



ADAPTATION FUND

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Project and Programme Review Committee
Thirty-third Meeting
Bonn, Germany, 16-17 April 2024

PROPOSAL FOR CUBA, PANAMA



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regional Project

Countries/Region: Cuba, Panama

Project Title: Strengthening the adaptive capacity of coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management and local food security

Thematic Focal Area: Food Security

Implementing Entity: IFAD

Executing Entities: FAO; Environment Agency of the Ministry of Science, Technology and Environment – CITMA (AMA), Cuba; Ministry of the Environment (MiAmbiente), Panama

AF Project ID: AF00000266

IE Project ID:

Requested Financing from Adaptation Fund (US Dollars): 14,000,000

Reviewer and contact person: Camila Florez

Co-reviewer(s): Imen Meliane

IE Contact Person:

Technical Summary

The project “Strengthening the adaptive capacity of coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management and local food security” aims to reduce vulnerability and strengthen the adaptive capacities of nine coastal municipalities in Cuba and Panama to climate change impacts. This will be done through the three components below:

Component 1: Climate Change Adaptation Planning and Regional Cooperation (USD 2,526,473).

Component 2: Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities (USD 4,259,836)

Component 3: Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience (USD 4,891,417).

Requested financing overview:

Project/Programme Execution Cost: USD 1,225,500

Total Project/Programme Cost: USD 12,903,226

Implementing Fee: USD 1,096,774

	<p>Financing Requested: USD 14,000,000</p> <p>The initial technical review raises several issues, such as compliance with the ESP, the detailed budget, and the consultation process, as is discussed in the number of Clarification Requests (CRs) and Corrective Action Request (CAR) raised in the review.</p>
Date	January 24, 2024

Review Criteria	Questions	Comments
Country Eligibility	1. Are all of the participating countries party to the Kyoto Protocol, or the Paris Agreement?	Yes.
	2. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	Yes. Cuba and Panama are particularly vulnerable to climate change due to sea level rise, and changes in precipitation patterns which lead to droughts and floods.
Project Eligibility	1. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?	Yes. As per the Endorsement letters dated June 30, 2023 (Panama) and December 13, 2023 (Cuba).
	2. Does the length of the proposal amount to no more than One hundred (100) pages for the fully-developed project document, and one hundred (100) pages for its annexes?	Yes. The proposal is 87 pages plus annexes. CAR1: Please include a list of abbreviations.
	3. Does the regional project / programme support concrete adaptation actions to assist the participating countries in addressing the adverse effects of climate change and build in climate resilience, and do so providing added value through the regional approach, compared to implementing similar activities in each country individually?	Unclear. The project supports Ecosystem-based Adaptation (EbA) in nine coastal communities to reduce risks to agricultural and fishing productivity and improve food resiliency. The project will pilot a loss and damage accounting mechanism to measure slow onset climate impacts, as well as the adaptation options to be implemented. The lessons

from this regional pilot will be shared with the Caribbean region through several regional organizations.

The EbA activities considered for implementation are mangrove and reef restoration, improvement of fishing practices, and restoration of coastal buffers, coastal vegetation, and coastal lagoons. The project will also support the implementation of climate-smart agriculture and fishing practices. Field experimentation will be supported through Farmers Field schools (FFS), which aim to enhance knowledge exchange and cooperation between both countries.

The description of the activities is very limited for a fully-developed proposal.

CR1: The final selection of activities and sites will be informed by studies (i.e., ecosystem valuation analysis; loss and gain analysis) and a prioritization process carried out during project implementation. The reasoning for selecting the final project exact site interventions during project implementation has been indicated. Nonetheless, this project has Unidentified Sub-Projects (USPs), though not indicated in the proposal as such and this needs justification. A project with USPs has direct implications for the Environmental and Social Management System (EMSM) to ensure compliance with the ESP (see more in **CRs 16 and 22**).

CR2: For all project outcomes, please provide more details elaborate on each of the activities to be carried out under each project output (as per the outputs outlined in Table 11). For example, Outcome 1.2 includes training and capacity

		<p>building. How will it be implemented? Will there be workshops? Online training? Peer-to-peer support?</p> <p>CR3: Under Outcome 1.1., two assessments will be carried out. First, a baseline assessment of loss and damage to agricultural and food productivity. Second, an impact assessment of municipal socio-economic indicators. However, it is not clear which are the hazards considered here. Could you please provide more information on the second assessment and how it differs from the first one?</p> <p>CR4: Under Outcome 3, local cooperatives and community associations will be supported technically and financially through grants. Please provide further information about the grants - including the percentage of funding that would be used for grants, the potential size of the grants, the number of grants, etc. It would also be important to know how the proposed activities will be selected and technically evaluated so that beneficiaries access the grants. Kindly provide specifics for grant mechanisms per Outcomes 3.1 and 3.2 separately).</p>
	<p>4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?</p>	<p>Yes, but further information is needed.</p> <p>The proposal describes qualitatively the economic, social, and environmental benefits to the target population.</p> <p>The project will directly benefit 74,242 beneficiaries (50% women), which 32,892 are in Panama, and 41,350 in Cuba. The beneficiaries are located in nine coastal municipalities (5 in Cuba, and 4 in Panama). The project will support 15 cooperatives in Cuba, and 13 in Panama.</p>

		<p>A gender analysis and action plan have been provided (Annex 5).</p> <p>CR5: Kindly disaggregate the project beneficiaries further considering intersectionality, for example by age and indigenous identity if possible.</p> <p>CR6: Please outline the specific project benefits to indigenous people and women.</p> <p>CR7: Given the EbA approach, please provide quantifiable information on the ecosystems that will be rehabilitated/restored and their services, as well as the productive area that will be under climate-smart practices / technologies.</p> <p>CR8: How will the project ensure the equitable distribution of benefits to vulnerable households, and individuals within the communities selected? Which prioritization method will be used?</p>
	<p>5. Is the project / programme cost-effective and does the regional approach support cost-effectiveness?</p>	<p>No clear.</p> <p>The proposal provides general statements on the cost-effectiveness of NbS solutions proposed in comparison to grey infrastructure, based on costs in the region (including the AF-funded project in Cuba, Manglar Vivo). It does not however demonstrate the cost-effectiveness of the selected approach in the project context. In particular there's no analysis demonstrating the effectiveness of the proposed solutions to address the scope of the climate change impacts with consideration of time scale. Coral reefs and mangroves may take significant time to provide ecosystem services at the scale required. Coral reefs in particular are highly sensitive to climate change impacts.</p>

		<p>CR9: Please provide a more detailed quantitative analyses of cost-effectiveness of the proposed measures to demonstrate that the selected approaches will deliver the adaptation benefits, taking into account climate change impacts locally. At this stage of the proposal, cost-effectiveness analysis should be quantified and comparing to specific alternative measures that could be deployed in the same project areas. Please also include cost effectiveness of measures under Component 3, focused on climate-smart agricultural and fishing productive solutions compared to alternative measures.</p>
	<p>6. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments? If applicable, it is also possible to refer to regional plans and strategies where they exist.</p>	<p>Yes.</p> <p>The project is consistent with Cuba's and Panama's NDCs, national climate change policies, and sectoral legislation and strategies. The project is also aligned with the Cartagena Convention for the Protection and Development of the Marine Environment.</p>
	<p>7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?</p>	<p>Yes, but further information is needed.</p> <p>The proposal has identified relevant national technical standards for each country and indicate the project's alignment. It does not however provide information on how the project will ensure compliance.</p> <p>CR10: Please clarify if any project activity would require special permit or authorisation and outline how the project will follow procedures for securing governmental approval, please outline the steps required and the project's future actions. For example, in both Panama and Cuba, the project may need to follow a national environmental impact</p>

		assessment. Some proposed restoration activities could require special permits. Please provide further details.
	8. Is there duplication of project / programme with other funding sources?	<p>No.</p> <p>The proposal outlines several current and past projects in Cuba and Panama. The proponents have outlines potential synergies, when lessons can be drawn, and lack of overlap (thematic and/or geographic).</p>
	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	<p>Yes.</p> <p>The project has a learning and knowledge component that is integrated throughout the project outcomes.</p>
	10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	<p>Yes, but further information is needed.</p> <p>The proponents have carried out consultations during the development of the concept note and the fully developed proposal. For the former, virtual meetings with relevant stakeholders took place. For the latter, a survey was carried out in the project communities. The survey collected information regarding climate change perceptions, agricultural practices, and capacity-building needs.</p> <p>CR11: It is unclear if the consultative process has shared the project objectives, scope, and approach with the local communities to 1) validate the approach taken, and 2) gather any concerns about the project. Please clarify.</p> <p>CR12: The proposal indicates that focus groups were carried out with direct beneficiaries including women. Please outline the main results of the focus groups, underscoring gender issues. This is particularly important as the survey</p>

		<p>sample in Cuba does not reflect population distributions (as only 26% of the sample were women).</p> <p>CR13: The project has identified indigenous people as part of the beneficiaries in Panama. It is stated that through consultations with indigenous representatives, indigenous people's needs were identified and will be integrated in components 2 and 3. Please provide more details on these specific needs and how this information has already informed the design of these components.</p> <p>CR14: Annex 1, which summarizes the consultation process, indicates that indigenous people were identified but that the communities visited do not belong to indigenous peoples, and thus, participation of minorities was not considered relevant. Given that the project will be carried out in municipalities with indigenous peoples, including them in the consultation remains highly relevant. As per the AF ESP, please describe how the project will be consistent with UNDRIP, and particularly regarding Free, Prior, Informed Consent (FPIC) during project implementation; and provide, after further consultation, detailed outcomes of the consultation process of the indigenous people. Also, see CR4.</p>
	<p>11. Is the requested financing justified on the basis of full cost of adaptation reasoning?</p>	<p>Yes.</p> <p>The proposal clearly describes the full cost of adaptation reasoning with a baseline scenario without AF resources, and an AF project scenario per project outcome. The project does not require any co-financing.</p>
	<p>12. Is the project / program aligned with AF's results framework?</p>	<p>Largely yes.</p>

		<p>The proposal outlines its alignment with the Fund's Outcomes 2 and 3, as well as Outputs 2.1, 5, 6, and 8.</p> <p>CR15: Please consider including alignment with Outcome 5, which focuses on ecosystem resilience, and Outcome 6, which focuses on diversified and strengthened livelihoods. These outcomes are strongly aligned with the project.</p>
	<p>13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?</p>	<p>Yes, but further information is needed.</p> <p>The project invests in capacity building and strengthening local institutions and cooperatives that will ensure the project's sustainability after its completion.</p> <p>CR16: Regarding Component 3, the project will use grants to support the adoption of climate-smart agricultural practices and technologies. Kindly explain how will the project ensure that such practices and technologies remain operational and used by beneficiaries when the grants are over.</p>
	<p>14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>Unclear.</p> <p>The project is classified as Category B. The project contains USPs but the proposal does not include provisions to ensure that the USPs will also be compliant with the ESP.</p> <p>The proposal includes a gender assessment and action plan (Annex 5) which elaborates on the gender-specific local contexts.</p> <p>CR17: Given the USPs, please justify their use for this project, and provide provisions for ESP compliance.</p>

	15. Does the project promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms?	Yes. The project innovates by implementing a loss and damage methodology for slow onset hazards at the local level, which informs the use of adaptation options and allows for experimentation of NbS and climate-smart practices and technologies.
Resource Availability	1. Is the requested project / programme funding within the funding windows of the programme for regional projects/programmes?	Yes.
	2. Are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 10 per cent of the project/programme for implementing entity (IE) fees and at or below 10 per cent of the project/programme cost for the execution costs?	Largely Yes. CAR2: The project document lacks the Project Components and Financing Table before Section II. Please include it.
Eligibility of IE	1. Is the project/programme submitted through an eligible Multilateral or Regional Implementing Entity that has been accredited by the Board?	Yes. IFAD is an accredited MIE.
Implementation Arrangements	1. Is there adequate arrangement for project / programme management at the regional and national level, including coordination arrangements within countries and among them? Has the potential to partner with national institutions, and when possible, national implementing entities (NIEs), been considered, and included in the management arrangements?	Yes. Implementation arrangements clearly describe the roles and responsibilities for project implementation and incorporate gender-responsive elements. FAO will act as an executing agency, coordinating the implementation of the project in both countries, while CITMA (Cuba) and MiAmbiente (Panama) will be responsible for project execution in each country. The project management unit will include a gender and social inclusion specialist to guarantee the gender focus and the participation of women (young and adults).
	2. Are there measures for financial and project/programme risk management?	Largely yes.

		<p>Financial and management risks have been identified, and related mitigation measures have been indicated.</p> <p>CR18: Regarding the risk of potential loss of government support, please consider mechanisms that can be set up in advance with the national and local government to ensure continuity.</p> <p>CR19: Given the involvement of local institutions and organizations in the project, it would be advisable to consider risks stemming from local capacities and/or support for the project.</p>
	<p>3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy of the Fund? Proponents are encouraged to refer to the Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy, for details.</p>	<p>No.</p> <p>The proposal includes an Environmental and Social Plan, which identifies mitigation measures, responsibilities, and means of verification. However, some issues remain:</p> <p>CR20: The proposal should include a description of each risk in detail, explaining the assumptions that justify the risk level in the screening process (Section II.K). Please the ESIA in section III.B.</p> <p>CR21: Regarding the conservation of biological diversity principle, a risk considered was the introduction of exotic and/or invasive species. Please refine the mitigation measures provided, as invasive species are not addressed.</p> <p>CR22: Please indicate the significance of each risk (in terms of probability and severity before and after the mitigation measures).</p>

		<p>CR23: Given the USPs of this project, the ESMP plan (annex III) should provide measures to ensure compliance with each project activity per site.</p> <p>CR24: Please provide details on the budget provisions to cover the ESMP costs.</p> <p>CR25: Please provide details on the EE's and IE's role in ensuring the implementation of the ESMP.</p>
	<p>4. Is a budget on the Implementing Entity Management Fee use included?</p>	<p>No.</p> <p>CR26: Please include a breakdown of the Implementing Entity Management Fee, with budget notes immediately under that table as necessary.</p>
	<p>5. Is an explanation and a breakdown of the execution costs included?</p>	<p>No.</p> <p>CR27: Please include a breakdown of the execution costs, with budget notes immediately under that table as necessary.</p>
	<p>6. Is a detailed budget including budget notes included?</p>	<p>No. A budget has been presented without details and only at the output level.</p> <p>CR28: Please include a detailed budget for the activity level for each output (such as workshops, reports, consultations, travel, etc.), including clear budget notes.</p>
	<p>7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?</p>	<p>Yes, but more information is needed. An M&E plan plus budget is included, including a description of key M&E milestones.</p>

		<p>CR29: Regarding Table 8 (page 74), please indicate the M&E activities to be carried out under each role (with the appropriate timeframe), and the source of funding.</p> <p>CR30: Please specifically outline how gender considerations will be incorporated during M&E implementation.</p>
	<p>8. Does the M&E Framework include a breakdown of how implementing entity IE fees will be utilized in the supervision of the M&E function?</p>	<p>No.</p> <p>CR31: An implementing entity budget breakdown has not been provided, and thus it is unclear how the implementing entity fees will be utilized in the supervision of the M&E function. Please revise.</p>
	<p>9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?</p>	<p>Yes, but more information is needed.</p> <p>The project aligns with the AF's core outcomes 2 and 3 (please see CR 14).</p> <p>CR32: Table 10, under Component 1, only includes two of the three outputs. Please revise.</p> <p>CR33: Please include the number of indirect beneficiaries in the results framework (Table 9) – in addition to the direct ones.</p>
	<p>10. Is a disbursement schedule with time-bound milestones included?</p>	<p>Largely Yes.</p> <p>Please see CAR 2.</p>



ADAPTATION FUND

FULLY DEVELOPED PROPOSAL FOR REGIONAL PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Strengthening the adaptive capacity of coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management and local food security

Countries: Republic of Cuba and Panama

Thematic Focal Area¹: Food security

Type of Implementing Entity: Multilateral Implementing Entity

Implementing Entity: International Fund for Agricultural Development (IFAD)

Executing Entities:
Regional: Food and Agriculture Organization (FAO)
Cuba: Environment Agency of the Ministry of Science, Technology and Environment – CITMA (AMA)
Panama: Ministry of Environment (MiAmbiente)

Amount of Financing Requested: USD 14,000,000 (in U.S Dollars Equivalent)

Letters of Endorsement (LOE) signed for all countries: Yes No

Stage of Submission:

This proposal has been submitted before including at a different stage (pre-concept, concept, fully developed proposal)

This is the first submission ever of the proposal at any stage

¹ Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

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A. / PROGRAMME BACKGROUND AND CONTEXT:

1. Cuba and Panama belong to the Wider Caribbean Region which comprises 28 insular and coastal states and territories with coasts on the Caribbean Sea and the Gulf of Mexico (Figure 1). The wider Caribbean is particularly vulnerable to climate change (CC) due to increased ocean temperatures, sea level rise (SLR) and shifting precipitation patterns that will concentrate most rainfall in short periods of time leaving open the possibility for both drought and flooding. The region is highly susceptible to extreme weather from both hurricanes and tropical cyclones which combined with SLR represent a high flood risk for coastal communities. According to IMF research, from the 511 disasters worldwide that hit small states since 1950, around two-thirds have been in the Caribbean.² Their analysis indicates that this region is up to seven times more likely to experience a natural disaster than larger states, and that when one takes place, these states may suffer as much as six times more damage. These hazards are currently evidenced in both Cuba and the Caribbean coastline of Panama with effects on food security and rural livelihoods. For both countries, the challenge of strengthening resilience is particularly acute as these nations face recurrent extreme weather-related events.



Figure 1. Map of Greater Caribbean

2. The impacts from these damages have long-term consequences at the national level by disrupting economic activity and can have long-lasting effects on economic growth. For instance, Hurricane Matthew, which crossed the eastern end of Cuba in October 2016, caused USD 97.2 million in damages (approximately 2.66% of GDP), making it the third most devastating hurricane to hit the island in the last decade, only behind Ike (2008) and Sandy (2012), with equivalent costs of USD 293 million (12.05% of GDP) and USD 278 million (9.53 % of GDP). Moreover, CC threatens to increase vulnerability of both human and ecological systems in both Cuba and Panama³. Thus, developing resilience to the repeated shocks is critical for ensuring their ability to pursue long-term growth.

3. Coastal municipalities in these two countries and their respective settlements are particularly vulnerable to eroding shorelines, increased flooding in low-lying areas, saline intrusion and other diverse effects and impacts associated with CC. For both countries, recent research and modelling indicate changing conditions such as higher temperatures, erratic seasonal rains, more intense precipitation in concentrated time spans and regions, an increased frequency and intensity of tropical storms and cyclonic activity and SLR. These analogue projections will have impacts on both human and ecological systems, impacting particularly the livelihoods of the most exposed coastal communities and vulnerable groups, such as women and indigenous people.

² Otker-Robe, Inci & Srinivasan, Krishna. (2018). Bracing for the Storm: For the Caribbean, building resilience is a matter of survival. Finance and Development. 55.

