These experts will remain in</p>

		<p>technical services or specialists. These experts will remain involved during the formulation of the ProDoc and subsequent implementation of the project, providing the necessary BD expertise, as required by SES.</p>
<p><b>Risk 3:</b> Project activities related to reforestation and restoration could introduce seeds/seedlings of invasive exotic species; planting of invasive alien species, or lead to inadequate silvicultural treatments / management practices that affect native species and / or the structure of the ecosystem.</p> <p><b>Standard 1</b></p>	<p>I = 2 P = 2</p>	<p>Once the specific intervention sites are defined, during the PPG, this risk and all others will be assessed and captured in an Environmental and Social Management Framework. Based on further assessments, an ESMP will be developed during project implementation – to manage risks associated with interventions and activities as needed (per those additional assessments).</p>
<p><b>Risk 4:</b> Water consumption in the hotel sector is regulated under national law. However, the project’s activities might be associated with extraction, diversion or containment of water associated with hotel consumption.</p> <p><b>Standard 1</b></p>	<p>I = 2 P = 2</p>	<p>During the PPG, an effort will be made to identify the information related to the volumes of water consumed by hotel facilities targeted for project interventions. This analysis will take into account the provisions of the UNDP Methodology (annual volume of water to be abstracted or recharged amounts to 10 million cubic meters or more / page 37).</p>
		<p>The impacts of climate change in the coastal zone of Cuba have been studied through the initiative "Macro Project: Scenarios of dangers and vulnerability of the Cuban coastal zone, associated with the rise in mean sea level for the years 2050 and 2100"<sup>[1]</sup>. As such, it is expected that climate change could generate three adverse effects for project interventions:</p> <ul style="list-style-type: none"> <li>- <u>Increase in average temperature and reduction in rainfall</u> will create a trend towards a warmer and drier climate on the island. Drought processes would imply a risk for the long-term sustainability of the project interventions in the tourism sector. To manage this risk, the project will promote water reuse practices through national co-financing. Additionally, the "Comprehensive Plan for mainstreaming BD conservation and CCM in the tourism sector to promote resilience and low emission strategies" will define the actions that must be developed to manage this risk.</li> <li>- Increase in intense storms coupled with Sea Level Rise (SLR) will produce <u>increased coastal flooding and coastal erosion</u>, especially in the lower and flat areas of the island. This can accelerate the degradation</li> </ul>

<p><b>Risk 5:</b> The potential outcomes of the Project may be sensitive or vulnerable to potential impacts of climate change, especially those associated with coastal areas.</p> <p><b>Standard 2</b></p>	<p>I = 3 P= 3</p>	<p>on of already vulnerable habitats where endemic species of high conservation value live. In response to this, a central element of the project strategy is to increase the resilience to climate change of coastal ecosystems so that they can provide associated ecosystem services of protection and regulation.</p> <ul style="list-style-type: none"> <li>- <u>Increase in the intensity of hurricanes</u> on the island, taking into account that Cuba is an archipelago that is especially vulnerable to extreme weather events given its geographical location. This context poses additional challenges for the preservation of project interventions related to natural reforestation / rehabilitation and the establishment of technological solutions that promote the use of Renewable Energy Sources (FRE) and Energy Efficiency (EE). The project team will define, as part of the project management measures, the work procedure to alert for the warnings issued by the Civil Defense Measures System in case of extreme weather events.</li> </ul> <p>These risks are classified as Moderate considering that although the impacts of climate change can occur, they will be manageable. Project interventions are unlikely to fail.</p> <p>The project will support the strengthening of technical and institutional capacities that will allow an adequate management of these risks by the actors (policy and regulatory frameworks, communication and awareness, training of key actors, environmental monitoring and information, and implementation of practices at scale pilot in hotel facilities and ecosystems).</p>
<p><b>Risk 6:</b> Participation in project activities could pose a potential risk of exposure to COVID-19.</p>	<p>I=2 P=</p>	<p>This is considered a low risk due to strong national policies to protect worker health and safety and a national strategy to guide the reopening of the tourism sector post-pandemic. Cuba is preparing to gradually restart its tourist services, for which it has designed and implements rigorous sanitary and hygienic protocols. This allows the gradual recovery of the tourism sector, contributing to the economic recovery of the country, without compromising national health security. The design of the project interventions will take into account the specific measures necessary to mitigate any potential risks.</p>

<p>potential risk of exposure to COVID-19.</p> <p><b>Standard 3</b></p>	<p>I = 1</p>	<p>specific measures necessary to mitigate any potential risk of exposure during implementation. In accordance with current health restrictions associated with the COVID-19 pandemic, project preparation and implementation will employ video conferencing equipment for virtual meetings and workshops, when necessary; adjust the workplan so that some activities in the field or related to consultations take place later, as necessary; and/or provide personal protective equipment (PPE) to prevent exposure among project stakeholders and participants. During the PPG, Budget will be included for IT support and PPE.</p>
<p><b>Risk 7:</b> The project will promote environmentally sustainable practices in tourism activities that may use intangible forms of cultural heritage which are part of the Cuban identity and culture. For example: dance, artisans, culinary tradition, among others. Furthermore, these tourism activities will be developed in nature and urban sites, with natural, historical, cultural, artistic or traditional values.</p> <p><b>Standard 4</b></p>	<p>I = 4 P = 2</p>	<p>Once the specific intervention sites are defined, during the PPG, this risk and all others will be assessed and captured in an Environmental and Social Management Framework. Based on further assessments, an ESMP will be developed during project implementation – to manage risks associated with interventions and activities as needed (per those additional assessments). Project activities should be designed taking into account appropriate the protocol for intervention aimed at guaranteeing the conservation of these values.</p>
<p><b>Risk 8:</b> The use of technologies to implement the hard interventions such as such as renewable energy may lead to an increase in pollution and production of hazardous waste related to the decommissioning of old and/or inefficient air conditioners. These could also pose potential safety risks to communities.</p> <p><b>Standards 3 and 7</b></p>	<p>I = 4 P = 2</p>	<p>During the PPG, the possible technological solutions to be introduced to support energy efficiency and promote the use of FRE will be further analyzed. Based on this higher accuracy / level of information and taking into account national regulations, appropriate management measures related to this risk may be defined. This risk and all others will be assessed and captured in an Environmental and Social Management Framework. Based on further assessments, an ESMP will be developed during project implementation – to manage risks associated with hard interventions and other activities as needed (per those additional assessments).</p>