³ Hernandez-Zanuy, A.C., E. Tristá, M. Guerra, R.T. Capote, M. Martínez, M. Hernández, P.M. Alcolado Menéndez, S. Lorenzo, L. Peña- Fuente, M. Esquivel y M. Sosa. 2006. Rehabilitación ecológica del tramo de costa comprendido entre Surgidero de Batabanó y Mayabeque, costa sur de la Provincia de La Habana. Informe Final de Proyecto de Programa Ramal de Protección de Medio Ambiente y Desarrollo Sostenible.

4. According to national communications to the United Nations Framework Convention on Climate Change (UNFCCC) from both countries, the coastal areas of Cuba and Panama are likely to experience significant modifications due to flooding caused by the SLR. It is foreseen that increased ambient and ocean temperatures will have far-reaching effects on ecosystems by impacting livelihoods, food and water security and key economic sectors such as tourism, agriculture and fishing. While both countries have developed national strategies to attempt to manage CC impacts, capacities at community and municipal levels - where these impacts will be stronger - are currently lacking partly due to a failure to translate climate impacts into tangible costs and losses to local economies and livelihoods. This proves particularly challenging when assessing the impact of slow onset hazards such as SLR that will result in the salinization of soils and water resources or in the case of increasing temperatures that will have cascading effects.

5. Detailed assessments of economic loss and damages are regularly carried out by governments and multilateral organizations following large-scale disasters using different methodologies. Methodologies for assessing loss and damage are critical inputs to calculate the economic impact and associated costs of natural disasters. Input from loss and damage calculations are powerful tools for internalizing the impacts of disasters and provide a key baseline to measure the effectivity of risk reduction actions and assess the short, medium, and long-term recovery and reconstruction needs, as well as to inform mainstreaming of disaster risk reduction (DRR) measures in post-disaster recovery and reconstruction plans. These methodologies, however, are often infrastructure-focused and respond to specific one-off disasters while failing to aggregate CC cascading impacts and the way these interact with a series of hazards.

6. Further, when applied to agriculture, these assessments often fail to capture the specificities of the sector and result in an imprecise or under-estimated evaluation of disaster impact. International organizations have looked at improving traditional loss and damage methodologies to include impacts on livelihoods and development, such as the UNDP's Post Disaster Needs Assessment and FAO's Methodology for Damage and Loss Assessment in Agriculture. Aiming for a standardized approach to assessing disaster damage and loss in agriculture, FAO has developed a methodology that is both holistic enough to be applied in different disaster events and in different country/regional contexts, and precise enough to consider all agricultural subsectors and their specificities. In addition, a common streamlined methodology can help address the prevailing knowledge gap on disaster impact on the sector and provide a useful tool for assembling and interpreting existing information about both past and future events. FAO's methodology, in particular, allows countries to better calculate loss and damage to agricultural related production due to climate-change related slow onset events. This is a key issue to strengthen resilience as recurrent and prolonged natural hazards and disasters can have a devastating impact not only on agricultural livelihoods but also in the long term can lead an entire economy into recession. Hence, the methodology developed by FAO is relevant as it addresses a common challenge in post disaster assessment that often results in an under-estimated evaluation of long-term disaster impact to populations, leading to the under-investment in resilient agriculture and adapted livelihoods⁴. The FAO methodology was recently integrated into global resilience initiatives such as the Sendai Framework for Disaster Risk Reduction (SFDRR) and the Sustainable Development Goals (SDG) agenda and will further serve to measure progress towards reducing the monetary impact of disasters on agriculture.

7. Both Cuba and Panama are highly exposed to climate risks and are experiencing more frequent and severe climate-change related natural disasters. Recurrent and prolonged natural hazards and disasters, such as drought, floods, storms, spread of pests and diseases and saltwater intrusion, can have a devastating impact not only on agricultural livelihoods, but can lead an entire economy into recession. At the microeconomic level, disasters often lead to declines in agricultural employment and/or wages among farmers and farm laborers and income redistribution due to loss of arable land and eroding livelihoods. Disturbance of the economic system often brings social insecurity, especially in circumstances when food systems are being disrupted.

8. Strengthening these two countries' capacity to implement loss and damage methodologies for slow onset climate events, is thus particularly relevant to help them assess the cost of CC to local economies,

⁴ Conforti, P., Markova, G., & Tochkov, D. (2020). "FAO's Methodology for Damage and Loss Assessment in Agriculture". *FAO Statistics Working Paper 19-17*. Rome. <https://doi.org/10.4060/ca6990en>

to enhance their adaptive capacity and to inform the implementation of adaptive solutions to enhance resilience and food security. Alternative approaches are needed to address the vulnerability of coastal communities who are highly dependent on coastal ecosystems and resources for their livelihoods and food security. Healthy ecosystems can be a natural defence barrier against sea level rise, and moderate winds and waves by reducing coastal erosion, flooding and salt intrusion risks, as well as playing an important protective role during extreme events. Cuba and Panama's geographical characteristics and their marine and coastal ecosystem conservation status provide an opportunity to scale up the implementation of Nature-Based Solutions (NbS). NbS can provide cost-effective and flexible adaptation solutions for the protection of critical ecosystems and assets as well as support the development of alternative and more resilient livelihoods. Risk-resilient agriculture plays a key role in balancing the social, economic and environmental aspects of development while providing durable employment, sufficient income as well as decent living and working conditions for smallholder farmers and rural populations.

9. The FAO has developed a standard methodology to assess disaster damage and loss in agriculture, which can be applied in different country/regional contexts, and can consider all agricultural subsectors (crops, livestock, apiculture, forestry, aquaculture and fisheries) and their specificities. Furthermore, it is geared towards measuring the effects of a broad range of disasters of different type, duration or severity – from large-scale shocks to small and medium-scale events, from sudden-onset to slow-onset disasters with a cumulative impact.

10. The proposed project will aim to address common challenges to better assess climate impacts and how these will affect local economies and livelihoods using FAO's loss and damage methodology as an active adaptive planning and evaluation tool for coastal communities. The aim will also be to restore critical ecosystems to enhance their capacity to provide a variety of services to coastal settlements including coastal protection and disaster risk reduction, and to support resilient livelihoods and favor local food security.

11. Ecosystem protection and rehabilitation, capacity building to collect information on risks and disasters, facilitating collaboration and informing decision making are the key pillars of this project. The former aims to recover the ecosystem's functionality to provide protection and regulation services and the latter to ensure its sustainability and continuity.

12. Moreover, bilateral cooperation mechanisms will be formalized by the project to allow for knowledge sharing and facilitate the upscaling of lessons learned in both countries, including incorporating baselines and analysis in national and regional databases through similar approaches to allow for upscale within the larger Wider Caribbean context. This will allow the project to bring innovations in accounting for concrete local resilience measures (such as the implementation of NbS and the use of technologies/techniques for resilient agriculture) to reduce loss and better evaluate resilient capacity that is both measurable and accountable.

13. **Target areas.** Project activities will be implemented in coastal municipalities located along the Caribbean Sea littoral, that are particularly vulnerable to current and projected climate hazards, especially coastal flooding due to SLR and high level of exposure to frequent storms. In Cuba, the project will be implemented in the municipalities of Consolación del Sur, San Cristobal, Batabanó, La Sierpe and Baracoa, located along the southern and eastern coastlines of the country (see Figure 2a). In Panama, the project will be implemented within the municipalities of Santa Isabel, Portobelo, Chagres and Donoso (see Figure 2b) (all belonging to the Colon province located along the Western Caribbean Region of Panama). The project will adopt an inclusive approach that pays particular attention to vulnerable populations notably women and minority groups who face differentiated needs and conditions to climate adaptation.

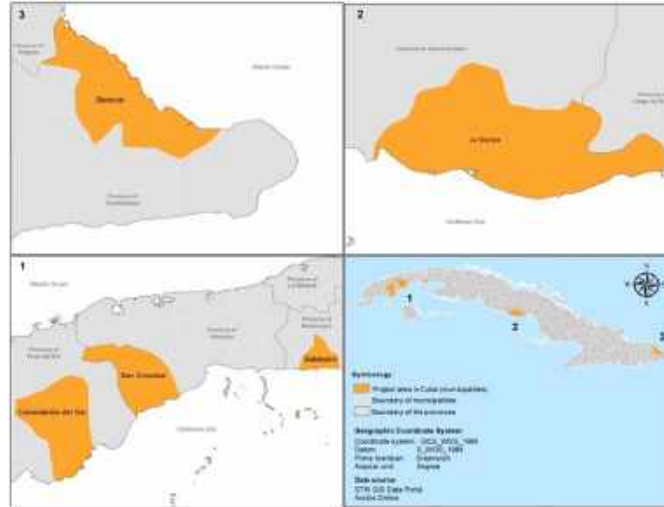


Figure 2a. Target areas in Cuba



Figure 2b. Target areas in Panama

Climate Change in Cuba: Observed Trends and Projected Impacts

14. Located in the western Caribbean Sea, Cuba is one of the largest Small Island Development States (SIDS), located at the entry of the Gulf of Mexico it is on the path of frequent tropical storms. The population of Cuba stands at 11.5 million people⁵, of which approximately 57% of the population lives in coastal municipalities⁶.

15. Cuba's irregular coastline extends for 6,073 km with its Northern coastline being characterized by deep harbors, coral lowlands, and sandy beaches and its Southern coastline featuring coral islands, reefs and salt marshes. The island of Cuba is 1,250 km long with its widest part measuring 191 km and its narrowest 31 km, hence it can be concluded that in Cuba one is never far off from the coast. Over the past ten years, Cuba has been hit by 11 hurricanes of large magnitude that have severely damaged infrastructure, housing and communications (PNUD, 2020).

⁵ UNHabitat Cuba, 2018

⁶ UNDP/GCF Project: Coastal Resilience to Climate Change in Cuba through Ecosystem Based Adaptation - "MI COSTA"

16. **Socio-Economic Vulnerability.** About 74.3% of the Cuban population is concentrated in 570 urban settlements, while 25.7% live in 6, 264 rural settlements. Most of the rural population relies on primary sectors activities for their livelihoods. These include agriculture, livestock, forestry and fishing, which together represent 17.8% of the economically active population.

17. An important part of the Cuban population lives along coastal areas making them highly vulnerable to climate impacts from extreme weather and SLR. Most of these coastal communities, particularly rural ones, have a narrow economic base dependent largely on artisanal fishing, basic services and tourism; in addition, many members of coastal communities are involved in agriculture and livestock raising in neighboring areas due to limited employment opportunities in their own areas. Coastal communities have been affected by decreasing employment opportunities due to the decline of the fisheries sector, the degradation of productive infrastructure as a result of extreme climatic events and most recently a decrease in tourism activity due to a lengthy shutdown during the COVID-19.

18. **Agriculture and Food security.** Food security is also vulnerable as Cuba relies heavily on food imports. The Government has declared food and nutrition security a strategic national objective and a pivotal element of its social and economic policies. Food shortages are due to insufficient agricultural production, which is linked to the country's unique situation as the only socialist planned economy in the region. The decades-long embargo to which it has been subjected has made it difficult for Cuba to access basic agricultural equipment and inputs. In Cuba, currently only 2.6 million out of 6.3 million hectares of cultivable land are in use⁷. As a result, the country is currently importing around 80 per cent of its food requirements. The government has placed a high emphasis on increasing agricultural production as part of its social and development planning to reduce its high reliance on food imports. The main agricultural products produced by Cuba include sugar cane, citrus and other fruits, rice, beans, bananas, tobacco, coconut, coffee and cocoa (particularly in the Baracoa region).

19. **Gender.** In 2021, Cuba ranked seventh on the Gender Gap Index among 26 Latin American countries. Its index is 0.746. Among the areas analyzed by the index, the largest gap occurs in Political Empowerment (0.38) and in second place in Economic Participation and Opportunity (0.63). In the areas of health and education there are no gaps between men and women⁸. However, the gaps in these two areas are smaller than those existing worldwide. Women have made considerable progress in several aspects: occupying 53% of the seats held by in the National Assembly of People's Power (ANPP), the highest legislative body in the country, account for 60% of all higher degree graduates and 67.2% of technicians and professionals nationwide and 53.5 of the workforce associated with the Science, Innovation and Technology system.⁹ However, despite these positive indicators, the gender gap persists, especially in rural areas and agriculture. Women represent only 18 percent of members of agricultural cooperatives¹⁰. Furthermore, the National Survey on Gender Equality stated that women still carry out most household tasks, including childcare and caretaking of the elderly. Consequently, women spend 14 more hours than men per week carrying out non-paid work at home¹¹. Further, while agrarian laws declare the equal right to land for both genders, in practice many more men own land than women, as well as participate in cooperatives and hold managerial positions in local cooperatives.

20. **Geography.** The country has a distinct orography that includes extensive low land and coastal plains and mountainous inland territories. Mountains are concentrated along a longitudinal axis of the country and play a fundamental role in its climatic characteristics. Plains represent 82% of the total area of the country, these include typical coastal and river plains; the lowest zones correspond to marshes, both coastal and inland. The geographical characteristics of the archipelago determine the direct relation between fresh and salty waters. Of particular significance for the management of water resources is the

⁷ [Oficina Nacional de Estadística e Información \[ONEI\]](#)

⁸ [World Economic Forum. 2021. Global Gender Gap Report 2021.](#)

⁹ [Oficina Nacional de Estadística e Información \[ONEI\]](#)

¹⁰ [Anuario Estadístico de Cuba 2019, Capítulo 7: Empleo y Salarios \(2020\)
 Http://www.onei.gob.cu/sites/default/files/07_empleo_y_salario_2019_sitio_0.pdf](#)

¹¹ [National Survey on Gender Equality \(2016\) was conducted by the Women's Studies Centre from the Federation of Cuban Women and the Centre for Population and Development from the National Statistical and Information Office.
 http://www.onei.gob.cu/node/14271](#)

existence of a watershed boundary that runs through the main island's longitudinal axis. This watershed fosters the formation of small basins with karst being predominant in deep aquifers; in many of them the karst develops from the surface of limestone massifs under which these aquifers lie.

21. **Biodiversity and Ecosystems.** The coastal diversity in geomorphology and spatial distribution is responsible for the great biological diversity of the Cuban coastal fringe. The main coastal ecosystems on the Island of Cuba are cays (of sandy and reef origin), coral reefs, sandy or silt beaches in the cays or on the mainland, respectively, seagrass beds, mangroves and swamp forests and swamp grasslands. Mangrove forests are present in over 50% of the national coastline with an extension of 5.1% of the country's surface area and account for 20% of the national forest surface area. Mangroves provide valuable services to the coastal areas in water management, including infiltration and purification, and provide buffering protection from hurricane winds and storm surge. Cuba's geographical characteristics and its marine and coastal ecosystems conservation status represent an optimal opportunity for the implementation of NbS and Ecosystem-based Adaptation (EbA),¹² an approach that has been favored in Cuba's State Plan "Tarea Vida" adopted by the Cuban government in April 2017 to address climate change in the Cuban national territory through adaptation and mitigation measures. A recent completed project funded by the Adaptation Fund in the areas of Artemisa and Mayabeque, demonstrated the role of mangroves in sediment retention and coastal stabilization as well as in reducing general salinity rates within target areas.¹³

22. Anthropogenic pressures and poor physical planning have contributed to the degradation of mangrove forests, particularly along mangrove coastal edges, resulting in flooding along the coastline and saltwater intrusion in groundwater aquifers. Mangrove loss due to coastal development continues to be a major threat in Cuba¹⁴ especially given the anticipated future increases in coastal tourism and tourism-related infrastructure development along the coastline that could further degrade mangroves.¹⁵

23. Relative isolation from human influence helps make Cuba's coral reefs among the most diverse and best preserved in the Caribbean. Coral reefs surround >95% of Cuba's insular shelf, extending approximately 3,966 km. The continental shelf is 2,150 km long on the North coast and 1,816 km on the South. Inshore patch reefs are dispersed in the western Gulf of Guanahacabibes and the Gulf of Batabanó, as well as on the Eastern Gulf of Ana María-Guacanayabo. Reefs, however, have started showing signs of bleaching and degradation due to increased acidification resulting from climate change and other anthropogenic pressures. This impacts the capacity of corals reefs to provide food and livelihoods, sequester carbon and serve as a buffer against extreme climate events increasing coastal risks and the cost of coastal protection and adaptation.

24. A study by ECLAC with the support of the University of Cantabria, estimated that Cuba's coral reefs protect an average of 8,042 people every year, avoiding more than US\$ 401 million in economic losses and reducing flooded areas by 76 km², or the equivalent of around 15,000 football pitches¹⁶. Furthermore, when applied to sporadic extreme weather events, such as a tropical cyclone with a 10-year return period, reefs protect a coastal fringe of 1,398 km² from flooding, thus preventing an estimated 5 billion in physical damages.¹⁷

25. **Climate.** Cuba's climate is tropical, seasonally humid, with maritime influence and semi-continental features. The mean annual air temperature varies from 26°C in the plains to 24°C in the mountainous areas. The average maximum temperature fluctuates between 27°C and 32°C, and the average minimum

¹² Ecosystem-based Adaptation (EbA), also referred to as Nature-based Solutions for Adaptation, harnesses biodiversity and ecosystem services to reduce vulnerability and build resilience to climate change. It involves a wide range of ecosystem management activities, such as the sustainable management of forests, grasslands, and wetlands, that increase the resilience and reduce the vulnerability of people and the environment to climate change.

¹³ UNDP/Adaptation Fund Project: [Reduction of Vulnerability to Coastal Flooding through Ecosystem-based Adaptation in the South of Artemisa and Mayabeque Provinces](#)

¹⁴ Menendez Carrera, 2013

¹⁵ Spalding et al. 2010; Suman, 2013; Lugo et al., 2014.

¹⁶ ECLAC (2018). [The effects of climate change in the coastal areas of Latin America and the Caribbean: evaluation of systems for protecting corals and mangroves in Cuba.](#)

¹⁷ Ibid

temperature between 17°C and 23°C (Insmet, 2018). The island's tropical climate is moderated by trade winds and the surrounding waters; however, the warm temperatures of the Caribbean Sea and the fact that Cuba itself almost completely blocks access to the Gulf of Mexico, makes Cuba prone to frequent hurricanes (see Figure 3).

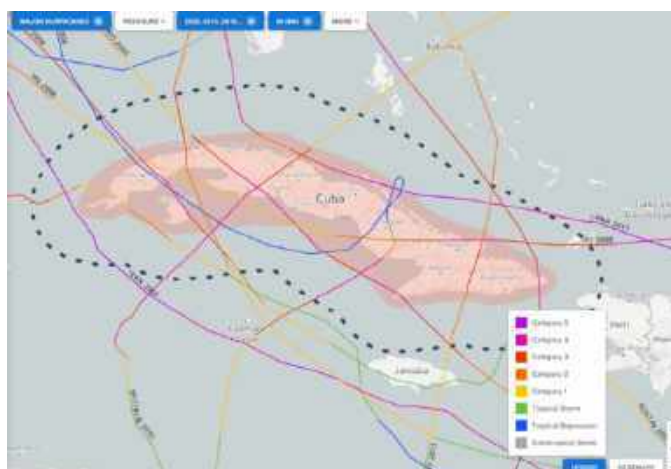


Figure 3. Hurricane categories 1 to 5 trajectories over Cuba 1990-2022.
Source: <https://coast.noaa.gov/hurricanes>

26. **Climate Change.** Like the rest of the Caribbean, Cuba is suffering from longer droughts, warmer waters, more intense storms, and higher sea levels because of climate change. CC will have profound effects in Cuba, particularly in terms of water availability, increased vulnerability to extreme weather, coastal erosion and retreat, changes in agricultural and primary production patterns and crop viability and changes in critical ecosystems that currently provide valuable ecosystem services, such as water filtration and buffering capacity. Meteorological observations have identified that the past three decades have been warmer than previous ones. In addition, while stable precipitation rates have been observed over the last decades, associated increases in potential evapotranspiration could further lead to more frequent severe droughts.¹⁸ Shifts in temperature and precipitation patterns may also alter the total length of crop cycles affecting crop yields in basic staple crops such as rice and potatoes, while also having an impact in the reduction of agricultural areas lands due to water shortages for irrigation, increased salinization and soil degradation.

27. *Increased Temperature.* The most recent evaluation of climatic variation and change in Cuba, carried out by the Meteorological Institute, provides observation-based evidence which clearly indicates that the climate in Cuba has become warmer¹⁹. Since the middle of the last century, the median annual temperature has increased by almost 0.9°C (Figure 4). Regional Climate Modelling, including the use of a large multi-parameter ensemble, suggests that by the end of the 21st century, the climate in Cuba will be 1.0 °C and 3.5 °C warmer for the periods 2030 and 2070, respectively.

¹⁸ [The World Bank Group. Climate Change Knowledge Portal. Climate data. Projections. https://climateknowledgeportal.worldbank.org/cuba/climate-data-projections?variable=pr](https://climateknowledgeportal.worldbank.org/cuba/climate-data-projections?variable=pr)

¹⁹ Pérez Suárez, R., C. Fonseca, B. Lapinel, C. González, E. Planos, V. Cutié, M. Ballester, M. Limia and R. Vega (2009): "Segunda evaluación de las variaciones y tendencias del clima en Cuba". Informe científico. Instituto de Meteorología. La Habana, 75 pp."

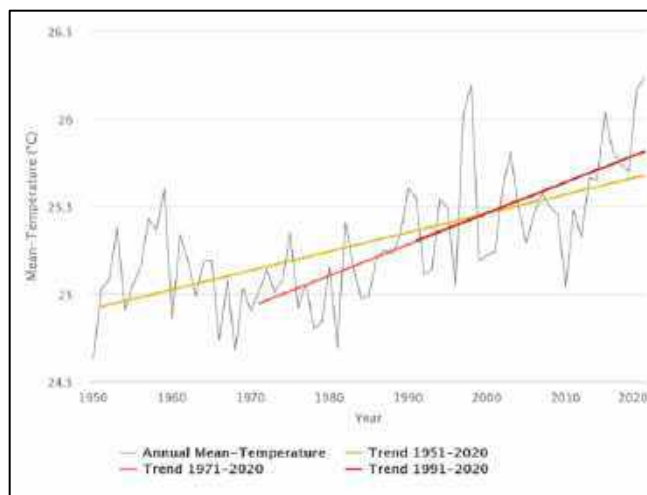


Figure 4. Mean temperature annual trends per decade for Cuba, 1950-2020.

Source: The World Bank.

28. Coastal Flooding and Sea Level Rise. Cuba experiences moderate to strong coastal flooding caused by SLR (meteorological tides, cyclones, cold fronts, extratropical losses, and southern winds) and periods of intense rainfall. SLR constitutes an immediate and growing future danger for the Cuban coast, where an increase of 6.77 cm of sea level was reported from 1966 to 2017²⁰, and over the period of 1996-2016, 12 flood events occurred affecting 134,957 people²¹. Future climate projections indicate that mean SLR may reach up to 29 centimeters in 2050, and 95 centimeters in 2100²² and 119 coastal settlements are projected to be at extreme risk from climate change by 2050 while 21 are predicted to disappear altogether by 2100²³. An increase in the magnitude of extreme events and increasing SLR will accelerate erosion related to natural processes, which currently averages 1.2 m/year (calculated between 1956-2002).²⁴ This will result in a gradual but continuous reduction of large low land coastal plains; as well as the gradual salinization of inland aquifers due to the seawater intrusion.

29. Figure 5 shows the spatial distribution of the flood level produced by hurricanes observed during the period of 1955-2009. According to projections, flooding of coastal areas due to the impact of SLR will result in the flooding of 537,000 ha of forest land and 32,000 ha of active agricultural zones. Salinization will have significant impacts on soil agro-productivity, including estimated accumulated losses of 40,000 tonnes in harvests of fundamental crops (rice and sugar cane) and other various staple crops (tubers and roots), thus putting at risk the food security not only of the most vulnerable coastal communities,²⁵ but also of the island as a whole.

²⁰ Pérez, P.R. Rise of the average sea level in Cuba by climate change. Cuba J. Meteorol. 2019, 25, 76–83.

²¹ EM-DAT: The Emergency Events Database - Université catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium

²² Ibid, 2019

²³ GCCA. (2019). [Natural solutions for extreme weather events](#), 26 July 2019.

²⁴ Hernández-Zanuy, A.C., E. Tristán, M. Guerra, R.T. Capote, M. Martínez, M. Hernández, P.M. Alcolado Menéndez, S. Lorenzo, L. PeñaFuente, M. Esquivel y M. Sosa. 2006. Rehabilitación ecológica del tramo de costa comprendido entre Surgidero de Batabanó y Mayabeque, costa sur de la Provincia de La Habana. Informe Final de Proyecto de Programa Ramal de Protección de Medio Ambiente y Desarrollo Sostenible

²⁵ Idem



Figure 5. Spatial distribution of the maximum significant wave height produced by hurricanes observed in the period 1955-2009.

Source: ECLAC-IHCantabria.

30. SLR is aggravated by the impact of extreme storms that result in coastal flooding due to storm surges and peak astronomic tides. Between 2001-2017, the country has been affected by 12 hurricanes, 10 of which have been Categories 4 and 5. This trend is likely to intensify in the coming decades, as seen through the increase in intense storms observed across the Atlantic and related to the high temperatures observed in the Caribbean since 1998. Data from the National Office of Statistics and Information of Cuba²⁶ and quoted within Cuba's Nationally Determined Contributions (NDC), have shown that hurricanes and extreme weather events in Cuba have a great economic impact with losses from hurricanes in the period of 1998-2008 amounting to over USD20.5 billion in damages.

31. If these projections are maintained, it is estimated that the land surface that would be permanently submerged by 2050 would cover an estimated area of 2,691.47 km² equivalent to 2.4% of the national territory. With the same tendency, this could reach, by 2100, to 6,371.05 km² (5.8% of the territory).²⁷ These projections show that by 2050, some 14 human settlements could disappear and 41,310 people could be displaced. These estimates could be higher when compounded by the impact of surface water warming on the speed of storms and resulting increased wave heights in the Caribbean²⁸. Under this scenario, storms could be more frequent and move at a slower pace thus increasing the impact on island states such as Cuba.

32. Sea level is rising and causing coastal erosion and saline intrusion with effects on livelihoods, ecosystems, infrastructure, coastal communities and the salinization of aquifers thus aggravating the problem of water availability. Vulnerability maps that include water quality along the national hydrological network, estimate that there are currently 574 human settlements vulnerable to saline intrusion in the coastal aquifers of the archipelago.²⁹ The area of Los Morros (target area of the project) constitutes to one of the five points of the archipelago where SLR has been more evident in regular tidal measurements over the last five years, given its low elevation. As for the salinization of aquifers due to sea water intrusion, it is particularly evident in the South Zone of Pinar del Río-Artemisa - Mayabeque in Cuba, also located along the Southern Cuban Coastline.³⁰

²⁶ Página Oficial de la Oficina Nacional de Estadísticas e Información de la República de Cuba (ONEI).

²⁷ CITMA (2020). Third National Communication of the Government of Cuba to the UNFCCC

²⁸ Reguero, B.G., et al. (2019). A recent increase in global wave power as a consequence of oceanic warming. *Nat Commun* 10, 205

²⁹ Iturralde-Vinent, Manuel & Méndez, Herminia & autores, Colectivo. (2016). Peligros y vulnerabilidades de la zona marino-costera de Cuba: estado actual y perspectivas ante el cambio climático hasta el 2100.

³⁰ Idem

33. Precipitation Pattern Changes and Severe Drought: The average annual rainfall of Cuba for the period 1961-2000, was 1335 mm. This represents a reduction of over 38,100 million m³ with respect to the previously reported average annual rainfall of 1375 mm. However, a stable pattern of precipitation has been registered over the last decades with multi-year variation of precipitation anomalies over the period 1961-2017, reflecting a slight increasing trend in recent decades, although not statistically significant. In the dry season, despite the predominance of negative anomalies in recent years, the overall trend has also been observed, though not statistically significant.³¹ Projections, however, do indicate a general reduction in rainfall by 2070, with an average reduction in relative humidity between 2% and 6% by 2030 and 2070, respectively. Reduced rainfall is expected to occur during the rainy season in the summer. These changes coincide with an expected increase in wind velocity and a significant increase of potential evapotranspiration, suggesting a drier climate in the future.

34. The three most significant and severe drought events occurred during the periods of 2003-2005; 2009-2010 and 2014-2015. These events took place mainly in the Eastern Region and in some municipalities of the Central Region. The increased frequency of such events indicate that severe droughts periods may become more frequent thus having a significant impact on populations and ecosystems along Cuba's Eastern Region (where the project target area of Baracoa is located). The drought event of 2003-2005 has been one of the most critical meteorological events in Cuba in the past century, while it threatened the livelihoods of more than two million people (17% of the entire population) and with dramatic impacts on agricultural production. It also facilitated the invasion and spread of alien species in ecosystems, such as the sickle bushes (*Dichrostrachys cinerea*).³²

35. To assess risk and vulnerability to CC of the Cuban coastline, the GoC invested in a national coastline assessment of natural ecosystem protection from projected SLR and storm surge. The assessment identified coastal stretches with immediate risk and high potential for Ecosystem-Based Adaptation (EbA) actions related to coastal resilience. Target municipalities prioritized through this project are located in coastal stretches V (Baracoa), X (La Sierpe) and XII (Los Consolación del Sur, San Cristobal and Batabanó) as shown in Figure 6.

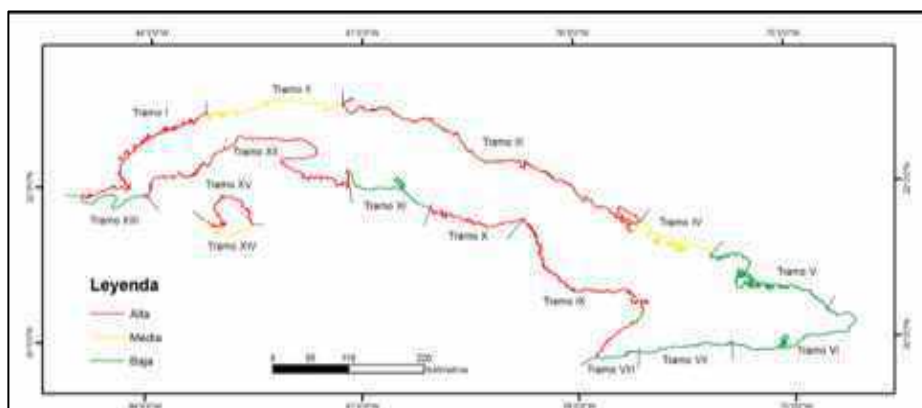


Figure 6. Coastal Vulnerability to SLR and Associated Events (Red High; Yellow Medium and Green Low)

Source: The Nature Conservancy.

36. High vulnerability coastlines have been identified as those located in low lying coasts where coastal flooding is common and where coastal ecosystems have been degraded. This is the case for the municipalities of Consolación del Sur, San Cristobal, Batabanó and La Sierpe.

³¹ CITMA (2020). Third National Communication of the Government of Cuba to the UNFCCC

³² Somoza J., De la Colina A.: Estudio de Línea Base de Adaptación y Vulnerabilidad para el Proyecto IRES FAO. La Habana, Cuba, 2018. (Appendix 4)

37. These southern coastlines are characterized by being low, subsident, swampy, cumulative and deltaic coasts hence highly prone to coastal flooding due to their low-lying nature. The municipalities have extensive areas of mangrove and flooded forest as well as a series of salt marshes (San Cristobal) and coastal lagoons of estuarine conditions (brackish) that are vital for many species. The municipalities of Consolación del Sur, San Cristobal and Batabanó hold important hydrological systems, which are important sources of water supply for human populations, such as the hydrographic basin of the Guama River.

38. The area also houses various coastal aquifers that have begun to be affected by saline intrusion. For example, in the areas around Consolación del Sur and San Cristobal, a study developed on the hydrographic basin has indicated that the salinity line (1 gram/l of salts) has advanced in depth. Studies on coastal vulnerability rates indicate that marine intrusion along this coastline as a result of SLR and associated events could reach an average of 8.1 kms inland and a maximum of 47.2 kms in the case of a category 5 hurricane. Various communities have begun to feel the impacts of coastal erosion with some beaches along Batabanó having disappeared.³³

39. These areas are also highly vulnerable to extreme storms. Hurricanes Lili (1996), Irene (1999) and Michelle (2001) produced extreme waves that hit the keys around Batabanó, and Hurricane Gustav (August 30, 2008) caused damage by high storm waves on the Southern coast of the municipality of San Cristóbal with penetrations of up to 5 km and wave heights in the Batabanó Gulf of 2.0 m to 2.5 m and sea water intrusion up to 2 km. Hurricane Charley (August 13, 2004) also produced damage by storm waves in the municipalities of Batabanó, temporarily flooding areas up to 2.0 km inland. Hurricane Irene (October 15, 1999) also affected the municipality of Batabanó with sea water flooding up to 1.5 km inland. More recently Hurricane Ian (September 2022), lashed the western region of the country, with sustained winds of more than 200 km/h, significant storm surge and coastal flooding. The impact of the hurricane left a trail of destruction as it crossed the country. Upon making landfall, Ian was classified as a category 4 hurricane on the Saffir-Simpson scale, with a diameter spanning 600 km.

40. Mangroves in these areas have deteriorated due to anthropogenic impacts including extensive and unsustainable fishing practices as well as agricultural pollution and direct uses of mangrove by the population. The impact on mangrove forests has in turn negatively impacted fishing-dependent livelihoods, as fish stocks have been reduced. Only some industrial and livelihood-based fishing remains in Batabanó. Artisanal oyster production has also been identified as source of local livelihoods with high potential. The elimination of mangrove has represented the loss of important natural barriers, thus further facilitating coastal erosion and marine intrusion into agricultural productive areas. Rice, root vegetables and banana production are significant in the target areas, with Pinar del Rio being among the most productive agricultural areas in the country³⁴. A positive example, however, can be found in the outcomes of a prior Adaptation Fund project implemented near the area of Batabanó, that demonstrated the protective role of mangrove restoration in coastal stability and the recuperation of the coastline, thus evidencing the positive transformational role of nature-based solutions.

41. In the case of Baracoa coastal stretch, coastal vulnerability is categorized as low. Yet, the municipality of Baracoa is located in an area highly exposed to progressive SLR and to wave impacts, hence it has been prioritized within the Government's State Plan "Tarea Vida". The Baracoa coastline lies within a region vulnerable to coastal flooding by meteorological waves during the occurrence of tropical storms and hurricanes. Hurricane Ike (September 7, 2008) caused severe flooding in the municipality as a result of extreme meteorological waves of more than 6 meters height that affected the city of Baracoa and surrounding areas. More recently, Hurricane Matthew (October 2016) severely hit Baracoa, where 90-95% of homes and structures were severely damaged and approximately half were destroyed leaving many homeless.

42. About 95% of the total area of the municipality features small and low mountains. The remaining 5% is made up of a small coastal strip 2 km wide. The coast along Baracoa is bordered by a mountainous system, with a dense fluvial network that disseminate land-generated pollutants through runoff into the sea

³³ CITMA (2020). Third National Communication of the Government of Cuba to the UNFCCC

³⁴ Sánchez, Y (2020). Producción de alimentos prioridad para Consolación del Sur. Telepinar

from agriculture (Coffee, Cocoa and Coconut) and livestock. Such sediments and organic pollutant not only affect mangroves but also reefs that lie close to the coastline.

43. The municipality includes Alejandro de Humboldt National Park that has an extensive mangrove forest that constitutes an important natural barrier, as well as being the habitat of many estuarine, and the nursery area for many marine species. The insular platform along the coastline is narrow and fringed by coralline ridges, with a few keys and some bays that provide protection from intense wave activity. The stretch is particularly vulnerable, due to its exposure to trade winds and high impact waves.

44. SLR predictions are particularly alarming for the rest of the next century in the project target stretches (see Figure 7) and will have considerable effects as projected by 2100 in coastal and urbanized areas resulting in loss of land, homes, networks, infrastructure and displacing people. Infrastructure damage is expected due to insufficient coastal protection against extreme hydrometeorological events. Incremental impacts are also anticipated on coastal ecosystems and erosion of sandy beaches affecting the availability and quality of water and food security.

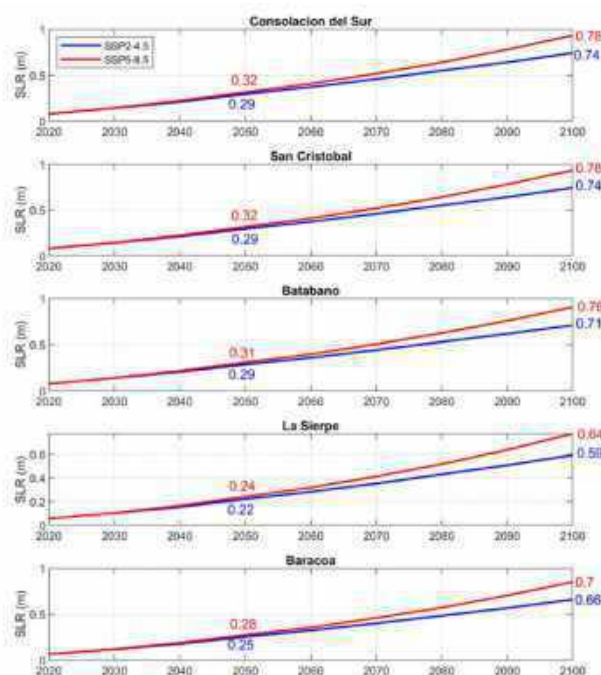


Figure 7. Projected SLR for Target Stretches in Cuba using SSP2-4.5 and SSP5-8.5 using IPCC, AR6, 2021.

Source: Report for the Preparation of the Project prepared by Iñigo J. Losada Rodríguez.

Climate change in Panama: observed trends and projected impacts

45. The Republic of Panama has an extension of 75,420 km² and is home to 4.2 million inhabitants. The country is divided into 10 provinces and 81 municipalities. It is bordered by coastlines along the Pacific to the West and the Caribbean Sea to the East. Its coast extends for 2,988.3 km, of which 1,287.7 km are on the Caribbean and 1,700.6 km on the Pacific. Hence, Panama has the highest coast/area ratio among the continental countries of Latin America. Based on its coastal exposure, it ranks 14th among the countries mostly exposed to multiple natural hazards, in relation to its land surface area. 15% of its total area and 12.5% of its total population are vulnerable to two or more hazards.