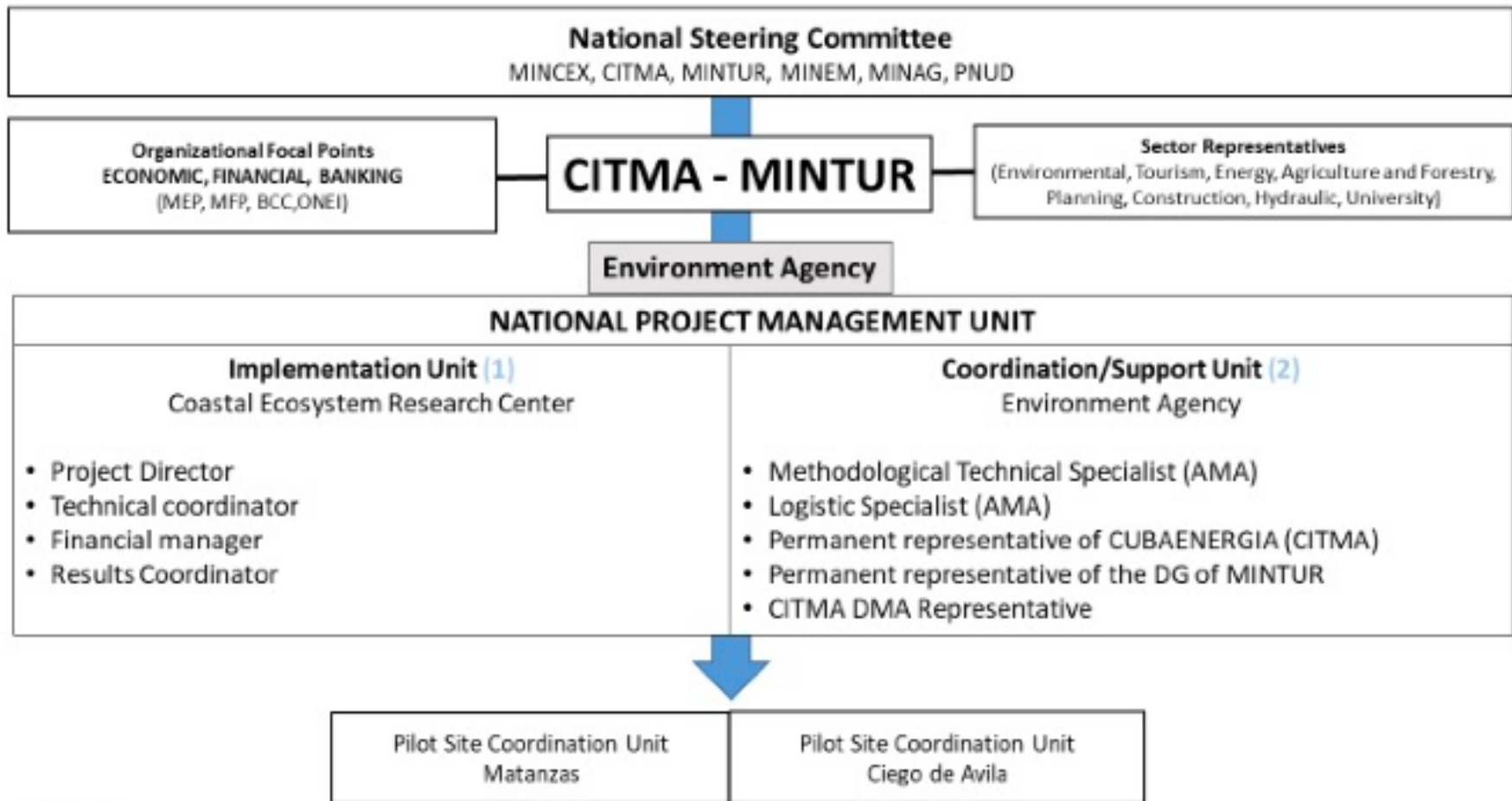
[1] The general findings of the study "Macro Project: Scenarios of dangers and vulnerability of the Cuban coastal zone, associated with the rise in mean sea level for the years 2050 and 2100" indicate the following: First, an increase in the average temperature of 1 °C for year 2030 and 2 °C for year 2050 and reductions in rainfall that will create a trend towards a warmer and drier climate on the island. Second, an increase in intense storms coupled with increased

sea level around 29 cm for year 2050 and 95 cm for year 2100 that will produce increased coastal flooding and coastal erosion, especially in the lower and flat areas of the island. An increase in the intensity hurricanes on the island, which will have synergistic effects and cause greater losses of infrastructure and production systems than in the past. A more detailed analysis based on this study is available upon request.

## 6. Coordination

**Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.**

UNDP will be the GEF Implementing Agency responsible for the implementation, monitoring and evaluation of the Project in compliance with UNDP and GEF guidelines. The GEF Executing Agency (national implementing partner) is AMA. CITMA-MINTUR will collaborate with AMA, MINEM, through sustainable productive technical assistance, generation of technological packages compatible with biodiversity and climate change mitigation, technical extensionists, and promotion of territorial planning and risk prevention. Likewise, support from other specialized agencies, such as MINAG, will be requested as needed. Implementation arrangements will be confirmed during the PPG phase based on the following:



**NOTAS:**

(1) Management Unit Coordinator.

(2) Coordination of technical, methodological and national logistics dialogue tables/spaces. (Direct relationship with the sectors involved).

This proposed project will liaise/ coordinate with and use relevant lessons and experience from the following GEF-funded projects:

Initiative	Objective	Coordination with project
GEF/UNDP "Incorporating multiple environmental considerations and their economic implications into the management of landscapes, forests and productive sectors in Cuba" - (ECOVALOR).	To promote the generation of multiple environmental benefits based on the integrated economic valuation of ecosystem goods and services, as a tool for decision-making at different levels." It is being implemented in the north and west of the Pinar del Rio province, in the province of Matanzas, in the north of Villa Clara province,	ECOVALOR (BD, LD and SFM), promotes the generation of multiple environmental benefits based on the economic valuation of ecosystem goods and services, as a tool for decision-making at different levels. Tourism is one of the sectors identified under this project. The involvement of the tourism sector in this Project involves the development of the following activities: Application