46. **Geography:** The country is predominantly mountainous with coastal plains chiefly on the Pacific side. The bulk of the territory is made up of lowlands that have resulted from the erosion of the mountain ranges. The Central Cordillera extends throughout the Isthmian territory, from the border with Costa Rica

on the North, to the border with Colombia on the South, dividing the country into two physiographic regions: the Pacific (the most extensive one) and the Caribbean. 70% of the national territory is occupied by lowlands and hills located at less than 700 m above sea level and is made up of the extensive plains of Chiriquí, Veraguas, the Azuero Peninsula, Coclé and the coastal plains of the Caribbean. The remaining 30% corresponds to lands above 700 m above sea level, which include the central mountain range.

47. **Biodiversity and Ecosystems:** Panama is considered one of the most biologically diverse countries in the world, and more than 12 percent of Panama's landmass is protected. Panama boasts a high biodiversity (ranks 10th worldwide considering its size). Over 65% of its territory is occupied by primary forests, placing it amongst the countries with the highest percentage of forest coverage. Panamanian coasts are also among the most diverse in Central America, with a variety of marine ecosystems that includes mangroves, estuaries, sandy shores and 76 different types of coral species, 58 of which dwell on the Caribbean. These ecosystems provide an important protection from storms and coastal tides as well as other ecosystem services to coastal communities. Such ecosystems and their resources, however, face increasing anthropogenic pressures including pollution (only 56% of households have access to a full drainage system with important regional disparities) and poor physical planning with increased construction along sensitive coastal areas.³⁵

48. **Climate:** Panama's climate is tropical in nature with average annual temperatures ranging from 23-27°C in coastal and inland regions. However, temperatures can drop to 16°C at higher altitudes. Considering its geographical tropical position, historical temperature values reflect thermal uniformity among the different months of the year and locations within the country, with elevation being the principal factor for temperature differences.³⁶ The country receives a large amount of rainfall with marked variations between its two physiographic regions (Pacific and Caribbean). Along the Caribbean, average rainfall is 3,000 mm per year, with no marked dry season, whereas on the Pacific, rainfall averages 1,500 mm per year, with a very marked dry season from December through March.³⁷

49. The country is particularly prone to climate variability with rainfall and temperature patterns being modified with sudden changes from year to year. The impact from El Niño-Southern Oscillation (ENSO) in both its warm and cold phase (La Niña) influences precipitation patterns according to its intensity. Impacts and modification of these climate patterns have an important effect on both the communities and economy of Panama. According to statistical and meteorological records, since 2004 an increase in the frequency of extreme events has been observed in the country, with hydro-meteorological events having affected mainly ecosystems and vulnerable populations.³⁸

50. **Socio-Economic Vulnerability:** In 2021 Panama ranked 61th (out of 189 countries) in the Human Development Index³⁹, placing it amongst the highest in the LAC region. While it has progressed in reducing poverty, the country remains highly unequal with marked differences between urban and rural populations, thus making rural areas highly vulnerable. The rural population accounts for 31% of the national population with poverty rates estimated at nearly 42.7% versus 12.0% of poverty rates in urban areas. In 2020, poverty increased to 14.1 percent, 2 percentage points above 2019 poverty levels. The poverty rate (\$6.85 2017 PPP) for indigenous peoples in 2019 was 6.8 times higher than that of non-indigenous people⁴⁰. Economic vulnerability in rural areas can be attributed to climate vulnerable livelihoods such as fishing and agriculture ones, with extreme natural phenomena such as El Niño, tropical storms, hurricanes and droughts.

³⁵ International Organization Forest of the World (n/d). *Forest of the World in Panama*. May 2021. Website: <https://www.forestsoftheworld.org/programme/panama>

³⁶ Global Water partnership (2011). *Actions 2011: GWP in Central America, Working together for a sustainable water management*. March, 2021. Website: https://www.gwp.org/globalassets/global/gwp-cam_files/acciones2011.pdf

³⁷ Global Water Partnership (2015)

³⁸ Government of Panama (2017). Adaptation Fund project: "Adapting to Climate Change through integrated water management in Panama. March 2021. Website: <https://pubdocs.worldbank.org/en/648441532335502221/3059-FN-REQUEST-FOR-PROJECT-January-2017-VF-VC-clean-6feb-17.pdf>

³⁹ UNDP. Human Development Report 2022

⁴⁰ [Word Bank in Panamá. Panama: general overview.](#), last updated April 2023.

51. Rural economies are mainly dependent on the primary sector as a main source of employment, accounting for 14.4% of the employment at national level, despite its limited contribution to the national economy (2.7% of GDP). Most primary producers in Panama are men (72%), however, nearly three out of every 10 workers in the sector (28%) are women⁴¹. According to FAO, over 63% of producers in Panama are reliant on family agriculture, and this accounts for 70% of all the rural livelihoods of the country.⁴² Fishing is also an important activity not only for community livelihoods but also in valuable exports that generated 128 million USD in 2019.⁴³ The majority of all fishing exports (commercial fishing) takes place in the Pacific area with the Caribbean area being mainly focused on artisanal fishing for the local market.

52. **Gender and Indigenous Population:** Women represent 49.8% of the population and the indigenous population makes up 12.3%⁴⁴. Women and indigenous population, particularly those residing in rural areas, have been identified by the Government of Panama as especially vulnerable to CC due their reduced capacity for adaptation that can be attributed to low participation in decision making, high poverty levels, high underemployment, reduced income levels and reduced access to economic assets that are important for primary production such as land.⁴⁵ Only 32% of women primary workers have access to land and 31% do not have a proper title of ownership⁴⁶. The majority (65%) have properties smaller than 0.5 ha while only 33% of men are in that situation. Despite being linked to the land, their access to production services such as technical assistance and credit is almost nil. These inequalities suggest a situation of feminization of poverty⁴⁷ Panama's Gender Inequality Index averages at 74.3 indicating a high level of gender inequality in the country⁴⁸, particularly as it relates to indigenous women whose gender inequality rate is 0.87 vs the country's 0.58 for non- indigenous areas. This pronounced difference can also be attributed to extremely high levels of multidimensional poverty for indigenous women: 93.7% of the Gunas women, 89.8% of the Ngäbe Buglé women and 70.9% of the Embera women have been classified as poor.⁴⁹ Young people are the most affected by unemployment in Panamá, reaching 28.9%⁵⁰.

53. **Climate Change in Panama:** According to the National Climate Change Strategy 2050, the main effects associated with CC include risks from SLR and extreme hydro-meteorological events. These impacts will result in flooding of coastal plains of both littorals as well as from extreme precipitation events particularly along the Caribbean Central and Eastern Regions (Figure 8). Coastal risk modelling tools suggest flood scenarios in 2050 for critical areas of the canal operation in Panama City as well as for other areas of the country.



Figure 8: National Climate Change Scenarios 2050 for Panama's six climatic regions (Dark green and blue: negative or lower precipitations; Orange: increase in precipitations between 5-40%; Purple: more humid conditions; Light green: more humid conditions).

⁴¹ INE. Encuesta de propósitos múltiples. Abril 2022

⁴² FAO (2019). *Family Farm Review*. June 2021. Website: <http://www.fao.org/3/cb4184es/cb4184es.pdf>

⁴³ SICA, 2021

⁴⁴ Ministry of Environment (2020). Nationally Determined Contributions. Government of Panama. p21

⁴⁵ UN Women (2020). June 2021. Website: <https://data.unwomen.org/country/panama>

⁴⁶ NEC. *Censo Agropecuario 2010*. Volumen VII. Enfoque de Género. Panamá

⁴⁷ Ministry of Environment (2020). Nationally Determined Contributions. Government of Panama. p23

⁴⁸ WEF. *Global Gender Gap Report*. 2022

⁴⁹ *Ibid* p.23

⁵⁰ INEC. Telephone Labor Market Survey. June 2021

Source: Ministry of the Environment (2019). [National Climate Change Strategy 2050](#)

54. The Panamanian agricultural sector is particularly vulnerable to CC (Figure 9). The recurrence of periods of drought in recent years and the significant losses that they have generated in the agricultural sector (USD100 million losses in the sector only in 2013) have made CC one of the main concerns of the Panamanian agricultural sector. Mapping agricultural vulnerability has indicated national scale vulnerability to CC with the coastline along the Caribbean identified as highly vulnerable.



Figure 9: Agricultural Vulnerability to CC (green lower vulnerability, yellow medium vulnerability, red high vulnerability).

Source: [National Climate Change Strategy 2050](#) (2019)

55. **Coastal Flooding and Sea Level Rise:** Satellite data analysis for the period 1992-2012 indicate an average increase in sea level of 1.8 mm per year, which is equivalent to an increase of 3.65 cm over the 20-year period. Due to the level of exposure, SLR has become a particularly relevant threat to the Western Caribbean region of Panama, especially in Costa Abajo de Colón, located within the municipalities of Donoso and Chagres. According to regional models, the climatic scenarios for the Western Caribbean of Panama rise of the sea level, coastal erosion, marine intrusion and prolonged flooding are expected along the coastal zone.⁵¹ A similar situation occurs in the Central Climatic Region that includes the municipalities of Portobelo and Santa Isabel, whose expected climate impacts include the rise of sea level, an increased recurrence of strong inward winds and prolonged storm-derived flooding with impacts on the rainwater system and port facilities.

56. In Panama, floods are a consequence of high rainfall caused by extreme events and large amounts of sudden precipitation that surpass the natural draining capacity. Moreover, because of the widely scattered mountainous terrain, flash flooding and landslides are increasingly common. On December 8, 2010, the storm La Purísima brought a historic maximum recorded value of precipitation over a 24-hour period in the Panama Canal Watershed of 292 mm and the second record occurred during the passage of Hurricane Otto, in 2016, with 183 mm of accumulated precipitation over a 23-hour period.⁵²

57. Figure 10 shows spatial distribution of the flood level produced by the hurricanes observed in the period 1955-2009. The analysis of the Panamanian coast shows little spatial variability with an approximate value between Santa Isabel and Donoso of up to 1.5 m.

⁵¹ IPCC. (n/d). *Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities*. June 2021, de IPCC Sitio web: <https://www.ipcc.ch/srocc/chapter/chapter-4-sea-level-rise-and-implications-for-low-lying-islands-coasts-and-communities/>

⁵² Ministry of Environment (2019). *Third National Communication of Climate Change of Panamá*. Government of the Republic of Panama. 232 p



Figure 10. Spatial distribution of the flood level produced by hurricanes observed in the period 1955-2009

Source: ECLAC-IHCantabria.

58. **Precipitation Changes:** In the case of Panama, a relative reduction of accumulated precipitation is expected, particularly during the influence of El Niño⁵³. CC scenarios, as demonstrated in the Third National Communication on Climate Change, indicate a significant reduction in precipitation towards different time horizons.

59. While it is not yet possible to gain a clear picture of annual precipitation change due to large model uncertainties, GCM projects changes in national dry season rainfall from -7% to +7% by 2020, -12% to +5% by 2050 and -20% to +9% by 2080. What is clear, however, is that future climate will increase variability and intensity of extreme events. Under one downscaling study (PRECIS), extreme precipitation events (greater than 40 mm per day) are expected to increase by as much as half under the A2 emissions scenario⁵⁴.

60. The districts of Donoso and Chagres, located within the Western Caribbean Climatic Region, will face significant changes based on national climatic scenarios model that indicates negative changes in precipitation accompanied by an increased frequency of meteorological phenomena that will result in increased flooding and landslides. The municipalities of Portobelo and Santa Isabel, located within the dry Central Climatic region, will face increased extreme precipitation events, which will result in increased flooding and landslides similar to those experienced in 2010 during the “La Purisima”⁵⁵.

61. **Increased Temperature:** Climate change scenarios for Panama point to a potential increase in temperature with temperature changes in recent years already showing an increasing trend despite climate variability. In the case of the maximum values, in recent decades, the average value has increased by around 1°C and 2°C in the months of March and April, climatically considered the warmest ones.

62. SLR predictions are particularly alarming for the rest of the next century in the project target stretches (see Figure 11) and will have considerable effects as projected by 2100 in coastal areas resulting in loss of land, homes, networks, infrastructure and displacing people.

⁵³ Ministry of Environment (2019). *Third National Communication of Climate Change of Panamá*. Government of the Republic of Panama. 232 p

⁵⁴ Vulnerability, Risk Reduction, and Adaptation to Climate Change, Panama. Climate Risk and Adaptation Country Profile. World Bank. 15 p

⁵⁵ https://www.prensa.com/impresia/panorama/madre-lluvias_0_3538896143.html

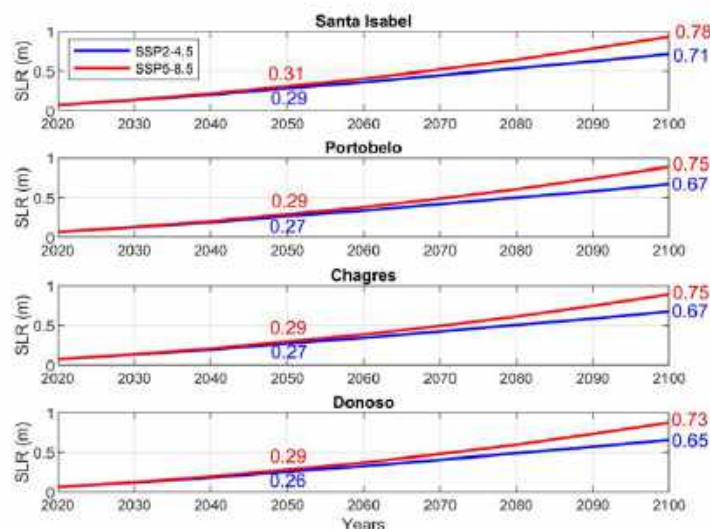


Figure 11. Projected changes in SLR in Target areas in Panama under SSP 2-4.5 and SSP5-8.5 Scenarios.

Source: Report for the Preparation of the Project prepared by Iñigo J. Losada Rodríguez.

63. The Human Development Index (HDI) of the Province of Colón was 0.770, below the country's average. Donoso and Chagres are the municipalities with the highest levels of extreme poverty. The main economy of the province is linked to trade and commerce with 27,500 employments, followed by transportation, warehousing and logistics, which create more than 20,000 jobs associated to operations in the Panama Canal, mostly in the highly urban Colon municipality. There is a high concentration of employment in the service sector and in the more urban districts of Colon (83% of those occupied) and Portobelo (68% of those occupied).

64. However, an estimated 12,041 agro-producers have been identified in the province of Colon per Panama's 2011 Agricultural Census, mainly located in the municipalities of Chagres, Donoso and Santa Isabel where the agricultural sector is the main source of employment (46%, 54% and 31%, respectively). In these rural areas, productive activities are linked to agriculture, livestock, fishing and nature-based tourism (Portobelo and Santa Isabella), all of which are highly climate sensitive. Most agricultural producers are organized through family farms (nearly 50% less than 0.1 ha) that produce three-edged coconut, banana, cacao, lowland coffee and yucca, hence depend on their crops not only as a source of income but also as a pillar of their food security. Nearly a third of all agricultural producers depend on home gardens to complement food security and 63% of farms have stated they have not been beneficiaries of extension information support for their productive activities⁵⁶. Associative capacity in the region is low with only 13 cooperatives identified in the province⁵⁷. Artisanal fishing is also widely practiced, and the main target species include spiny lobster, snapper, grouper, and cherna, which are sold in local markets.⁵⁸

65. These activities depend entirely or partially on natural resources and ecosystems and are the basis of the majority of livelihoods and food security of the population. Fish production depends on wild stocks and hence their abundance and distribution are a result of the natural productivity and the health of marine and estuarine ecosystems, including in mangrove forests located within the target areas. Most small-scale fishing is practiced in such ecosystems. These habitats are highly susceptible to the repercussions of the SLR, especially when unplanned development has affected coastal ecosystems and their function. Due to

⁵⁶ Agricultural Census (2011). INEC.

https://www.inec.gob.pa/publicaciones/Default3.aspx?ID_PUBLICACION=443&ID_CATEGORIA=15&ID_SUBCATEGORIA=60

⁵⁷ Septimo Censo Agropecuario de Panama (2011). <https://www.inec.gob.pa/archivos/P4431Cuadro%2001.pdf>

⁵⁸ Camargo I., Bieberach C., Villalobos A. & Alvarado P.. (2016). The State of biodiversity on food and agriculture in Panama. Panama: s/d

their low mobility, small-scale fishers are often not able to adapt and follow the species that have modified their zones of distribution in response to CC. Some adaptation actions and strategies for artisanal fishermen due to the SLR and to the damage caused by intensifying storms may include EbA measures, such as wetland rehabilitation and improving information systems that integrate and share knowledge from different coastal sectors whereby appropriate strategies are planned.⁵⁹

66. As for the agricultural sector, coconut production is an important source of livelihoods for the coastal population of Donoso. Its harvesting mainly relies on rudimentary methods practiced throughout generations. Consultations with coconut farmers have emphasized the importance of the industry to the local culture and cuisine that is practiced by women in the area. Coconut productivity is sensitive to temperature and precipitation, with extremely high temperatures resulting in reduced pollination/germination rates of the coconut fruit as well as creating favourable conditions for plagues and diseases⁶⁰. In Donoso, the coconut industry has faced recent challenges from reduced coconut prices and productivity losses due to diseases to the coconut tree. To increase coconut production, the Ministry of Agriculture has begun to pilot some agroforestry production with coconut with efforts having to be put on hold as a result of COVID-19 mitigation measures. Consultations with coconut producers have emphasized the importance of the industry to local culture and cuisine as well as identifying a concrete need for greater technical assistance in coconut production.

67. An additional hazard to agricultural development occurred in recent years, is represented by the loss of cultivated areas due to changes in land use and land acquisition by large housing and tourism companies. In the Portobelo municipality, this has further impacted coastal ecosystems and various communities have witnessed the loss of beaches due to rising tides particularly along the areas of Puerto Lindo.⁶¹

68. The Colon Regional Development Plan⁶² includes a food security plan, as well as a number of supporting actions for small rural producers to help them improve their competitiveness and to foster innovation and integration of small-scale and industrial scale producers. A key consideration of the plan is the need to reduce environmental impacts by focusing on an adaptive and resilient agriculture. While a potential for alternative and adapted livelihoods has been identified through improved productive practices (e.g., the promotion of a circular economy for coconut, promotion of apiculture and agroecological systems) and the promotion of new touristic activities such as sports fishing, little investment and knowledge exists at the local producers' level to detonate the major change needed to increase sustainability. In addition, when consulted, communities have indicated the need for the construction of sea walls and hard infrastructure for protection against extreme tides, without consideration of the resulting ecosystem fragmentation nor the alternative for ecosystems-based protection measures.

69. The potential of forest resources in CC adaptation is also a key feature in selected target areas. Over half of the territory in the Colon Province is made up of forests, including protected areas such as Portobelo National Park. Protected areas play a key role in both climate effects mitigation and adaptation and in maintaining essential ecosystem services. Conservation of forests and other relevant ecosystems is one of the crucial adaptation measures that should be regarded as top priority to secure land and water within forested and protected ecosystems.⁶³

70. Mangrove forests are found along the coast of the Colon Province, covering an estimated surface of 466.55 ha and located within protected natural areas (Portobelo National Park), and extend to areas with greater saline influence at the mouths of some rivers (Rio Indio located in Chagres). While the area of

⁵⁹ Daw T., Adger N. & Brown K. (s/d). Consequences of climate change for fisheries and aquaculture: an overview of the current state of scientific knowledge., from United Nation Food and Agriculture Organization website: <http://www.fao.org/3/i0994s/i0994s02.pdf>

⁶⁰ Ranasinghe. Climate Change Impacts on Coconut Production and Potential Adaptation and Mitigation Measures: A Review of Current Status. Proceedings of the Workshop on Present Status of Research Activities on Climate Change Adaptations (Ed. B. Marambe), pp 71-82. Sri Lanka Council for Agricultural Research Policy, Colombo and Ewing Cho. "Climate Smart Coconut Agriculture could be the Caribbean's Tree of Life" *Forbes Magazine*. Nov 17, 2019

⁶¹ Government of the Province of Colon. Management plan of Portobelo National Park 2013-2022

⁶² [Plan de Desarrollo Integral de la Provincia de Colón 2022](#).

⁶³ Ministry of Environment. Climate Vulnerability index of Panama. 2021

Portobelo has maintained healthy mangrove forests, studies have indicated pressure to forest health as a result of anthropogenic pressure, particularly around Punta Farnesio, Playa Blanca and José Pobre. These mangrove areas have been altered mainly due to poor physical planning along the mangrove ecosystem (buildings located along the shoreline).

71. The marine area around Portobelo National Park contains coral reefs with elements of platform and the slope with an almost continuous distribution along the coast. The average depth reached by the reef slope to the sandy bottom is usually around 10 m, although there are small patches at a depth of 15 m. Coral reefs provide important buffering services particularly in areas subject to intense wave energy that is particularly acute during dry season (December-April) due to the influence of north and northeast winds and currents. Degradation and bleaching of corals, particularly around the Bay of Portobelo, have been evidenced and mainly attributed to the strong sedimentation⁶⁴ that may be aggravated as a result of intense rainfall as projected in climate scenarios. Coral reefs have also been affected by overfishing including underwater fishing and the use chlorine for octopus fishing⁶⁵.

Regional similarities and common climate change challenges

72. The fact that both countries face similar climate risks and challenges, calls for a regional approach. The project builds added value through the regional approach because of the extensive opportunities to exchange experiences and data between the two countries, allowing for an enhancement and alignment of practices and collaborative schemes. A regional approach is particularly relevant, given Panama and Cuba's climatic similarities with respect to their coastal vulnerability, their increased exposure to a wide range of CC impacts, and their continued commitment to strengthening their resilience to CC impacts. Common environmental and climate challenges include:

73. **Climate projections are particularly alarming.** Both Panama and Cuba are experiencing progressive SLR (mean sea level rise values are projected between 22 cm and 32 cm by mid-century and between 59 cm and 78 cm by the end of the century in the project target areas⁶⁶), increased in temperatures (1.0 °C to 3.5 °C warmer for the periods 2030 and 2070) and altered precipitation patterns (an increase in the number of consecutive days without precipitation of approximately 20 days under a 3°C warmer scenario).

74. **Climate change will increase variability and intensity of extreme events.** Both countries are located on the path of frequent tropical storms and face growing risks of climatic hazards. For both Caribbean countries, recent research and modelling indicate that climate change is expected to compound the problem by making such disasters more frequent and severe, threatening coastal ecosystems, livelihoods and communities, particularly those mostly vulnerable such as women and indigenous groups. Further storm surges associated with hurricanes will have a greater impact on the coast since, due to the rise in mean sea level, extreme total flood levels are also projected to be higher than in the past.

75. **High coastal density.** In both countries a big share of the population is living in coastal municipalities where a large part of the economic activity is concentrated with large proportion of their population living in high-risk areas with weak infrastructure. These countries' narrow configuration is such that no part of the country is very far from the sea.

76. **Climate change is a 'stress multiplier' causing economic losses particularly affecting the agricultural sector.** Coastal vulnerability in both Panama and Cuba is multi-dimensional and has economic, social and environmental impacts. Extreme weather events, the variability of seasonal patterns and saline intrusion as a result of sea level rise affects agricultural production, particularly of staple crops, negatively impacting the livelihoods of farm households and the general availability of agricultural products, ultimately putting food security at risk. According to an FAO study of 56 developing countries, between

⁶⁴ Government of the Province of Colon. Management plan of Portobelo National Park 2013-2022.

⁶⁵ Idem.

⁶⁶ See Figure 7 and 10.

2006-2016, agriculture (crops, livestock, fisheries, aquaculture, and forestry) absorbed 26 percent of all damage and loss caused by climate-related disasters⁶⁷.

77. **Climate change is affecting the livelihoods of the poorest and most marginalized members of society in particular.** While impacts will be felt nationally, rural coastal communities will be mostly at risk due to their higher vulnerability aggravated by high levels of poverty. The poorest and most marginalized members of society, particularly those residing in rural areas are especially vulnerable to CC due their reduced capacity for adaptation that can be attributed to high poverty levels, high underemployment, reduced income levels and their high dependency on the primary sector for their livelihoods.

78. **Coastal ecosystems are under increasing pressure.** The current resilience of Cuban and Panamanian coastal ecosystems to extreme events and SLR, is being undermined by both climate change effects (increased extreme events) and other anthropogenic pressures, tempering their capacity to provide their protective services. Mangroves have further suffered high levels of degradation affecting their ability to colonize new areas, reduce wave impacts, accrete sediments, and stabilize shorelines. The loss of this diversity will mean a decrease of potential resources for national economic development, a decrease in the coastal communities' livelihoods, and the deterioration of important ecosystem services for coastal resilience.

79. **Climate change adaptation is a national priority.** Both countries have prioritized CC adaptation in their national development agendas and have introduced a series of government actions including Panama's National Climate Change Policy (Política Nacional de Cambio Climático) and Cuba's State Plan for Climate Change in Cuba ("Tarea Vida"). Both countries have also developed sectoral analysis at a national level of climate change impact on agriculture and water resources. Cuba, designated target sectors within its NDCs for the adaptation action. The NDCs for both countries have also identified ecosystems-based adaptation solutions as key in achieving mitigation targets.

80. **Climate change is leading to lower agricultural yields, fish catch volumes, and incomes for communities.** Both countries face groundwater salinization, which will only be worsened by rising sea-level and ongoing erosion through sand-farming and poor land management. Rising temperatures lead to decreases in soil moisture and soil fertility and the proliferation of pests, which negatively affect agricultural yields. Agriculture is also affected by flooding and severe storms that have impacted agricultural production. All this will ultimately lead to greater food insecurity, poverty, and instability.

81. At the recent COP27, Loss and Damage was also given more precedence than ever before, with a breakthrough agreement to provide "loss and damage" funding for vulnerable countries hit hard by climate disasters, with the creation of a specific fund for loss and damage. At the recent COP27, Cuban Minister of Science, Technology and Environment Elba Rosa Pérez Montoya noted financial justice is required to make new and additional funds available to compensate losses and damages and take adaptation measures⁶⁸. While Panama in its Updated NDC (December 2020)⁶⁹ highlighted as one of its priorities the improvement and strengthening of its platform for Loss Assessment to include slow onset hazard events.

82. A regional approach including Cuba and Panama, differently from a country intervention, will enable the implementation of innovative accounting measures to evaluate loss and damage to slow onset climate impacts across two similar settings while allowing room for experimentation of on the ground actions to reduce climate-induced loss that will inform both counties while being applicable to wider regional context. The Damage and Loss Information System will be designed through a binational coordination process to ensure harmonization of the methodology and facilitate knowledge exchange. Sharing experiences and expertise between the two countries will help accelerate progress and country-specific responses will be integrated into the regional approach.

⁶⁷ FAO (2017). The impact of disasters and crises 2017 on agriculture and food security.

⁶⁸ [Prensa Latina News, November 17, 2022](#). (Accessed on January 31, 2022)

⁶⁹ [Updated NDC Panama](#), December 2020

83. The bilateral mechanisms will be formalized and promoted throughout the project to mobilize bilateral support and knowledge transfer on damage and loss accounting measures as well as in the implementation of adaptive practices in similar environments to facilitate the systemization of best practices and lessons learned. Hence components 2 and 3 that favor local implementation of concrete adaptation options in the form of Ecosystem-based Approaches (EbA) and adaptive productive livelihoods will be evaluated for their capacity to increase local and sectoral resilience by applying the loss and damage methodology while promoting cross learning in both countries that will also be favored by having access to regional platforms through the project. Cross cooperation across agricultural and fishing productive associations in both countries will be facilitated through exchanges and South-South Cooperation mechanisms in keeping with the project's approach for Farmer Field Schools (FFS) that allows for learning by implementation that is made feasible in a bilateral context considering similar productive ecosystems. Participation of local actors in binational knowledge exchange and in implementation will be a key aspect of the project as these actors are often unaware of international best practices and of relevant local knowledge that has been gained in a regional setting across similar contexts.

84. A regional approach also ensures that the wealth of knowledge that will be derived from the project (including local knowledge) can be more easily scaled up and disseminated at a regional level and made relevant to the wider Caribbean region which houses similar ecosystems and risks to slow onset climate impacts. FAO's Loss and Damage Methodology for Agriculture will also be instrumental in systemizing and disseminating this information at the regional level by facilitating the incorporation of lessons learned from on the ground implementation and as a tool for local adaptive planning in the face of slow onset pressures.

85. This piloting approach has been prioritized first for Cuba and Panama considering past cooperation on environmental and productive management as well as cultural and language similarities in addition to similar ecosystems and climate challenges that facilitate project implementation. The proposed project will apply lessons learned on EbA such as mangrove restoration and on livelihood diversification and circular economy practices that have begun to be explored by both countries and have been included within their NDCs. Lessons learned in the use of loss and damage methodology for adaptation and structures created through the project (including interlinked FFS) however will allow for simple replicability and relevance (by not being country and site specific) to the Wider Caribbean region.

86. As such the project foresees the exchange of information through regional organizations to which both Cuba and Panama are party to including the Association of Caribbean States (AEC) and the Community of Latin American and Caribbean States (CELAC) that contain directorates and common positions for disaster risk reduction to address common climate challenges. Cuba also has a long trajectory of providing cooperation and technical assistance on disaster risk reduction and climate change management within the CARICOM community that will include results developed through the project. Panama through its participation within the Integration System for Central America (SICA) and its Environmental Commission (CCAD) will be able to provide inputs from project results to be shared within the wider Latin American Region, particularly to those countries with a Caribbean coastline (Honduras, Guatemala, Nicaragua, El Salvador and Costa Rica).

87. The project will also seek to establish collaboration and facilitate exchange of information through various regional platforms, including the Caribbean Community Climate Change Center (CCCCC). The CCCCC is a repository and clearing house for regional climate change information and data and provides climate change-related policy advice and guidelines to the Caribbean Community (CARICOM) Member States through the CARICOM Secretariat. In this role, the Centre is recognised by the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Environment Programme (UNEP), and other international agencies as the focal point for climate change issues in the Caribbean. It has also been recognised by the United Nations Institute for Training and Research (UNITAR) as a Centre of Excellence.

88. The project will also liaise with the Caribbean Sea Commission (CSC) to identify opportunities for collaboration and exchange. Created in 2006 under the auspices of the Association of Caribbean States (ACS), through the Ministerial Council Agreement 6/06 entitled 'Creation of the follow-up commission for the Caribbean Sea Initiative'. The CSC was created with the objective of promoting and contributing to the

sustainable development of the Caribbean Sea for present and future generations. Specifically, the CSC aims to promote the cooperation and coordination of actions related to the Sustainability of the Caribbean Sea. The establishment of the CSC reflects the commitment of the ACS Member States to the projection and preservation of the common patrimony of the Caribbean Sea.

89. Other relevant regional platforms may also be considered notably platforms which cover both the Caribbean and Central America will also be considered notable EuroClima+ and the monitoring platform currently being developed.

90. Current barriers to meet the proposed objective and that will be addressed through the project include:

- ***Sparse and dispersed baseline data on damage and loss and insufficient capacity.*** In both Cuba and Panama, challenges remain in sustaining information systems, enhancing quality of the data collected, assessing disruptions to services and livelihoods, and estimating economic losses from disasters and climate change processes. These gaps impact on the government's ability to understand how different events and processes are impacting livelihoods, well-being and opportunities of different groups, social services access, infrastructure systems and economic sectors as well as tracking their progress in implementing the SDGs, Sendai and climate change adaptation related commitments and strategies.
- ***Limited knowledge on CC impacts and adaptation options.*** Information CC impacts may have on local economies and agricultural productivity is not accessible to key decision makers at the local level, nor presented in the required manner for its effective application. While a sense is beginning to emerge, the links at a practical level remain missing and made tangible. Information regarding sustainable agricultural and fishing production needs to be internalized and made available to vulnerable primary producers to ensure that plans are actionable. Barriers in this sense are not only in human capacity but also in technical knowledge that can motivate appropriate action and facilitate upscale.
- ***Lack of understanding and knowledge of the environmental services generated by priority ecosystems for adaptation and resilience to CC and strengthening of food security.*** Lack of awareness of the role of ecosystems in managing climate impacts has generated a negative reinforcement whereby producers feel the need to extend productive areas at the expense of ecosystems or continue implementing unsustainable practices that increase degradation and climate vulnerability without necessarily increasing agricultural production. At a government level this results in limited financing for potential local adaptation measures and investment for protection and restoration of key ecosystems. Hence investment in what seems like environmental issues is often considered as a nice to have rather than a critical investment for local economies and agricultural productivity.
- ***EbA is rarely factored into adaptation measures.*** Currently experience and awareness of nature-based solutions at local and national scale remains limited to a few examples in both countries and this type of approaches are not factored in adaptation measures due in large part to limited access among institutions operating at field level and lack of technical and logistical resources. For most local governments, the value of coastal ecosystems remains an intangible asset, dissociated from the climate impact that their communities are already experiencing through diminished livelihoods, reduced access to natural resources such as water, lower productivity and more frequent extreme weather events. Too often, business as usual solutions to climate impact are preferred as witnessed by initial consultations, which favored the building of seawalls or protective grey structures as the only adaptation solutions. In both countries, actions are required so the protective role of ecosystems is mainstreamed as a stronghold for climate resilience, while integrating local communities to reduce coastal vulnerability to climate change.
- ***Limited capacity in the development and implementation of tools and sustainable production practices to contribute to diversification and improvement of the resilience of production***

systems to CC effects. Consultation across both countries demonstrated a need for improved technical assistance to manage climate change impacts to agricultural productivity in specific crops and environmental conditions, while a limited number of local communities have first-hand practical knowledge of the range of adaptation options that exist for achieving sustainable resilience to CC. Innovations in coconut agroforestry (e.g. intercropping and tiering), regenerative aquaculture, saline tolerant rice varieties, and climate smart agricultural practices are examples of innovative practices that can help promote more resilient livelihoods help reduce the risk of environmental degradation and provide diversified income opportunities to local communities. Such innovations are not generally applied in the target areas particularly by small scale producers as local actors are often unaware that these exist.

- **Lack of access to knowledge of relevant regional best practices and lessons learned to allow for upscaling and local implementation of adaptation measure and to ensure food security.** Bilateral cooperation mechanisms to bring innovations on technical issues related to CC are limited and often only mentioned within broader cooperation arrangements that fail to materialize into localized actions.
- **Local governments and producers are often crowded out of knowledge exchange.** This creates a disconnect between national ambition and local actions that are required to tangibly increase resilience. Innovations in coastal ecosystems restoration and management (e.g., mangrove and coastal restoration, oyster cultivation) and in the implementation of Sustainable Land Management (SLM) practices (e.g., agroforestry) have created some local capacity within the Caribbean that is often times not shared nor scaled up across the Wider Caribbean and hence remain localized pilots only applicable to specific national settings.

B. PROJECT/ PROGRAMME OBJECTIVES:

91. **The objective of the regional project is to reduce vulnerability and strengthen the adaptive capacities of nine coastal municipalities in Cuba and Panama to climate change impacts.** Proposed solutions will promote ecosystem-based adaptation (EbA), sustainable land management (SLM) practices and nature-based livelihoods and will support the adoption of innovative damage and loss methodologies for enhanced knowledge and understanding of comprehensive risk management approaches at the local and national level on climate change impacts.

92. The proposed project will also aim to strengthen the adaptive capacities of nine coastal communities in Cuba and Panama vulnerable to climate change impacts along the Caribbean coastline through the implementation of EbA approaches and risk reduction practices (e.g., sustainable land management, livelihood diversification, climate-smart technologies) linked to local sustainable food production and the protection of agricultural and fishing-based livelihoods for local food security.

93. The project will support informed decision-making on disaster-risk management and the design of concrete adaptive measures, through the implementation of a loss and damage methodology based on the provision for enhanced knowledge of CC impacts to agricultural productivity and local food security. This is done following the conviction that has been growing in the last years and is stressed in the SFDRR first priority action, 'understanding disaster risk' (SFDRR, 2015–2030) (UNISDR 2015b) that underlines the need for post-disaster damage and loss data as well as the need for a systematic and comparable disaster database.

94. The project will support the application of innovative methodologies and approaches in real time and in two similar scenarios to promote its scale up and replication in the Wider Caribbean region. More specifically, proposed activities are designed to address identified barriers by (i) strengthening institutional capacities for assessing CC impacts and informed adaptation planning, (ii) supporting the incorporation of EbA measures for sustainable livelihoods and enhanced food security; (iii) building resilient and diversified livelihoods including greater participation of women; and (iv) promote a regional approach throughout the implementation of project activities to facilitate information exchange and cooperation. All project

components will take into account the differentiated impacts that CC may have on the different population groups, notably women.

Project area and target groups

95. The project will directly benefit 74,242 people (37,121 women and 37,121 men), of which approximately 32,892 people are in Panama (accounting for 12,041 agricultural and fishing-based households in the Colon Province) and 41,350 people in Cuba (rural population of target sites) by enhancing local food security and increasing their resilience to slow onset climate hazards in target sites. Support will be provided across 15 agricultural and fishing-based cooperatives in Cuba and 13 cooperatives in Panama. The project adopts a gender and indigenous people sensitive approach, notably in the implementation of Component 2 and 3 activities which relate specifically to promoting resilient and sustainable livelihoods in the target municipalities.

96. The project will limit its interventions to the targeted regions in each country that have been selected due to their vulnerability to climate change, historical and projected impact of climate (notably SLR), and exposure to climate hazards.