<p>GEF Project ID: 9429. Monto: \$9,580,365 USD Implementation: 2016 - 2022</p>	<p>including the coastal plains and adjoining fringing reefs, cays and mangroves, and in the north of Las Tunas and Holguin provinces.</p>	<p>of economic - financial instruments (charges for access to protected areas, concessions); Application of fiscal policy instruments (beach tax, beach use tax); and Development of the study of TSA in the tourism sector in the province of Holguín. These results can serve as a reference for the promotion of new financial solutions in the tourism sector.</p>
<p>UE/PNUD "Building coastal resilience in Cuba through natural solutions for climate change adaptation" - (Resiliencia Costera).  Project ID: 110577 Monto: €5,000,000 Implementation: 2020-2023</p>	<p>Strengthen and integrate disaster risk reduction to climate change in the socio-economic development plans of sectors and governments of vulnerable coastal municipalities.</p>	<p>In one of its components it aims to strengthen the resilience of coastal ecosystems, communities and sectors (among which is tourism), given the impacts of climate change.</p>
<p>UE/ONUDI "Energy Efficiency and Conservation".  Monto: €3,000,000 Implementation: 2019 - 2021</p>	<p>Support the implementation of the government program for energy management and conservation, including energy efficiency.</p>	<p>The UE/ONUDI (ONURE) Project is a multisectoral project aimed fundamentally to strengthen the country capacity to implement the Energy Management Norm ISO 50 001. The main actions are aimed at:</p> <ul style="list-style-type: none"> <li>• Establishing national procedures and methodological tools for the implementation of this norm.</li> <li>• In significant cases, evaluate the potential energy efficiency of facilities related to production and services.</li> <li>• Capacity building of stakeholders</li> <li>• Capacity strengthening of the ONURE as a result of the strengthening of their provincial work groups and the training of energetic auditors.</li> </ul> <p>In the tourism sector they have carried out action to implement norm ISO 50001, energetic diagnosis and capacity building of the main hotel facilities in the sector. The contribution of the GEF project is aimed at extending the application of energy management according to ISO 5001 to the hotel chains as a work method and demonstrate the potential of its application supported on energy consumption monitoring systems and the calculation of performance indicators in real time.</p> <p>The EU project is limited to carrying out energetic</p>



The EU project is limited to carrying out energetic diagnoses in the tourism sector without carrying out interventions aimed at demonstrating the technological solutions that take advantage of the identified opportunities in these diagnoses. In this GEF project these demonstrations will be very important as they consider action for the improvement of the energetic efficiency, the introduction of energy efficient solutions and the monitoring of improvements in the energy performance indicators in real time.

In regulations and policy the reach of the EU project is centered in regulations linked to the residential sector and the norms applicable to the implementation of the Energy Management Norm ISO 5001.

Differently from the EU project, the GEF project will focus in inserting the improvement in energetic performance in the tourism strategies and development plans aligned to the climate change response strategies. As such it will promote demonstrations and actions that stimulate low emission and efficient energy investments, including from international investors, and that facilitate their financing as well as stimulate the formation of energy service companies.

The methodological experiences on assessments (energy audits) and energy performance indicators generated by the EU/UNIDO project will be used by GEF project to structure an energy consumption benchmarking more focused in the hotel building typology. This will allow the tourism sector to have information on which to promote energy regulations to be applied from the investment process and not only focused on energy management in the facilities under their current construction typology. In this way, the GEF project will contribute in the long term to increasing ambitions in reducing emissions.

The EU/UNIDO Project works with selected sectors with the objective of promoting practices that contribute to energy efficiency in productive activities.

		<p>vities. This is a project focused on the public sector in general, with some specific activities focused in the hotels sector which will be used as inputs for GEF project: manuals for training (using the trainers already trained to multiply this knowledge) and using data from energy management systems of certified projects to structure the benchmarking.</p>
<p>UNDP "Biodiversity finance initiative" - (BIOFIN II)</p> <p>Project ID: 106358 Monto: 200,000 USD</p>	<p>2020-2022 implementation period, aims to implement financial solutions planned in BIOFIN stage.</p>	<p>It works on the improvement of financial solutions such as the Environment Fund and collection of access to protected areas applicable to the tourism sector. The BIOFIN initiative implemented by UNDP provides an important base with regards to economic and financial mechanisms for biodiversity. In particular, it provides technical assistance to implement a methodology for the design of a resource mobilization strategy for the financing of biodiversity. This initiative establishes procedures and instruments for the implementation of financial solutions and environmental investments of the state and non-state sector, aimed at the conservation and sustainable use of biodiversity and ecosystem services; nevertheless, the implementation and validation of these solutions in all the productive sectors that intervene in the development of tourist destinations is necessary but has yet to occur, taking into account the characteristics of the tourist activity.</p>

The project will also take into account lessons learned from other projects, such as:

"Mainstreaming and Sustaining Biodiversity Conservation in three Productive Sectors of the Sabana Camaguey Ecosystem": This project was implemented in 2008-2015. Tourism was one of the selected sectors. Among the results of interest that serve as the basis for this project proposal are: integrated coastal management, institutional capacities created for biodiversity monitoring, the methodological framework for land use planning, environmental requirements for infrastructure development in the coastal zone, and good practices in biodiversity conservation in tourist development zones.

"Biodiversity Finance Initiative" – BIOFIN I: This technical assistance project was executed between 2016 - 2018. Its objective was to mobilize resources through a financial plan that contributes to the conservation and sustainable use of biodiversity. The proposed project can be complemented by the implementation and validation of financial solutions identified by BIOFIN applicable to the tourism sector such as: environmental taxes for the use or exploitation of beaches, charging flexible entry fees to protected areas, insurance against environmental risks, budgetary allocation to the State Plan for addressing Climate Change - "Tarea Vida", entry fee upon arrival of foreign tourists to contribute to Cuba's BD, green banking, trust funds for the environment, climbing rights, diving, filming and photography, fees charged for the observation of wild flora and fauna and fees for nature tourism.

Furthermore, while the GEF Bioenergy project will have finished by the time this proposed project begins implementation, the proponents will engage the project when assessing the CCM opportunities of waste management practices (for organic material) to incorporate lessons learned in the design of this project.