97. **Target Areas. In Cuba:** The project has selected the coastal municipalities of Consolación del Sur, San Cristobal, Batabanó, La Sierpe and Baracoa, as the target areas in Cuba (see Figure 12(a)). The criteria used for the selection of these sites included vulnerability to SLR, exposure to storms and hurricanes as well as the presence of valuable ecosystems (e.g., mangroves and corals) that provide important ecosystem services and therefore can be linked to nature-based adaptive solutions. **In Panama:** The project has selected the province of Colon - one of the 10 provinces of the Republic of Panama - as the target area. It lies along the Caribbean Coastline with the northern section of the Panama Canal located in its territory. Its territorial extension is 4,868.4 km² with a total population of 294,060 inhabitants (2019). The province is comprised of 5 municipalities (Colón, Chagres, Portobelo, Donoso and Santa Isabel), with four of these (Portobelo, Chagres, Donoso and Santa Isabel) being highly rural with a low population density. The project will target these four municipalities (see Figure 12 (b)) which together have a population of 32,891 inhabitants, representing 11% of the total provincial population.



Figure 12(a) Target areas in Cuba



Figure 12(b) Target areas in Panama

98. **Target group and strategy.** The target municipalities were selected after face-to-face consultations in 2022 with the stakeholders involved. Selection criteria included vulnerabilities, including climatic variabilities, existing agricultural activities for adaptation; and the possibility of integrating women into economic activities. The intervention of this programme will give priority to rural communities that are the most vulnerable to climate change and engage in productive agricultural value chains. The project will support small-scale producer organizations, including agriculture and fishing cooperatives. The project will target particularly women characterized by structural vulnerability, weak social integration and a lack of

socioeconomic opportunities; all characterized by a pronounced weakness or absence of productive capital (agricultural land and livestock) and a lack of economic opportunities and jobs. The project will have a flexible, inclusive participatory targeting strategy, which will consider the internal dynamics in each targeted municipality, the expected outcomes for each project component, the needs and specificities of all beneficiaries and the challenges of food security. In relation to gender, specific targets will be adopted to promote (i) greater access of women people to skills and knowledge, (ii) the economic empowerment of women by facilitating their access to assets, resources and factors of production, their participation in income-generating activities and strengthening their control over resources; (iii) activities to improve women's well-being and reduce their workloads and (iv) activities strengthening the participation of women and their roles in decision-making in groups and cooperatives. The project will also apply the principles of the IFAD Targeting Policy⁷⁰. IFAD's target group are people living in poverty in rural areas as well as vulnerable populations at risk of falling into poverty in rural geographies, with a continuing priority on the poorest and most excluded, including those who are food insecure. The guiding principles and criteria for the selection of beneficiaries will be further defined in the operations manual to be prepared at the incipient stages of the project. The integration of youth as beneficiaries of the project is part of IFAD's interest in caring for the most vulnerable and to this end it will prioritize the participation of the young population among the groups of male and female beneficiaries, as well as the indigenous population.

99. Beneficiaries depend heavily on natural resources which are sensitive to climate variability and the impacts of climate change. Agriculture is rain-fed and subject to variations in temperature and rainfall. In addition, fishery, livestock, forest resources, in a large part of the target areas, have been subjected to drought or heavy rains and suffer from salinization from sea level rise and the impacts of extreme weather events, notably hurricanes. Climate variability can have implications for the impacts, sustainability and return on investment of subprojects. However, the project has the potential to integrate climate resilience measures without substantial additional costs through capacity building programs in climate-smart farming strategies to help vulnerable communities, especially moderate this risk and sustainably mitigate the effects of climate change in the area of intervention.

100. The proposed project is structured around the following three project components:

101. **The first component** will support the implementation of FAO's damage and loss assessment (DLA) methodology to assess the direct economic impact of disasters on the agriculture sector. The aim through the application of the DLA will be to support the operationalization of a systematic and comparable Disaster and Loss Information System (DLIS) for both countries that can provide important and reliable support to DRR policy and decision making to monitor and assess long-term CC impacts and projected future losses including lost potential agricultural and fishing productivity and its effects on livelihoods and local economies. This component will also aim to foster binational exchange and cooperation throughout project implementation.

102. **The second component** will support the assessment of coastal ecosystems in target sites in both countries as measures for resilience for agricultural and fishing productivity and will support the implementation of nature-based solutions that reflect the perceptions and needs of communities (especially considering women) and support ecosystem recovery and rehabilitation for enhanced food security and climate resilience. The implementation of NbS in two country settings through a FFS approach, in different ecosystems and socio-economic contexts will support experimentation and will help inform systematization of best practices and lessons learned to facilitate uptake and replication at the regional level.

103. **The third component** will support the adoption of sustainable agricultural and fishing productive practices and the development of diversified and resilient livelihoods for coastal communities in the nine targeted municipalities. Support will be provided in the form of grants to small-scale producer organizations and productive associations and technical assistance through a FFS approach, a learning-by-doing approach which promotes farm-based experimentation, group organization and decision-making. Selection of beneficiaries will be done by focusing on those most vulnerable and ensuring inclusive approach for women that considers the participation of their associations and other organizations led by women. The

⁷⁰ [IFAD Targeting Policy 2023](#).

FFS approach will help inform the gender-sensitive systematization of best practices and lessons learned to facilitate uptake and replication at the regional level.

104. The three project components will run in parallel and are closely interlinked. The activities will be broadly similar in each country but adapted to the different national environmental and socio-economic context and building on previous experiences in EbA and development of adaptation measures of each country.

105. Implementation of actions across the project's second and third component will be evaluated through the project's first component to measure the impact of adaptive measures as factor for enhancing long-term resilience to slow onset hazards and will be incorporated within the loss and damage methodology. The bilateral cooperation mechanism will facilitate knowledge exchange at various levels (government, municipalities, community) as well as shared capacities for development of informational products. The interlinkages of FFS among the target sites will also address a key barrier to local communities, particularly small-scale producers, that are often locked out of regional knowledge exchange mechanism and hence are not able to implement known innovative measures for enhancing resilience and protecting productive capacity, much less through the leadership of similar producers facing similar challenges.

PART II: PROJECT/PROGRAMME JUSTIFICATION

A. PROJECT/PROGRAMME COMPONENTS

106. The proposed project is comprised of the following three project components.

Component 1: Climate Change Adaptation Planning and Regional Cooperation

107. Component 1 activities will focus on the implementation of FAO's loss and damage methodology in target coastal municipalities in Cuba and Panama to assess local agricultural and fishing production loss as a result of slow onset hazards derived from CC and inform resilience planning. Coastal municipalities are already facing productivity losses and impacts as a result of climate related hazards (SLR and increased temperatures) that have yet to be fully evaluated and made tangible to local stakeholders for risk management and informed adaptation planning, also considering the aggravated impacts as climate projections begin to materialize. FAO has developed a standardized methodology to provide a set of procedural and computational steps for consistent damage and loss assessment across disasters and countries. This methodology is both holistic enough to be applied in different country/regional contexts, and precise enough to consider all agricultural subsectors (crops, livestock, apiculture, forestry, aquaculture and fisheries) and their specificities. Furthermore, it is geared towards measuring the effects of a broad range of disasters of different type, duration or severity from large-scale shocks to small and medium-scale events, from sudden-onset to slow-onset disasters with a cumulative impact. As a result of this component, nine Participatory Adaptation Plans (PAPs) and nine Participatory Risk Management Plans (PRMPs) at the municipal level will be prepared, a DLIS for Agriculture and Fishing Production will be operational for the target areas, and 35 people (50% women) will be trained on the design and operationalization of a DLIS.

Outcome 1.1. Loss and damage methodology of agricultural and fishing productivity implemented in nine target coastal municipalities in the face of slow onset climate impacts.

108. This outcome will support the collection of relevant baseline data for loss and damage assessments which is the first stepping-stone of FAO's loss and damage methodological framework (see Figure 13). The baseline assessment will enable the collection of pre-disaster information as baseline data to assess damage and loss, using national accounts and statistics and collecting data relevant to the disaster-affected areas, including indicators such as yields, production volume, prices, malnutrition and food insecurity, income levels (see Annex 4) for a list of optimal and minimal data requirements for damage and loss assessments). In order to complement the assessment process, information from alternative data sources may also be incorporated to the extent possible, such as (micro) satellite and drone imagery, other earth observation data, and stressors data (e.g., climatic and environmental indicators). A historical trend analysis and vulnerability assessment will also be conducted to include slow onset hazards impacts (such as sea level rise) based on climate projections and analysis as they pertain to agricultural and food productivity. Since this is often the biggest challenge in the entire process, sufficient emphasis and effort will be placed on improving access to data and standardizing data collection procedures.

109. Comparisons based on baseline data are critical to determining the overall impact of the disaster. The focus of the loss and damage methodology will be the assessment of tangible impacts to municipal socio-economic indicators such as income and productivity loss as well as effects on local livelihoods. Relevant agencies will be involved in the baseline assessments and the damage and loss analysis at different levels (local, municipal, national) including municipal authorities, national statistical offices, and relevant agencies within the Ministries of Agriculture.

110. Information derived from the damage and loss analysis will be socialized and disseminated to local stakeholders and will serve to inform the preparation of Participatory Adaptation Plans (PAPs) and Participatory Risk Management Plans (PRMPs) for the nine target municipalities. The PAPs and PRMPs will become strategic municipal planning documents that define key areas of interventions, beneficiaries

and specific adaptive solutions and approaches to be implemented through Components 2 and 3 and adapted to each specific context. A participatory consultative process will be pursued throughout the preparation of the plans, and particular attention will be paid to include gender-responsive support and solutions in the PAPs and PRMPs.

111. The objective of the PAPs and PRMPs are to reduce the risks and socioeconomic impacts associated with climate variability and change. More specifically the aim will be through those plans to: (i) establish preventive adaptation policies that contribute to reducing the vulnerability of the population and ecosystems; (ii) move towards comprehensive risk management; (iii) introduce adaptation and mitigation strategies in key productive sectors; (iv) stimulate the participation of key actors through education, training and development of public awareness; (v) increase knowledge about potential risks and current impacts and their economic valuation; (vi) take advantage of the opportunities associated with climate change and variability; (vii) incorporate climate risk management into sectoral and territorial development planning; (viii) identify, prioritize, implement, evaluate and monitor adaptation measures to reduce the vulnerability and exposure of socio-economic systems to climate events.



Figure. 13. Damage and Loss Assessment Methodology Process: From Data to Indicators

112. Concrete actions include:

- Development of a baseline assessment of loss and damage to agricultural and food productivity affecting local economies and livelihoods in target coastal municipalities due to slow onset climate impacts.
- Development of an assessment of tangible impacts to municipal socio-economic indicators such as income and productivity loss as well as effects on local livelihoods.
- Development of nine (9) Participatory Adaptation Plans (PAPs) with a gender perspective, prepared through stakeholder consultations at the Municipal Level identifying priority adaptation actions for enhanced food productivity and resilience (informed by the projected loss/damage analysis) to be implemented under Components 2 and 3.
- Development of nine (9) Participatory Risk Management Plans (PRMPs) with a gender perspective, prepared through stakeholder consultations at the Municipal Level identifying priority actions to reduce projected risk to food productivity (informed by the projected loss/damage analysis) to be implemented under Components 2 and 3.

Outcome 1.2. Institutionalized Damage and Loss Information Systems (DLIS) at a sectoral and local level for enhanced adaptive capacity and management.

113. This outcome will support the design, operationalization and institutionalization of the FAO's Damage and Loss Information System (DLIS) for Agriculture and Fishing Production in Cuba and Panama. The DLIS will facilitate the processing and storing of primary data to develop a database of relevant post-disaster information and a reliable baseline for robust counterfactual analysis.

114. As a first step, a baseline gap analysis will be conducted to assess existing capacities at the various levels to implement the loss and damage methodology and adaptation actions as well as needs for the design and operationalization of the DLIS. This analysis will serve to inform the scope of the capacity building to be implemented under this activity. Based on the results of this baseline analysis, the FAO will provide training and capacity building support to government officials at the national, sectoral and municipal levels to put in place and operationalize the DLIS for Agriculture and Fishing Production and to ensure the harmonization of both countries' systems. An informative workshop will be organized at the incipient stages of the projects by the FAO to present the methodological approach. Further, the FAO has developed a practical toolkit to assist country governments with the institutionalization of tailored National-level DLIS for agriculture. This toolkit consists of sample survey forms, data collection tools and database templates and guidance documents, which can serve to augment capacity for damage and loss assessment in national governments and help lay down standard operating procedures for regular disaster damage and loss data collection in agriculture.

115. Ultimately, the implementation of FAO's methodology will help improve agriculture-related resilience monitoring by providing standardized methodology to provide a set of procedural and computational steps for consistent damage and loss assessment across disasters and countries. It is grounded in and builds upon existing frameworks, tools and methods for disaster impact assessment, such as ECLAC's damage and loss assessment methodology (DaLA) and the PDNA methodology, while aiming to systematize and standardize the process at the global, national and local levels. The FAO Methodology puts forward agricultural resilience monitoring within the UN-wide system by providing a standardized set of procedural and methodological steps that can be used at global, national and subnational levels.

116. FAO's methodology will play a key part in further informing and enriching the climate change adaptation agenda. The DLIS will provide relevant information and data to guide adaptation planning at different scales (local, sectoral and regional) and will serve to inform the selection of Component 2 and 3 activities as well as provide relevant information on avoided losses as a result of the implementation of adaptation and risk reduction actions to slow onset climate hazards. Ultimately, the DLIS by improving climate change related damage and loss data gathering and analysis, will serve to inform the preparation of risk related policies, sectoral adaptation plans and will facilitate the incorporation of damage and loss assessments into future versions of regional and national adaptation plans and NDCs. Once operational it will be the country's responsibility to ensure the maintenance and optimal performance of the DLIS. The resulting information will be incorporated in existing relevant national and regional information platforms to facilitate national uptake and the dissemination of lessons learned at the national and regional scales.

117. The proposed regional approach will facilitate the standardization and harmonization of the damage and loss methodologies between the two countries to enable comparative analysis, exchange of information and best practices and the development of knowledge products. However, Furthermore, while efforts will be to align and align and synchronize data requirements and establish common guidelines and principles across the two countries, it will also be necessary to leave a degree of flexibility when it comes to country-specific processes to respond to country- and context-specific institutional arrangements, technical processes and codes of quality assurance and data management. The DLIS will be designed through regular binational consultations with key stakeholders. In the case of Panama, the information system will be integrated into the climate change transparency portal that is under preparation to enhance awareness of climate change impacts.

118. The project will also enhance regional coordination, scientific exchange and learning between the two countries and across the region. To this end a Regional Project Steering Committee (RPSC) will be established to facilitate continuous dialogue and coordination between the two countries in the design and operationalization of the damage and loss methodology and the implementation of other planned project activities. At the incipient stages of the project, a consultation will be conducted to identify national relevant experts and policy makers from relevant agencies and designate focal points to be involved. Existing regional bodies and platforms will be used where appropriate to ensure that activities undertaken through the project are appropriately co-ordinated and communicated at the regional level.

119. Moreover, as mentioned above, the project will also seek to establish collaboration and facilitate exchange of information through various regional platforms, including the Association of Caribbean States (AEC) and the Community of Latin American and Caribbean States (CELAC), the Caribbean Community Climate Change Center (CCCCC), the Caribbean Sea Commission (CSC), the Integration System for Central America (SICA) and its Environmental Commission (CCAD) among others.

120. Concrete actions include:

- Baseline gap analysis conducted to assess existing capacities at the various levels to implement the loss and damage methodology and adaptation actions as well as needs for the design and operationalization of the DLIS with recommendations building on best practice.
- Training and capacity building support provided by the FAO to put in place and operationalize the DLIS for Agriculture and Fishing Production and to ensure the harmonization of both countries' systems. A total of 35 people (18 women and 17 men) is expected to be trained as part of this activity.
- Design and operationalization of DLIS for Agriculture and Fishing Production for Cuba and Panama to facilitate continuous assessment of damage and loss and resilience (through adaptive actions) in the target areas taking into account slow onset hazards.
- Establishment of binational cooperation to facilitate coordination in the design and uses of the damage and loss methodology and accounting.

Outcome 1.3. Enhanced knowledge on loss and damage practices for improved adaptation planning, risk management and food security of agriculture- and fishing-based livelihoods.

121. This outcome will support the evaluation of the implementation of the damage and loss methodology to slow onset hazards on the ground and will help systematize best practices and incorporate lessons learned for its enhancement and scale up. This will be facilitated through continuous exchanges between the nine coastal municipalities and will help inform the selection and implementation of adaptive actions to be implemented under Components 2 and 3.

122. This outcome will also evaluate the implementation of adaptation actions based on its potential for reducing local agriculture- and fishing-related losses and associated impacts on livelihoods. It is expected that different pilots to be implemented in the nine coastal municipalities across Cuba and Panama will help draw best practices that can be applied and replicated to other countries across the region with similar ecosystems and facing the impacts of slow onset climate hazards. Lessons learned will be consolidated and will be compiled in toolkits and methodological guidance notes for replication in similar coastal settings.

123. The preparation of knowledge products will help inform decision makers on the cost of CC to agricultural productivity and associated impacts on local livelihoods. This activity will also support the knowledge exchange at various scales (local, sectoral, productive, national and civil associations) through exchange missions, capacity building and Farmer Field School implementation in target sites to enhance local knowledge and the sharing and systematization of traditional practices proven to be effective in protecting coastal food productive ecosystems to slow onset hazards.

124. Moreover, the knowledge sharing approach will help strengthen regional coordination on climate change adaptation. The knowledge products generated through the proposed project will also be presented at regional adaptation forums. Sharing the knowledge generated, best practices and lessons learned at these regional platforms and forums will increase the outreach in the participating countries as well as to other Caribbean countries facing similar issues. Bi-national workshops will also be organized on a regular basis to promote knowledge exchange and dialogue.

125. Concrete actions include:

- Analysis and evaluation of the implementation of the FAO loss and damage methodology for slow onset hazards including challenges for implementation, packaging of best practices on adaptation and evaluation of adaptive measures developed to inform the scale up and replication to other countries across the region.

- Implementation of exchange missions, capacity building and FFS in target sites for the establishment of a binational community at various scales (local, sectoral, productive, national and civil associations) to enhance local knowledge and the sharing and systematization of traditional practices proven to be effective in protecting coastal food productive ecosystems to slow onset hazards.
- Development of national, sectoral and regional knowledge products and organization of knowledge sharing events to facilitate dissemination and exchange of best practices among national and local governments as well as among productive associations and community groups.
- Development of toolkits and a series of methodological guidance notes on the use of nature-based solutions and sustainable agricultural practices (intercropping, mulching and soil and water conservation in coconut production, saline tolerant rice varieties, sustainable fishing and regenerative aquaculture) based on experimentation and their impact in reducing projected losses and creating alternative livelihoods for upscale in both Panama and Cuba as well as in the Wider Caribbean.

Component 2: Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities.

126. Component 2 activities will support the design and implementation of EbA approaches in targeted coastal municipalities which are most vulnerable to coastal flooding (see Annex 6). Ecosystems in target areas along both countries can provide strategic ecosystem services to manage a variety of climate impacts and protect local security. The implementation of EbA in two country settings through a FFS approach, in different ecosystems and socio-economic contexts will support experimentation and will help inform systematization of best practices and lessons learned to facilitate uptake and replication. As a result of component 2, 45 hectares of mangroves will be sustainably managed, restored or rehabilitated, 2,024 hectares of coral reefs sustainably managed, restored or rehabilitated, and 100 people (t least 50 percent women) will be trained on EbA through the FFS approach.