## 7. Consistency with National Priorities

**Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions**

Yes

**If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc**

- - NATIONAL BIO STRATEGY ACTION PLAN (NBSAP)
- - CBD NATIONAL REPORT
- - UNFCCC NATIONAL COMMUNICATIONS (NC)
- - UNFCCC BIENNIAL UPDATE REPORT (BUR)
- - UNFCCC NATIONAL DETERMINED CONTRIBUTION
- - UNFCCC TECHNOLOGY NEEDS ASSESSMENT

The Project is aligned with the CBD which Cuba has ratified. The National Program on Biological Diversity (PNDB) of the Republic of Cuba, which was projected for the period 2016-2020, and which is intended to be extended until 2030 based on the country's strategic development goals set for this stage, constitutes The main platform of action for the implementation of the objectives defined in the National Environmental Policy to face the loss of biological diversity, which responds to the Guidelines of the Economic and Social Policy of the Party and the Cuban Revolution, instructed in 20 National Goals for Biological Diversity correlated in turn with the Aichi Targets.

Within the framework of the proposed project, the expected activities and results pay tribute to some of the national goals for biodiversity included in the PNDB. The National Biodiversity Strategy and Action Plan (NBSAP, titled the National Programme for Biodiversity 2016-2020) recognizes the importance of integrating the values of biological diversity in sector-based and territorial programmes, harmonizing the objectives of conservation and sustainable use in the country's development policies and strategies, and in the processes of decision-making at all levels (Goal 2); and of ensuring that economic instruments and incentives are available, which contribute to slowing the loss of biological diversity (Goal 3). It also recognizes the need to reduce environmental pollution from proper management and control and encourage the use of renewable energy (Goal 6), management of exotic species (Goal 9), establishes the commitment to relieve anthropogenic pressures on ecosystems marine-coastal (Target 10), as well as the restoration of ecosystems and in particular the beaches (Target 14).

On the other hand, there are various elements in the Bases of the Economic and Social Development Plan to 2030 and in the Guidelines of the Economic and Social Policy of the country, which are key documents of public policies, which provide various elements to address the sustainability of the Tourism sector. For example, in the Strategic Axis: Productive transformation and international insertion, it proposes as its Specific Objective No.8 "Strengthen the competitiveness, diversification and sustainability of the tourism sector" with the purpose of increasing income from exports of services, its ability to create sources of employment, promote national and local culture and increase its link with internal markets and national productions.

A strategic axis referred to "Natural resources and environment" is also identified, with three general objectives, all relevant to this Project: 1. Guarantee the protection and rational use of natural resources and the conservation of ecosystems; 2. Raise environmental quality and 3, Reduce the country's vulnerability to the effects of climate change and other natural disasters. In particular, Specific Objective No. 7 refers to the development of the integral management of pollution sources for the gradual improvement of environmental quality. Objective No. 11 refers to increasing energy efficiency and the use of renewable energy sources to reduce the emission of greenhouse gases. Specific Objective No. 14. It addresses the need to "stop the degradation of the coastal zone and

marine ecosystems, and adopt measures for its restoration and the sustainable development of fisheries, tourism and adaptation to climate change. From Strategic Objective 5, "Promote and implement at the national level, sustainable consumption and production modalities, Cleaner Production, and efficiency in the use of resources, prioritizing the implementation of these principles in tourism".

Tourism is also declared as a strategic sector for productive transformation, and it appears as follows: f) Tourism, perfecting the "city and the sun and beach" from its diversification, with emphasis on cultural, historical and health, in response to the requirements of the various areas and markets, and its contribution to strengthening the internal integration of the economy and the conservation and protection of natural resources and the environment.

In the Guidelines of the Economic and Social Policy, No. 210 is identified for tourism "Continue increasing the competitiveness of Cuba in the tourist markets, diversifying the offers, enhancing the recruitment of human resources and raising the quality of the services with an adequate value for money. Guideline 212 adds that Non-state activity in accommodation, gastronomy and other services will continue to be developed as a complementary tourist offer to the state, while 215 indicates "Continue prioritizing the repair, maintenance, renovation and updating of tourism infrastructure and support for. Apply policies that guarantee the sustainability of their development, and implement measures to reduce the rate of consumption of water and energy carriers, increasing the use of renewable energy sources and the recycling of waste generated in the provision of tourism services, in harmony with the environment.

The Economic and Social Strategy to recover the economy and confront the COVID-19 global crisis includes tourism as a key area that concentrates country effort for the post-pandemic recovery. It is recognized that "Even with a certain slowdown in its growth rate, tourism continues to be a locomotive for the country's development." Therefore, "The capacity of tourism to readjust to the new scenario is a vital aspect of the country's strategy."

Recently, in September 2020, the Republic of Cuba presented the Update of the First Nationally Determined Contribution (2020-2030) to the UNFCCC. This document recognizes that Cuba has systematically developed and financed mitigation actions associated with savings, the use of renewable sources of energy, energy efficiency, and reforestation. At the same time, it is recognized that Tourism is one of the main sectors where the main actions for adaptation and mitigation of climate change are undertaken (Task 8 of the State Plan for Confronting Climate Change). Cuba has declared the contribution "Increased efficiency and energy saving", which applies to the residential and commercial sectors, including Tourism.

This contribution includes the following by 2030:

- The installation of 833,333 units of solar heaters (one million m<sup>2</sup> of catchment area) in the residential and industrial sectors.
- The installation of 15 million 250 thousand LED lamps in the residential and public sector.
- The replacement of 2 million electric resistance stoves with induction stoves.
- The installation of 5,000 solar pumping systems in the livestock sector.
- In addition, among the qualitative indicators, the implementation of the Energy Management Systems is foreseen through the requirements established by the Cuban and international standard NC ISO 5000, as well as other regulations for the efficient use of energy, provided in Decree Law 345 in force in the country.

Therefore, the following prioritized measures have been identified for this sector:

- Continue with the Tourism Development Program, promoting the use of renewable energy sources and the reduction of fossil fuels, as well as encouraging the use of science and technology to improve energy efficiency;
- Identify issuers of specialized low emission tourism, particularly diving, fishing, nature tourism, in markets with a high potential in these modalities;
- Establish certification of good practices associated with the prevention and control of Covid-19. Certification of a More Hygienic and Safe Tourism.

Currently, the Republic of Cuba is working on the preparation of the Third National Communication to the United Nations Framework Convention on Climate Change, through an international cooperation project financed by GEF and implemented by UNDP. The Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) made reference to the country's priority of reducing dependence on fuel imports. It is suggested that the use of solar radiation to produce heat and electrical energy is already a reality in Cuba, which is increasing every day with the installation of photovoltaic devices in rural and mountainous areas, in areas that are difficult to access for the National Electric-energetic System's networks and in prioritized sectors such as tourism.

As part of the implementation of the State Plan for addressing Climate Change "Tarea Vida" the sector is involved with several tasks to which this project contributes. Of the 15 prioritized areas, 12 are tourist destinations. Among the prioritized tasks of the sector are: Task 3: Conserve, maintain and fully recover sandy beaches of Cuba, prioritizing urbanized tourist use and reduce structural vulnerability of the built heritage, Task 4: Ensure the availability and efficient use of water as part of the confrontation with drought, based on the application of technologies for saving and satisfying local demands. Raise the hydraulic infrastructure and its maintenance, as well as the introduction of actions to measure water efficiency and productivity, Task 6 Protection of coral reefs in special ridges and Task 8 Implement and control adaptation and mitigation measures to change climate derived from sectoral policies in programs, plans and projects related to food security, renewable energy, energy efficiency, territorial and urban planning, Fisheries, agriculture, health, tourism, construction, transport , industry and comprehensive forest management.

Finally, the current COVID-19 pandemic has produced severe socioeconomic effects on the tourism sector at the international level. The pandemic forced the country to close its borders and stop tourism services, which significantly impacted the sector's economic performance. At the end of May 2020, international tourism registered a decrease of 57.0 percent when 984,178 visitors arrived in the country, which means 1,302,704 less than in the same period of the previous year. In May, 993 visitors visited Cuba, representing 99.7 percent less than in the same month of 2019 (357,328 less than in the same period of the previous year)<sup>[1]</sup>.

In this sense, the Economic-Social Strategy to boost the economy and face the global crisis caused by COVID-19 includes Tourism as one of the key areas in which the country's main effort for recovery is concentrated. post-pandemic. It is recognized that "Even with a certain slowdown in its growth rate, tourism continues to be a locomotive for the country's development." Therefore, "The capacity of tourism to readjust to the new scenario is a vital aspect of the country's strategy."

In this sense, within the prioritized measures for this sector, the following are identified:

- Continue with the Tourism Development Program, promoting the use of renewable energy sources and the reduction of fossil fuels, as well as encouraging the use of science and technology to improve energy efficiency;
- Identify issuers of specialized tourism, particularly diving, fishing, nature tourism, in markets with a high potential in these modalities; Y
- Establish certification of good practices associated with the prevention and control of Covid-19. Certification of a More Hygienic and Safe Tourism.

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Cuba is preparing to gradually restart its tourist services, for which it has designed and implements rigorous sanitary and hygienic protocols. This allows the gradual recovery of the tourism sector, contributing to the economic recovery of the country, without compromising national health security. The Cuban government wants to guarantee the health and enjoyment of the visitors who depend on the country and that of the workers in the sector, and thereby enable the flow of foreign exchange required to stimulate the country's socioeconomic recovery. Furthermore, the project is expected to contribute to the recovery of the sector with regards to the impacts derived from this pandemic, as follows:

- Promote the quality and sustainability of tourism products and services, particularly those derived from nature, allowing a better positioning of Cuba as a destination, compared to others in the Caribbean.
- Strengthen the coordination of tourist facilities with providers of goods and services at the local level. This will stimulate the increase and diversification of production and services at the local level, thereby generating new sources of employment.
- Promote the use of renewable energy sources and energy efficient technologies in the sector, fostering a reduction in related expenses and improving environmental performance.

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[1] Source: Oficina Nacional de Estadísticas de Cuba “Turismo. Llegadas de Visitantes Internacionales Noticia Mayo 2020.”

## 8. Knowledge Management

**Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.**

Knowledge management is a cross-cutting component in the project's design, promoting learning and continuous improvement, generating documents for upscaling of lessons learned and experiences and visibility strategies for capacity development. Component 3 aims to develop a knowledge management and communication strategy that compiles lessons and experiences from the implementation of the pilot cases. The project will produce pamphlets, website with online publications, radio clips, billboards, posters, etc. to be confirmed during the PPG. Results from the project will be disseminated within the project intervention areas through the different networks and forums available. In addition, the project will participate in the electronic platform for sharing lessons learned among managers established by the UNDP-GEF Regional Service Center (RSC).

## 9. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

### Overall Project/Program Risk Classification\*

PIF

CEO Endorsement/Approval MTR

TE

Medium/Moderate

### Measures to address identified risks and impacts

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

Please see SES Analysis attached



**Supporting Documents**

Upload available ESS supporting documents.

**Title**

**Submitted**

PIMS 6200 PIF Pre SES\_Cuba

**Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).**

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Ulises Fernandez	International Relations Director	CITMA	7/16/2020