127. *Outcome 2.1. Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their communities, livelihoods, and local food security.* The aim of this activity will be to support the implementation of EbA approaches and practices. EbA can involve conserving or rehabilitating natural ecosystems; the enhancement or creation of natural processes in modified or artificial ecosystems; or they can be integrated with grey infrastructure to advance the most optimal solutions.⁷¹ As a first step, a local ecosystem valuation analysis will be conducted along targeted intervention areas using existing international methodologies (i.e., The Economics of Ecosystems and Biodiversity (TEEB), The Nature Conservancy's Guide for Incorporating Ecosystem Valuation, Values Methods Database, Artificial Intelligence for Environment and Sustainability (ARIES), etc.) to translate these services into productive and livelihood indicators to be incorporated into government and productive analysis. The project will also invest in a loss/gain analysis in target areas of the vegetation of these ecosystems with the support of geographic information tools to compare the historical evolution of vegetation cover and land use as an element for determining critical areas for conservation, rehabilitation and sustainable management based on their capacity to provide protective services to agriculture and fishing-based production areas and potential for reducing productivity losses.

128. The selection of sites and relevant EbA solutions will be informed by the results from this analysis and other relevant studies including coastal flooding projections and the damage and loss analysis conducted under component 1. As part of project preparation initial studies have already estimated projected coastal flooding in project target municipalities (See Annex 6) and stakeholder consultations were carried out to identify potential activities to be implemented and beneficiary groups (Annex 2 and 3). A review of successful EbA initiatives in the region and globally will also be undertaken to identify factors determining success, constraints and obstacles, lessons learned, and cost/benefits of different approaches. Initial assessment conducted during project preparation has demonstrated the value of corals for Cuba and Panama in reducing flooding and promoting tourism (Figures 14(a) & 14(b)) as well as potential areas for mangrove restoration (Figures 15(a) & 15(b)). This information will also guide the initial work and will look to be validated through collected information and participatory consultations with local communities based

⁷¹ WWAP/UN-Water, 2018; Sonneveld et al., 2018

on the value of ecosystems for population groups differentiated according to gender, local culture and livelihoods.



Figure 14(a). Estimation of the protection benefits against flooding due to the presence of coral reefs for an extreme flood event with a 100-year return period in Cuba. Annual benefits are expressed in terms of people protected (Source: Mapping Ocean Wealth Explorer. TNC)

Figure 14(b). Estimation of the benefits in USD/km2 from tourism obtained by the presence of coral in the study areas of Panama (Source: Mapping Ocean Wealth Explorer. TNC).



Figure 15(a). Potential for Mangrove restoration in Cuba (Project Preparation Study assessment)

Figure 15(b). Potential for Mangrove restoration in Panama (Project Preparation study assessment)

129. Selected EbA actions will be implemented along the prioritized areas within the nine target municipalities using the FFS approach⁷². Through FFS for ecosystem protection and management communities will improve ecosystem management skills through observing, analysing, identifying relations between ecosystems and vulnerability of their own productive systems while implementing specific actions (EbA) for improved ecosystem management to reduce risk to agricultural and fishing productivity and will benefit from in field best practices developed through the project in both countries. These efforts will be reflected in the resilience of ecosystems to slow onset climatic events and a community that, knowing their value, protects them as part of a long-term solution.

130. Initial analysis developed during project preparation have already highlighted specific areas of potential value for restoration along the targeted municipalities in both Cuba and Panama. This information provides an initial basis that will be further validated during project implementation through consultations and additional studies. EbA will also be implemented to promote sustainable fishing practices along targeted areas based on initial mapping of the coastal zone and taking into consideration existing coral reefs. EbA will be designed to support the recovery of fish stocks as well as the restoration of fishing habitats such as coastal lagoons.

⁷² The [farmer field school](#) (FFS) approach was developed by FAO and partners nearly 25 years ago in Southeast Asia as an alternative to the prevailing top-down extension method of the Green Revolution, which failed to work in situations where more complex and counter-intuitive problems existed, such as pesticide-induced pest outbreaks.

131. The impact of the EbA actions will be monitored and evaluated to provide crucial quantitative data and knowledge to support the use of nature-based solution as flood defenses, mainstreamed in territorial planning and disasters reduction strategies. Monitoring activities will focus on assessing ecosystems' responses (including their health, connectivity and reduced pressures) to rehabilitated conditions as indicators of increased coastal resilience. The knowledge from EbA activities will be systematized and formatted in user-friendly products, making possible for EbA to be up scaled and providing knowledge base support for EbA approaches at various levels, thus addressing knowledge and capacity barriers that have limited the capacity to implement EbA in a full scale and in an integrated manner.

132. Proposed EbA actions to be implemented through the FFS approach are tentatively presented in the table below based on initial consultations and the preparation study of the project. These will be revised and refined during project implementation based on new findings from planned studies and consultations.

Table 1. Proposed EbA actions in selected Municipalities

Municipalities	EbA action initially foreseen at time of project preparation
Cuba	
Consolación del Sur	Hydrological restoration of mangrove areas, mangrove restoration
San Cristobal	Mangrove restoration and planting to restore natural barriers and hydrological processes
Batabano	Mangrove rehabilitation and restoration of hydrological flows
La Sierpe	Training on mangrove functionality, sustainable fishing practices
Baracoa	Restoration of natural hydrological flows, restoration of coastal buffers
Panama	
Upper Coastline (Santa Isabel and Portobelo)	Mangrove restoration, reef restoration for enhanced coral health
Chagres and Donoso	Coastal vegetation restoration

133. Concrete actions include:

- Baseline analysis completed for selection of priority sites and proposed solutions for protection, conservation, and sustainable management to reduce projected damage and loss due to slow onset hazards as projected from initial flood modelling.
- Identification of key ecosystems for protection, conservation, and sustainable management to reduce projected damage and loss due to slow onset hazards as projected from initial flood modelling (see Annex 6)
- Implementation of FFS across nine target sites including sharing best practice techniques across a bilateral setting through in field experimentation (mangrove restoration techniques, techniques for soil recovery, etc.)
- Implementation of EbA solutions (as prioritized in community adaptation and risk management plans) in nine target sites.
- Assessment of EbA solutions implemented across target sites and their incidence in reducing loss and damage projections from slow onset hazards monitored.

Component 3: Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience.

134. This component will support the adoption of sustainable agricultural and fishing productive practices and the development of diversified and resilient livelihoods for coastal communities in the nine targeted municipalities. Support will be provided in the form of grants to small-scale producer organizations and productive associations⁷³ and technical assistance through a FFS approach, a learning-by-doing approach which promotes farm-based experimentation, group organization and decision-making. Selection of beneficiaries will be done by focusing on those most vulnerable and ensuring inclusive approach for

⁷³ These grants will be utilized to support activities related to the adoption and sharing of AbE and climate-smart agricultural and fishing productive solutions. A list of the type of the investments that these grants will support are outlined in Annex 9.

women and minority populations. As a result of the activities under this component, 219 hectares will have implemented climate-smart practices (122 Cuba and 97 in Panama), and 300 people would have adopted a climate-smart agricultural and fishing productive technologies and benefit from diversified and EbA compatible livelihoods across nine target municipalities.

Outcome 3.1. Climate-smart agricultural and fishing productive solutions adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts.

135. This outcome will support the implementation of sustainable and climate-smart agricultural and fishing solutions that help strengthen the resilience of selected coastal communities. Initial consultations identified rice, coconut, banana/ plantain harvesting and fishing as important livelihood activities to be targeted by the project (see Annex 3). Innovative sustainable practices that will be considered include: 1) use of more resistant varieties to climate stress and salinization with short growing cycles; 2) use of intercropping for coconut harvesting, which has shown to increase carbon sequestration and improve microclimatic conditions as well as provide diversification of income sources; 3) introduction of saline tolerant rice varieties, including identifying those that will withstand current projections for salinization; 4) apply fertilization techniques and mulch cropping, which are organic residues from composting, manure, cold ash or household waste, that covers degraded soil surfaces; 5) promote crop rotations techniques; and 6) support the adoption of innovative technologies for pest control, elevated and tiered crop beds as well as resilient technologies to protect agricultural productivity to the conditions created through slow onset climate hazards, including water efficient technologies, water harvesting systems and circular productive practices. Support will be provided to agricultural and fishing cooperative through the provision of grants and extension services to local producers to adopt innovative sustainable practices in the field. This activity will ensure women's and indigenous associations are prioritized as beneficiaries and strengthen their associations. Lessons learned, results and best practices will be further disseminated across target sites through FFS. The FFS promotes collective learning by doing based on the execution of on-the-ground best practices to ensure capacity building. In a typical FFS a group of 20-25 farmers meets once a week in a local field setting and under the guidance of a trained facilitator. In groups of five they observe and compare two plots over the course of an entire cropping season. One plot follows local conventional methods while the other is used to experiment with what could be considered "best practices". They experiment with and observe key elements of the agro-ecosystem by measuring plant development, taking samples of insects, weeds and diseased plants, and constructing simple cage experiments or comparing characteristics of different soils. The FFS approach builds on the fact that the best learning takes place by doing, rather than telling. As an extension approach, FFS differs from the traditional, top-down "transfer of technology" method. The FFS approach is fundamentally a participatory group approach for collective action and social mobilization by the local community. This approach will aim to increase ownership and empowerment of communities to incorporate adaptation alternatives and solutions to better manage local climate impacts. South-South Exchange across target sites will be facilitated throughout to facilitate cross pollination of best practices.

136. Concrete actions include:

- Identification and prioritization of climate smart agricultural and fishing practices for local communities across target sites, focusing on food value chains that promote sustainable and resilient livelihoods as identified in the participatory plans and informed by climate projections.
- Support (technical capacity and extension support) and investments (grants) provided to local productive cooperatives (prioritizing women and indigenous groups) for the implementation of climate smart agricultural and fishing practices focusing on food value chains that promote sustainable and resilient livelihoods as identified in participatory adaptation and risk management plans.
- Strengthening women's associations to facilitate their access to project support and investments and the development of their own initiatives compatible with the EbA.
- Implementation of best practices through the use of FFS across target sites and across a bilateral setting.
- Assessment of climate-smart practices implemented across target sites and their incidence in reducing loss and damage projections from slow onset hazards.
- South-South Exchange across target sites for cross pollination of best practices.

Outcome 3.2. Diversified and EbA-compatible livelihood options for agricultural and fishing dependent households.

137. Regional support will be provided to local communities across target sites for the assessment and identification of alternative livelihoods that are compatible with EbA and to climate projections building on the participatory plans and climate projections. Farmers will also be granted access to climate information projections through agricultural/fishing associations to enable them to understand the implications of climate change to livelihoods and guide strategic community actions for alternative livelihoods.

138. Support will be provided to agricultural and fishing cooperative through the provision of grants and extension services to small-scale producer associations to help them diversify their sources of income and livelihood options and make them more resilient to climate change. Alternative livelihoods identified during project preparation and initial project consultations (see Annex 3) include the processing and transformation of key products such as coconut oil, plantain chips, coconut fibres; artisanal oyster and mollusc culture that has favourable incidence in mangrove health and regeneration; regenerative aquaculture for small scale producers and nature-based tourism such as sports fishing. This activity will ensure women's and indigenous associations are prioritized as beneficiaries. Lessons learned, results and best practices will be further disseminated across target sites through FFS. South-South Exchange across target sites for cross pollination of best practices.

139. Concrete actions include:

- Support provided to local communities across target sites for the identification of priority alternative livelihoods solutions that are compatible with EbA as identified in the participatory plans and informed by climate projections.
- Support (technical capacity and extension support) and investments (grants) provided to community associations (favouring women and indigenous groups) to implement alternative and EbA compatible livelihood solutions.
- Implementation of best practices through FFS across target sites and across a bilateral setting.
- Assessment of alternative livelihoods across target sites and their incidence in increased benefits to livelihoods, incomes and general economic resilience in the face of slow onset hazards.
- South-South Exchange across target sites for cross pollination of best practices.

Describe how the project/programme would promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms.

140. Disaster impact is pervasive and requires immediate efforts to better assess and understand its dynamics, so that it may be reduced and managed in integrated and innovative ways. In this regard, the project is particularly innovative while it supports the design and operationalization of a post-disaster risk assessment methodology (loss and damage assessment) that uses new and emerging methodologies to generate asset-based damage and loss estimates that can support adaptation planning and decision-making to slow onset climatic hazards and increase the precision of early estimates of recovery and reconstruction needs. The project will contribute to enhance adaption planning at both the local level (farmers and municipalities) and national level (Ministries and national planning) and will provide capacity building and tools to empower municipalities with the expertise for establishing and maintaining damage and loss databases.

141. In addition, the project will be innovative, while it will support the anchoring of loss and damage in adaptation planning and response and integration of these considerations in countries NDCs and other relevant national strategies. Examples of loss and damage contributions that countries can include in their NDCs⁷⁴:

⁷⁴ Extracted from World Wildlife Fund (2020) [Anchoring Loss And Damage In Enhanced NDCs \(Nationally Determined Contributions\)](#).

- a) *Data and Information*: Improvements in climate change related loss and damage data collection (where possible in a gender-differentiated manner), analysis, monitoring, and observation systems.
- b) *Anticipated Research*: Document anticipated research needs and gaps on loss and damage.
- c) *Capacity-building*: Build knowledge and capacity of disaster risk reduction and climate change adaptation on developing and using loss and damage assessment tools, particularly in identifying and documenting non-economic loss and damage.
- d) *Technology*: Recognize the importance of technology in countries' ability to reduce, retain, and transfer climate risk to address loss and damage along with equitable access to technology and knowledge.
- e) *Institutional setup*: Review the suitability of existing institutions, the possibility for expanding their functions and mandate, where applicable; or if required, set up new institutions at the national and subnational levels for addressing loss and damage.
- f) *Policy development and integration*: Building on existing climate change policies and strategies, in order to develop new and/or revised policies to take loss and damage into account.
- g) *Loss and Damage finance*: Articulate the scale of loss and damage finance needs; identify ways to strengthening financing mechanisms through a dedicated fund from the national budget if relevant; expand innovative, pro-poor, people centered financial instruments; and call for enhanced international support, especially the provision of and access to finance.

142. The project also innovates by supporting the implementation of innovative nature-based solutions, climate smart productive practices and diversified livelihoods opportunities that will be informed by the loss and damage assessment as well as monitored. The use of FFS extension approach promoted by the project also represents a participatory, interactive and innovative training and advisory method based on adult learning and experiential learning (learning by doing) principles. The main objective of FFS is not to disseminate new technical knowledge to farmers, but to strengthen their capacity to observe their agroecosystems, identify a problem and seek and test solutions in order to adapt their practices. By promoting exchanges between the different schools and the two countries, the FFS will also seek to strengthen collective action. The implementation of FFS allows farmers to carry out activities (field training through observation of crops, soil and pests; experimentation; sharing of knowledge and know-how) that empower them to "solve problems on their own".

143. Finally, the regional approach will also be innovative while both Cuba and Panama will benefit from the mutual learning opportunity offered by the project. This approach will create conditions for countries to strengthen cooperation, develop partnerships and to exchange good practices and lessons in their efforts to better adapt to climate change impacts and promote scale up of innovative solutions to other Caribbean countries.

B. ECONOMIC, SOCIAL AND ENVIRONMENTAL BENEFITS

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

144. The project seeks to promote and build climate resilience in rural communities in Cuba and Panama by building resilience of coastal communities to the multiple impacts of climate change: changing rainfall patterns, decreased water availability, sea-level rise, salinization, increases in temperatures, and extreme climate events. Project activities will especially target vulnerable groups, particularly women, within rural communities, to address their vulnerability to climate change and limited capacity to adapt.

145. **Economic Benefits:**

- (i) **Preventing damage to reduce possible economic losses.** The implementation of EbA approaches (Component 2) in selected coastal habitats will enhance the ability of these ecosystems to protect people from the adverse effects of climate change. Furthermore, the project will provide savings in avoided damages to infrastructure and productive areas in target

municipalities faced by recurrent flooding and storm impact. Modelling by the University of Cantabria in Cuba demonstrated the protective capacity of mangroves in buffering floods by up to 222 km inland and preventing damage valued at USD 226 million considering a 10-year return period, valuing protective annual benefits of USD 222 per km² of mangrove⁷⁵. It should be noted that this analysis did not include information regarding protective services provided by mangroves in preventing the salinization of crop land from sea water incursion thus one could argue that this number could be larger. The promotion of sustainable practices (Component 3) such as tiered planting and the use of intercropping that protect soil and enhance water capture will contribute to increase agricultural production resilience and therefore reduce potential direct economic losses associated to lower-than expected production associated with to climate change impacts. The restoration of coastal ecosystems will also help sustain local tourism opportunities.

- (ii) **Improving livelihoods through improved income.** Through the implementation of enhanced sustainable production techniques and the development of resilient value chains (Component 3) coastal communities will benefit from improved income and food security. Recent experiences with intercropping in Sri Lanka have shown higher net returns of up to 117% to 180% than coconut monocropping under rainfed conditions⁷⁶. Project consultations highlighted for instance this concern with producers stating production losses of up to two thirds compared to their previous harvests. A study developed by the IADB in Panama identified the potential for sport-fishing in contributing USD 170.4 million in total retail and business-to-business sales, 9,503 direct and indirect jobs, USD 3.1 million in new tax revenue, and an increase in national GDP of USD 48.4 million⁷⁷. The implementation of EbA will also provide economic benefits to the municipalities and local communities. A mangrove restoration project in the Chiriqui Province of Panama identified an estimated increased annual income of USD 270,000 to the area due to nature-based tourism in mangrove protected areas with great growth potential as well as to increased value of fisheries calculated at USD 2 million a year by supporting the recovery of fish stocks.
- (iii) **Improve risk mitigation measures, cost-effective recovery planning and protocols.** The implementation of damage and loss assessments will provide critical information that will inform decision making and help develop cost-effective strategies and measures to better address reconstruction decisions and draw lessons to help to mitigate risks in similar contexts. Further, by helping to articulate the scale of loss and damage finance needs and reflecting these in national strategies the project may also contribute to provide the necessary data for strengthening the call from these two countries for enhanced international support, especially the provision of and access to finance.

146. **Social Benefits:**

- (i) **Improve food security and quality of life.** The loss and damage methodology promoted by the project by focusing specifically on agricultural production and food security is extremely relevant in the context of Cuba and Panama considering food security represents an important vulnerability for these two nations who highly rely on food exports to address production shortages, and where agriculture is a particularly climate sensitive socio-economic sector and coastal communities engaged in fishing and agriculture are highly sensitive to driven threats of climate change. Moreover, the project will contribute to improve food security and quality of life through the implementation of concrete actions that will protect these communities by strengthening their resilience and the productivity and profitability of their plots. It has been estimated in Cuba, SLR could result in accumulated losses of around 40,000 tons in harvests of fundamental crops (rice and sugar cane). This highlights the considerable impacts to small scale rural producers and coastal communities who depend on these crops for livelihoods and food security and are ill prepared to manage slow onset impacts.