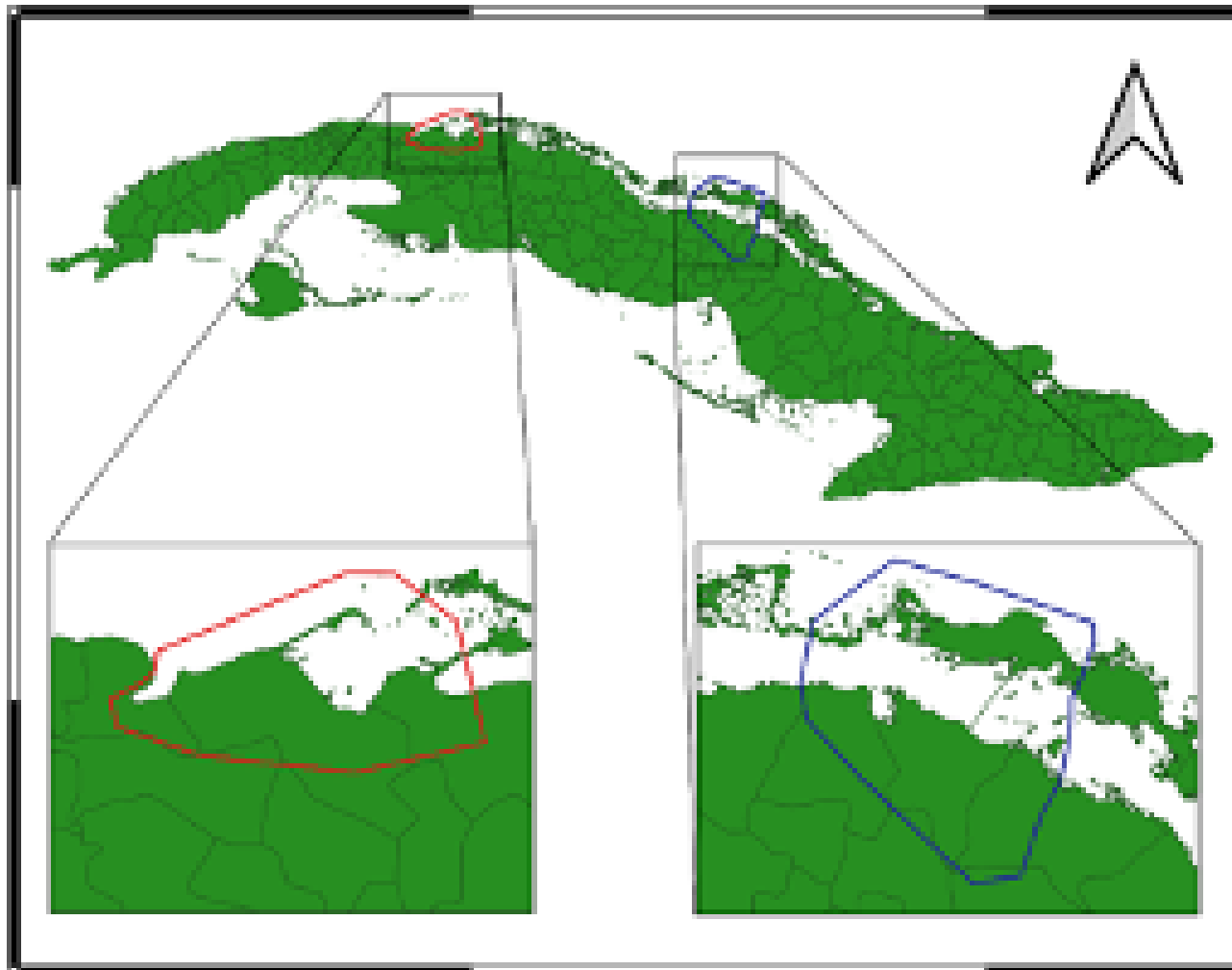
**ANNEX A: Project Map and Geographic Coordinates**

Please provide geo-referenced information and map where the project intervention takes place

**PROGRAM/PROJECT MAP AND GEOGRAPHIC COORDINATES**

The Project has pre-identified two intervention sites to test the management models of BD and CC, Matanzas-Varadero and Norte de Ciego de Avila, indicated in the following maps:

# Project Gef 7 intervention areas



Legend

- North/Matanzas/Vedado
- North/Ciego de Avila
- Cuba



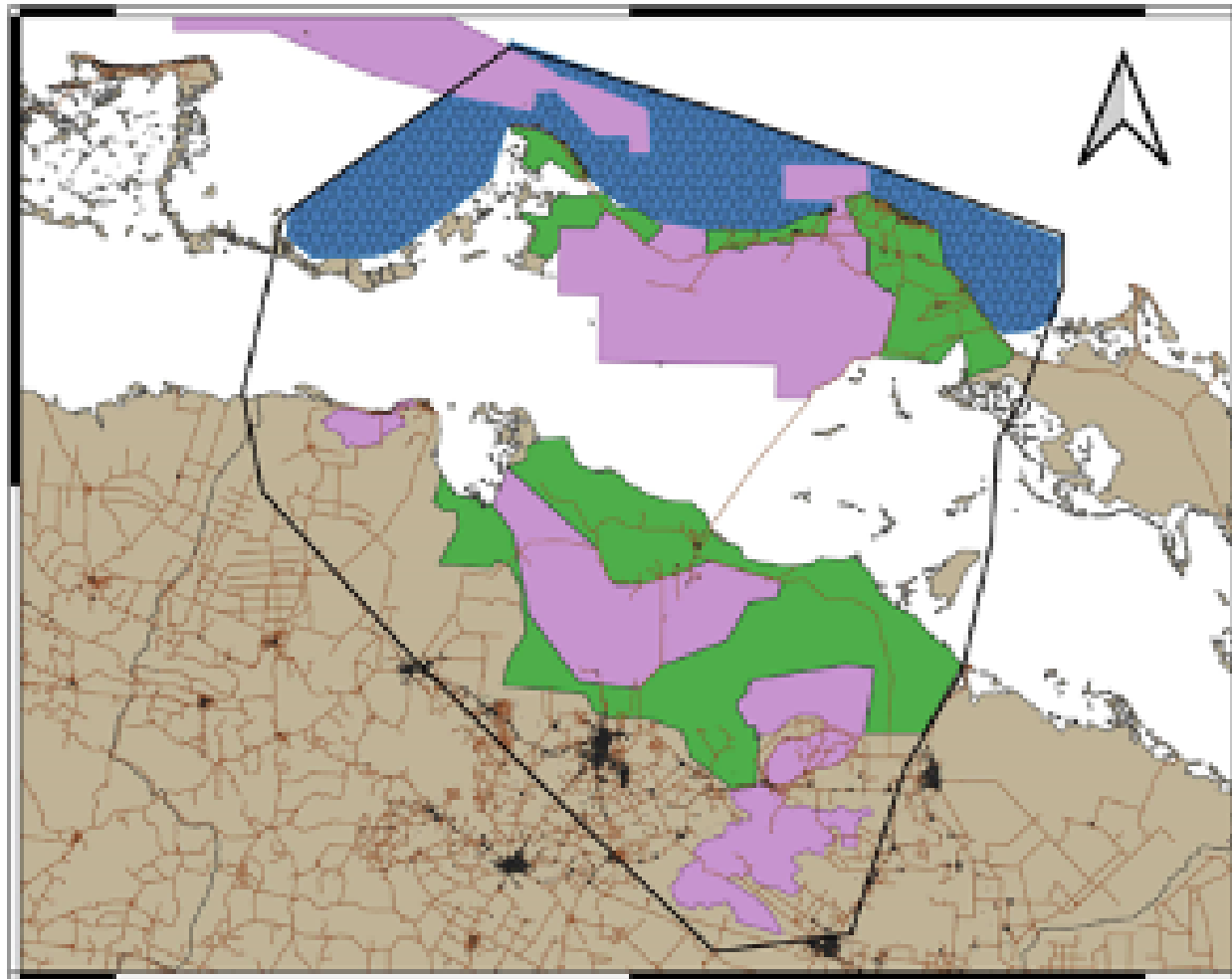
**CIBC**

Centro de INVESTIGACIONES  
de ECOSISTEMAS costeros

Produced by:  
DSc. Francisco Salmeron Morat

0 100 200 300 km

## Intervention area north of Ciego de Avila



### Legend

- Área de Trabajo
- Infrastructure
- Roads
- Landscapes to intervene
- Seascape to intervene
- Protected area of Ciego de Avila
- Cuba



**CIEC**

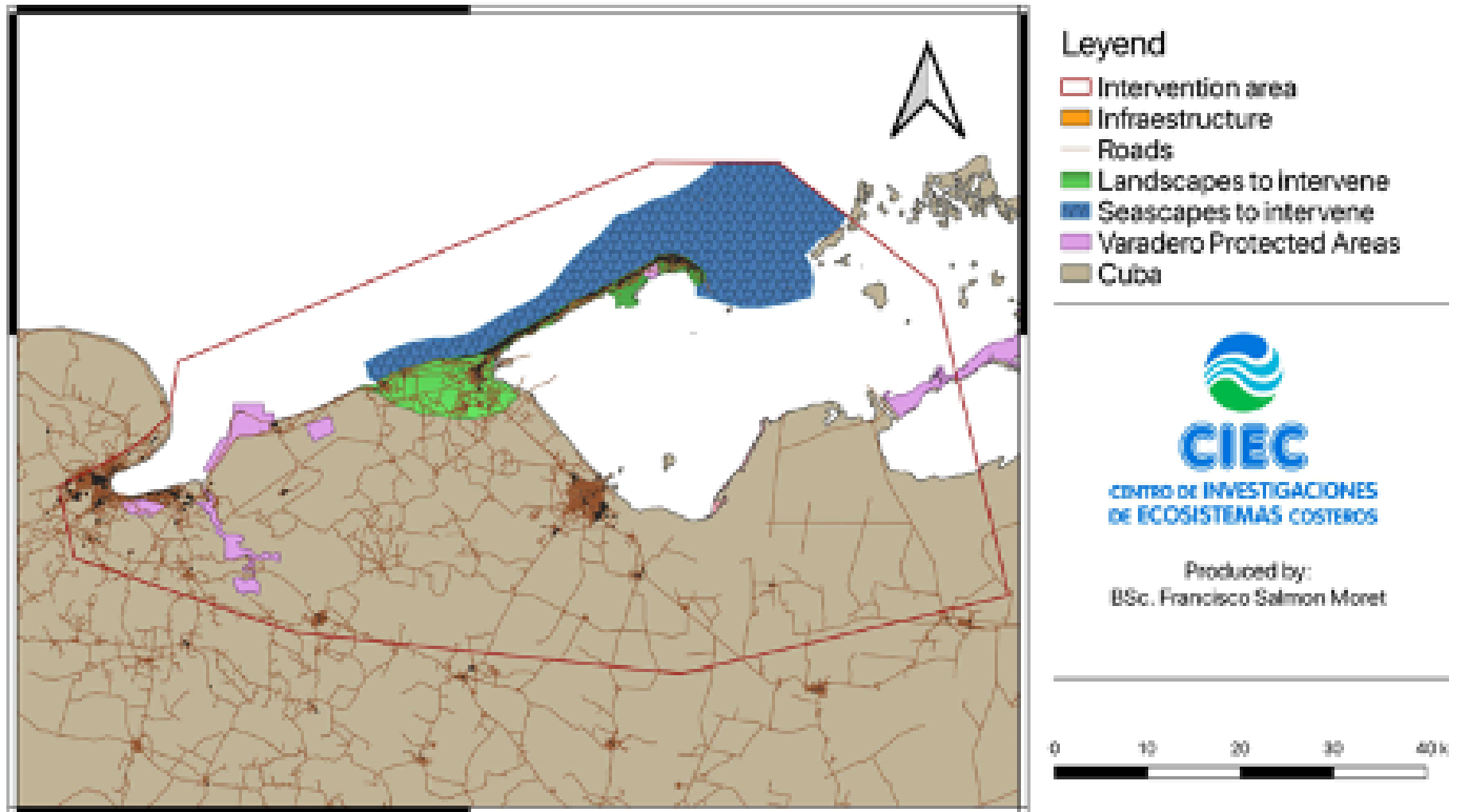
centro de INVESTIGACIONES  
de ECOSISTEMAS costeros

Produced by:  
BSc. Francisco Salmon Moret

0 10 20 30 40 km



## Intervention area north of Varadero



The northern intervention area of Ciego de Ávila includes the Ramsar site number 1235 "Great Northern Wetland of Ciego de Ávila". The terrestrial flora is represented by 344 species, of which 48 are endemic and 10 of these are threatened. In the wetland area, more than 1,321 species of terrestrial invertebrates have been reported, of which the most diverse group are insects with more than 1,220 species, 26 recognized as biological controllers and 54 species of butterflies are charismatic. The terrestrial malacofauna made up of 35 species of mollusks and 45% of endemism, two of them are local endemic to Cayo Coco. Of the 66 species of arachnids, 13 were endemic and 5 of them were local endemics.

Among vertebrates around 12 species of amphibians and 34 reptiles are present, with 83.3% and 61.7% endemism respectively. Some of them are considered charismatic; such as the Cuban Iguana (*Cyclura nubila nubila*), Chipoyo azul (*Anolis equestris cyaneus*), Cuban Boa (*Chilabothus angulifer*), Jicotea (*Trachemys decusata decussata*) and the American crocodile (*Crocodylus acutus*).

The wetland has an IBAS category (code CU012), with more than 230 species of birds that represent more than 50% of the total forms registered for Cuba. Its habitats have 3 endangered species, 2 vulnerable and 5 almost threatened, it also constitutes a congregation site of several species for their reproduction, feeding or migration. The island of Cuba is extremely important for waterfowl, and the network of natural and artificial wetlands provide critical habitat for the highest concentrations of species recorded in the Caribbean (including flamingos, coconuts, barrows, herons, and spoonbills). The largest breeding colonies of seabirds are concentrated on the coasts of the Sabana-Camagüey Archipelago (Aguilar-Mujica 2009) and in the intervention area more than 29 nesting colonies have been identified.

Mammals are represented by 12 species, of which 2 are endemic to Cuba: the Jutía Conga (*Capromys pilorides*), which is represented by small populations to the west and southwest of Cayo Coco, in mangrove areas and in small cayuelos in the Bay of Dogs, and a species of bat (*Phyllops falcatus*).

The marine biota due to its diversity constitutes one of the most representative attractions of the northern cays of Ciego de Ávila and is distributed in front reef ecosystems, reef ridges, reef lagoons and coastal lagoons. In the frontal reefs the most common stony corals are *Montastraea*, *Siderastrea*, *Agaricia* and *Porites*, 63 species of macroalgae and 72 species of fish have also been found. The reef ridges have 54 species of fish and the octocorals of the *Gorgonia* genus and the stony corals, *Millepora complanata*, *Porites astreoides* and *Acropora palmata* predominate. The reef lagoon is characterized by presenting extensive *Thalassia testudinum meadows* and associated with these mollusks such as *Lobatus gigas*, *Cassis madagascariensis*, *C. flammea*, *C. tuberosa*, *Charonia variegata* and *Fasciolaria tulipa*.

Several coastal lagoons have been studied within the Sabana-Camagüey archipelago. Associated with the construction of hotels and supporting infrastructure, various coastal lagoons have suffered damages in their ecological functions or their hydrodynamics; these are the cases of Larga lagoon, Tiburon lagoon, Puerto lagoon and Las Coloradas lagoon in Cayo Coco.

There are four protected areas in the Northern intervention area of Ciego de Ávila, two Wildlife Refuges, an Ecological Reserve and an Outstanding Natural Element. These protected areas are found within others of greater extension: the Buenavista Biosphere Reserve and the Los Caimanes National Park.

### Matanzas - Varadero

This intervention area is home to more than 220 species of plants, 30 of them endemic and 4 threatened. They are distributed in 5 types of plant formations: sandy coast vegetation complex, mangrove swamp, coastal xeromorphic scrub, microphyllous evergreen forest and anthropized vegetation. The spatial representation of natural plant formations in the intervention area is scarce due to the degree of anthropization since it constitutes a territory for the development of tourist infrastructure.

Intervention areas	Surface area total Ha	Mangroves Ha	Other plant formations Ha	Coral reefs Ha	Seagrasses Ha
Matanzas- Varadero	70,002	3,422	20,190	48	46,342
Norte de Ciego de Ávila	78,396	25,053	33,824	54	19,465
<b>Total</b>	<b>148,398</b>	<b>28,475</b>	<b>54,014</b>	<b>102</b>	<b>65,807</b>

Despite this, the area has fauna values that make it relevant for its diversity, made up of some 227 species of terrestrial invertebrates, mainly insects, among which 121 species of butterflies, 31 species of arachnids, 32 crustaceans and 14 terrestrial molluscs stand out. Vertebrates are mainly represented by about 180 species of birds, 5 species of bats and 24 species of reptiles.

The birds present in the area represent around 47.9% of the birds registered for Cuba, six of them endemic to Cuba. The Hicacos Peninsula constitutes an important refuge, feeding and resting area for Nearctic birds during the periods of autumn migration and for birds in spring migration, which is why several authors rank it among the most relevant migration corridors on the island. This makes it important for the Northwest region of the Cuban archipelago and generally in the Insular Caribbean. An example of this is 22 new bird records for the Hicacos Peninsula, between the years 2006 -2011, among which the Bahamas Duck (*Anas bahamensis*), considered a species under threat for the Caribbean and the registry of bird species considered as wandering, rare passers-by and even new records for Cuba, including *Quiscalus major*, *Tyrannus melancholicus*, *Tyrannus forficatus* and *Bartramia longicauda*. Of the birds registered, around 51.2% are winter residents, 26.9% permanent residents, 7.0% bimodal permanent residents, 4.0% summer residents and 6.4% rare passers-by for Cuba.

Reptiles, another representative group of the Matanzas-Varadero Intervention area, are represented by some 24 species of which 60.8% are Cuban endemics. Due to their degree of threat and endemism, the Cuban Iguana (*Cyclura nubila nubila*), the Sand Bayoya (*Leiocephalus raviceps klinikowskii*), whose populations in the Hicacos Peninsula have declined during the last 15 years, as well as a new species of gecko (*Aristelliger reyesii*) (Díaz, 2008), defined as local endemic and considered exclusive to the Varahicacos protected area.

The distribution of bird and reptile fauna is mainly found in the remnants of plant formations such as the Microphile Evergreen Forest and the Coastal Xeromorphic Scrub, as well as inland lagoons and coastal ecosystems. As previously stated, the deforestation existing in the area and the impact produced by the construction of hotels determine the distribution of the fauna of the place, as well as the values of abundance and density.

The presence of natural and artificial bodies of water gives the area an additional value because they are used as resting and feeding sites by the species of ducks registered for it, as well as nesting sites of some such as the Bahamas Duck (*Anas bahamensis*), Royal Guanaba (*Nyctanassa violacea*), Blackjack (*Himantopus mexicanus*) among others.

In the group of mammals, bats stand out, represented by 6 species of which 5 are frugivorous and one insectivorous and are associated with the caves found in the Hicacos peninsula.

In relation to marine biota, the most monospecific seagrasses of *Thalassia testudinum* and 45 species of algae distributed in seagrass and reef ecosystems stand out. The ichthyofauna is represented by 61 species, mainly found in reef ecosystems, among which around 40 species of coral stand out.

In the intervention area is the Protected Natural Landscape of "Varahicacos".

The sites and surrounding area are characterized with the following biodiversity:

In terms of observed biodiversity richness, the sites report 721 species in Matanzas-Varadero and 2,148 in North Ciego de Avila:



<b>Intervention areas</b>	<b>Biodiversity</b>	<b>Landscapes</b>	<b>Biological groups</b>	<b>Species</b>
<b>Norte de Ciego de Ávila</b>	1,953	Terrestrial	Vascular Plants	344
			Insects	1220
			Molluscs	35
			Arachnids	66
			Amphibians	12
			Reptiles	34
			Mammals	12
			Birds	230
	195	Marine	Macroalgae	63
			Fish	72
			Phanerogams	3
			Octocorals	33
			Stony Corals	24
	<b>Total species</b>	<b>2,148</b>		
<b>Matanzas- Varadero</b>	574	Terrestrial	Vascular Plants	173
			Insects	150
			Arachnids	31
			Molluscs	14
			Amphibians	4
			Reptiles	24
			Birds	178
	147	Marine	Algae	45
			Phanerogams	1
			Fish	61
			Corals	40
<b>Total species</b>	<b>721</b>			