⁷⁵ CEPAL (2018). Efectos del cambio climatico en la costa de America Latina y el Caribe: Evaluacion de los Sistemas de Proteccion de los Corales y Manglares en Cuba. Santiago Chile.

⁷⁶ Chandrakasan Sivaperuman et al (2008). *Biodiversity and Climate Change Adaptation in Tropical Islands*. Academic Press. Chapter 23.

⁷⁷ <https://publications.iadb.org/publications/spanish/document/Diagnostico-integral-del-sector-pesca-y-acuicultura-de-la-Republica-de-Panama.pdf>

- (ii) **Capacity building, regional cooperation and knowledge sharing for improved social services and institutions.** The project contributes to improve social services and institutions by strengthening the capacities of relevant stakeholders to identify and address recovery and reconstruction needs. Moreover, project activities will facilitate knowledge exchange among municipalities but also at the regional level enhancing climate adaptive capacities at different levels.
- (iii) **Reduced marginalization and poverty.** Planned interventions are designed to help reduce poverty rate by improving communities' livelihoods and targeting particularly vulnerable households. Further capacity building provided by the project through FFS extension support, South-South Exchanges, access to regional experts, strengthening of productive associations, and dissemination of producer focused methodological guides for production and adapted livelihoods should also contribute to reducing marginalization and poverty of vulnerable groups by improving their resilience and productive capacities. Lack of access of extension support and technical knowledge was stated as a main concern during consultations in both countries and according to the 2011 Agricultural Census in Panama 63% of rural productive households have not received relevant information to productive management by any means of communication (in person, through written guides, radio, phone).
- (iv) **The project will favour a gender, inclusive and participatory approach.** The project will be implemented considering equal rights and opportunities for men and women in the communities, as well as indigenous populations and other historically marginalized groups. The young population of these groups will be prioritized considering their employment difficulties and lack of development opportunities in rural areas. These groups will be involved in addressing their vulnerabilities while rescuing their knowledge, knowledge and experiences related to adaptive responses to climate change, and promoting their social and economic empowerment. The damage and loss assessment and results will be shared with all key stakeholders and the public, including these groups, to develop a broader understanding of the risks and ensure action from all sectors of society.

147. **Environmental Benefits:**

- (i) **Promote responsible use, protection and restoration of key ecosystems.** The project will support the implementation of EbA approaches that enhance the management, protection and restoration of key coastal ecosystems (wetlands, mangrove forests, coral reefs) and support the implementation of sustainable production practices that support the sustainable management of land, water and natural resources and promote healthy ecosystems and biodiversity. In Cuba, production of artisanal oyster and mollusc culture has contributed to enhanced water quality, increasing fish stock and biodiversity. The restoration of unique coastal habitats is of critical importance in this biodiversity hotspots to preserve biodiversity.
- (ii) **Enhance awareness on the value of these ecosystems and promote behavioural change.** The project in its approach of exemplifying the value of these systems to reduce loss and damage will enhance community awareness on the importance of these ecosystems in the provision of environmental goods and services for climate resilience and on the importance of protecting these ecosystems. In addition, by raising awareness and supporting the adoption of sustainable production practices the project will also contribute to promote long term sustainable environmentally friendly behaviours.
- (iii) **The project will contribute to GHG mitigation.** Through the implementation of sustainable ecosystem management, including the restoration of mangrove areas and riparian forests and the use of sustainable productive practices, the project will also contribute to GHG mitigation that will contribute to both country's NDC targets. Mangroves are unique carbon storehouse in their ability to lock carbon up in anaerobic soils with average carbon sequestration rates of 8.3 t CO₂ per hectare. Further coconut produced through intercropping has shown to store a total of 138.91 tonnes of carbon (above ground plus below ground soil carbon stock per hectare) as compared to 98.2 tonnes of carbon on a coconut monocrop plantation (usual practice in target sites)⁷⁸.

⁷⁸ K. S. Naveen Kumar* and H. P. Maheswarappa (2019). « Carbon sequestration potential of coconut based cropping systems under integrated nutrient management practices » *Journal of Plantation Crops*, 2019, 47(2): 107-114

C. COST-EFFECTIVENESS

Describe or provide an analysis of the cost-effectiveness of the proposed project/programme and explain how the regional approach would support cost-effectiveness.

148. **The proposed regional approach will support cost-effectiveness through the implementation of damage and loss assessments** that will provide critical information to help develop cost-effective strategies and measures to better address reconstruction decisions and draw lessons to help to mitigate risks in similar contexts. Over time, the data provide a basis for monitoring loss and damage spatial patterns and temporal trends, calibrating investments in disaster risk management, and evaluating the efficacy of risk reduction measures. Loss and damage data also provide input for calculating risks of future losses. The regional approach promoted by the project will facilitate the adoption of similar standards by the Cuba and Panama allowing data comparability and aggregation. Moreover, it will facilitate standardization of processes on for example how the parameters for loss and damage data are collected, defined and how loss and damages are attributed to hazard events.

149. **The project cost-effectiveness also resides in the fact that the regional approach will allow for savings** for example through the systematization, contextualization and cross pollination of capacity building and lessons learned, but also through economies of scale during the procurement of equipment and services.

150. **The project's approach in implementation through FFS that will be interlinked across the nine target sites facilitates cost efficiency** through the creation of platforms for effective and scalable dissemination of best practices while addressing the limited availability of extension services in the target areas. The project by building the capacities in field of producers will facilitate dissemination of best practice to other producers and coastal communities and to some extent decreasing the need for additional capacity building by national and international experts.

151. **The FFS approach, represents a cost-effective extension strategy demonstrated to have scalable effects that reduces costs as time progresses and farmers expand FFS programs by their own means.** Most FFS remain in place after projects end with the majority of the cost being that of transportation rather than the hiring of international experts that is more accessible to local populations. The binational platform that will be created will allow for the continued exchange among FFS thus increasing the reach of extension support. This practice of South-South FFS exchange has demonstrated its success in past projects in increasing the impact and scope of technical expertise spreading key locally based knowledge beyond national borders as demonstrated through FAO's Global Integrated Pest Management Facility that provided support through the South-South Exchange of FFS facilitators (producers). Lessons learned from this South-South Exchange will be considered by the project to enhance its regional reach beyond Cuba and Panama.

152. **The project further favours cost efficiency through the implementation of NbS and EbA** as main solutions to manage slow onset climate impacts (dynamic in nature) while creating on-ground local capacities to develop them. The recovery of high-value ecosystems such as the mangrove will be key to maintaining and improving environmental goods and services that are used by the coastal populations and that generate important economic benefits for them. NbS solutions have demonstrated through past projects such as the AF Funded Manglar Vivo Project in Cuba and in mangrove restoration in the region of Chiriqui in Panama to be effective in reducing soil erosion and onsite salinity levels and protecting coastlines from SRL pressures hence are considered appropriate responses, in addition NbS solutions can adapt more easily than other solutions and in fact become more effective with time progression which is required for slow onset impact. Further, NbS have been shown to provide multiple benefit in terms of building agricultural production and resilience, managing CC impacts, and enhancing nature and biodiversity.⁷⁹ In the case of slow onset impacts such as sea level rise, nature based solutions such as mangrove restoration (costed at approximately at USD 23,000 per ha)⁸⁰ have proven to be more cost efficient in the long run the

⁷⁹ <http://www.fao.org/3/cb3141en/CB3141EN.pdf>

⁸⁰ IFRC (2019). Coastal Protection: A Cost Comparison Between Natural And Artificial Structures.

alternative grey infrastructure strategies to manage saline intrusion and flooding with artificial structures for coastal protection such as seawalls and levees costing nearly USD19 million per linear kilometre as observed in the Caribbean⁸¹. Positive impacts to local livelihoods have been identified in past mangrove restoration projects in Panama resulting in increased incomes to local populations from tourist-based activities (USD 270,000 per year), increased fishing stock (valued at USD 2 million per year). In Cuba the recently closed AF project identified benefits in the amount above COP 7 million in fishing-based livelihoods and COP 45,000 in apiculture in the two years after restoration actions took place, hence demonstrating the role that nature-based solutions have as a least cost most benefit option for adaptation and disaster risk management⁸².

153. **Sites for restoration activities will be selected based on the cost-effectiveness and high economic benefit to cost ratio (B/C)** (Figures 16(a) and 16(b)). The preparation study for the project identified specific areas in Cuba and Panama where there could be significant returns on investment for the restoration of reefs and mangroves. In the case of mangroves, 181 coastal units (i.e. > 3,000 km of coastline) have been found in Caribbean region with profitable opportunities (i.e. B/C > 1) for mangrove restoration. Cuba, with 36 sections, is the country that has the largest number of study units with profitable opportunities for mangrove restoration. While the areas with the greatest benefits are in the north of the Island, in the project area there are also several areas where clear benefits of restoration are identified in order to protect the communities and assets that extend to along the coast. The Panama study identified a unit in the Portobelo area with a B/C ratio>15, which clearly shows the high potential for restoration in that area.

154. For coral reefs, cost-effective restoration opportunities are identified in 55 coastal units in the Caribbean, representing more than 1,000 km of coastline in 13 countries and territories. Cuba among the countries with the most opportunities to find profitability in reef restoration thanks to its return in terms of protection services. In fact, in Cuba there are at least 10 stretches of the coast in which this situation occurs, of which 6 are in the project area.

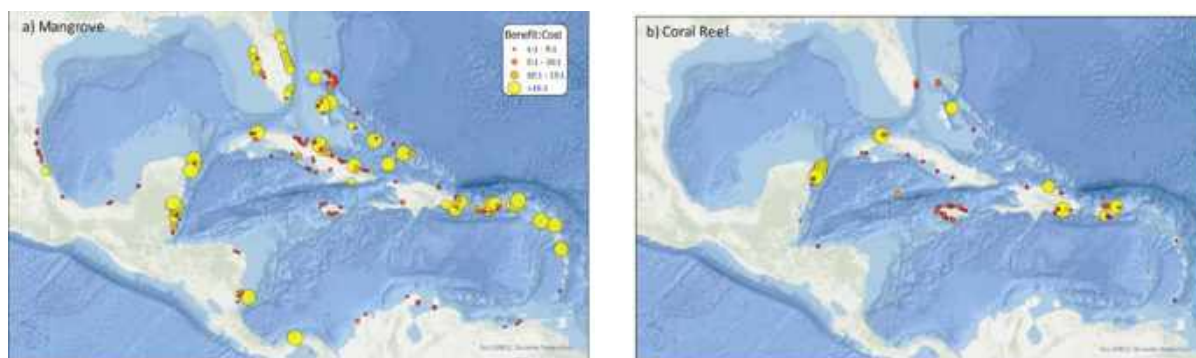


Figure 16(a) B/C of mangrove restoration in the Caribbean and Figure 16 (b) B/C of coral reef restoration in the Caribbean. The values are the Net Present Value (NPV) of the restoration of (a) mangroves and (b) reefs assumed as green infrastructure assets, assuming a project life of 30 years and a discount rate of 4%. Results are grouped into 20 km coastal study units. The size of the circles and the colours indicate the B:C ratios. Source: Beck et al. (2022)

155. The present value (PV) of reefs and mangroves (Figures 17 (a) and (b)) shows that many places derive long-term benefits from the flood protection provided by mangroves, with values in the hundreds of thousands of dollars per hectare. For reefs an equivalent reading can be made with values close to the tens to hundreds of millions per kilometre. These values are indicative of the possible break-even costs of restoration; that is, the return on investment will be positive in many places, even if restoration costs are

⁸¹ Ibid.

⁸² Aguilar Gonzalez, Bernardo (2020). Valoración Económica de Bienes y Servicios Ecosistémicos para el Proyecto Manglar Vivo. Parte 2. Reporte de Consultor a para la Agencia del Medio Ambiente- CITMA, La Habana, Cuba. Fundación Neotrópica.

high. Note that, for example in Cuba, in the study areas, mangrove restorations continue to yield a B/C=1 even though restoration costs are above 250,000USD/hectare.

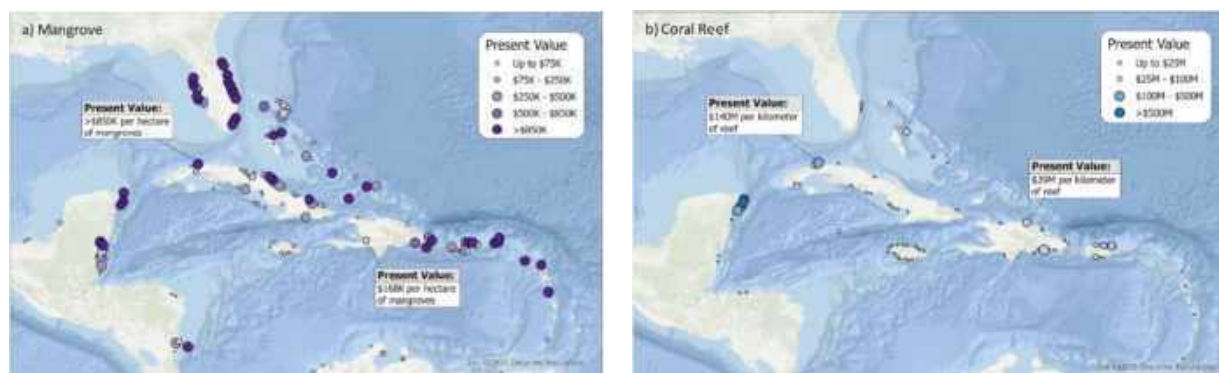


Figure 17 (a) Present value of Mangroves in the Caribbean per hectare and Figure 17 (b) Present value of Coral reefs in terms per km of flood reduction benefits. The values assume that these habitats are an asset equivalent to a protective infrastructure for a period of 30 years and applying a discount rate of 4%. Source: Beck et al. (2022)

156. In consideration of projected climate impacts to coastal municipalities a do-nothing scenario will result in the invaluable loss of agricultural land as a result of coastal erosion and salinization in both countries. In Cuba according to the Macro analysis report from the Third National Communication of the Government of Cuba to the UNFCCC⁸³, accumulated losses are estimated at around 40,000 tons in harvests of fundamental crops (rice and sugar cane) and other various crops (tubers and roots) as a result of SLR. Hence promoting climate smart technologies and interventions, for example with the introduction and experimentation with saline resistant rice varieties will result in a reduction of projected loss to this scenario. Quantification of avoided project loss will be a key indicator that will be a result of the project implementation and its use of the loss and damage methodology.

D. ALIGNMENT WITH NATIONAL STRATEGIES

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

157. The proposed program is consistent with Cuba and Panama's national sustainable development strategies, policies, and plans. The proposal is coherent and contributes to global goals such as the SDGs, the Aichi Biodiversity targets and the Paris Agreement that establishes measures and encourages the 195 states that are party to the Framework Convention of the United Nations on Climate Change (UNFCCC) to establish commitments to reduce Greenhouse Gas (GHG) emissions through the mitigation, adaptation, and resilience of ecosystems to the effects of global warming.

158. This proposal seeks to support the most vulnerable regions by contributing directly, to SDG objective 13 on the need to adopt urgent measures to combat climate change and its effects is established; but also, SDG objective 14 to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse degradation and to prevent loss of biodiversity, but also SDG objectives 1 and 2 to reduce poverty and food insecurity.

⁸³ CITMA (2020)

159. The participating countries that are parties to the United Nations Framework Convention on Climate Change (UNFCCC), have signed, and ratified the Kyoto Protocol. By ratifying the UNFCCC, these countries have committed to implementing measures to adapt to climate change and reporting on their NDCs. The regional programme will contribute to countries commitments for their updated NDCs, particularly their stronger commitment to meet their adaptation priorities. A major milestone in Panamá's enhanced NDC is that for the first time it included adaptation priorities to design climate-resilient communities and ecosystems, developing risk mitigation measures in human settlements, public health, and sustainable infrastructure sectors. While the updated Cuba NDC, the updated NDC, outlines Cuba's strengthened climate change mitigation and adaptation policies and actions. The NDC prioritizes the Agriculture, Forestry, and Other Land Use (AFOLU) as a key sector, and notes that mitigation actions will require financial support in technology transfer and capacity building.

160. At a regional level it is consistent with commitments made within the Wider Caribbean Region for the protection of the Caribbean Sea through the Cartagena Convention for the Protection and Development of the Marine Environment to which both Cuba and Panama are parties to. This includes Protocols for the Protection from Land Based Sources and Activities as well as the Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region. The project will enhance the capacity of both Cuba and Panama to protect critical ecosystem and reduce unsustainable productive practices that result in pollution to the Caribbean Sea including those from seabed activities and land-based source and activities such as agriculture.

161. The project objectives also align with the recommendations of the recent subregional seminar⁸⁴ "Strengthening environment, climate change and disaster information in the Caribbean", organized in August 2022 by the Economic Commission for Latin America and the Caribbean (ECLAC) and PARIS21, where specialists stressed the importance of strengthening information on the environment, climate change and disasters in the Caribbean subregion. At the meeting, participants emphasized that the subregion's countries not only need high-quality data to monitor, report and analyze changes in the climate, but they also need data to inform and accelerate mitigation and adaptation actions.

162. The project will also seek to establish coordination and collaboration with the Caribbean Community Climate Change Center (CCCCC) and the Caribbean Sea Commission (CSC) to identify opportunities for collaboration and exchange.

163. **Cuba:** Cuba has a well-developed legislative and institutional framework at national level in relation to CC adaption, as a result of its long experience and well-proven ability with disaster management. The principal legislative instrument of relevance to climate change adaptation is the Environment Law (Law #81 of 11th July 1997). Provisions for civil defence in relation to natural disasters are established through Decree #170 of May 1997, on the System for Civil Defence Measures. This provides for a high level of participation of local institutions, in particular municipal governments. In reflection of the prioritization of this issue by the Government, studies have been produced at provincial and municipal levels, projecting threats, vulnerability, and corresponding risks, especially in relation to hydrometeorological phenomena.

164. The project is aligned with the 2021/2025 National Environmental Strategy of the Republic of Cuba, which in its main strategic directions establishes fundamental priority actions, aligned with the three proposed project components, notably the following Strategic Directions:

- a. Strategic Direction No. 1: Guarantee economic growth considering the rational use of natural resources, the reduction of environmental impacts and environmental degradation.
- b. Strategic Direction No. 2: Ensure the conservation, restoration and sustainable use of terrestrial and marine ecosystems to avoid adverse effects, increase their resilience, recover their health and productivity.

⁸⁴ [The Complexity of the Climate Crisis in the Caribbean Necessitates a Data-based Response on a Global, Regional, National and Local Level](#)

- c. Strategic Direction No. 3: Reduce/eliminate negative impacts on the environment and people's health through the development and conversion of infrastructure, achieving sustainable management and efficient use of natural resources.

165. It also supports the implementation of the Strategic Plan for the Agricultural and Forestry Sector of the Republic of Cuba, which includes among its strategic objectives to guarantee the conservation, protection and sustainable management of the environment considering the impacts of CC and disasters. Strategic priorities of this plan include increasing production and diversifying livelihoods, conserving, and protecting resources and the environment, and tackling CC and disasters. This tool includes protection, conservation, and rehabilitation of the environmental, agricultural and forestry activities, addressing CC, as well as conservation and rational use of natural resources such as soils, water and forests. The project also considers the implementation of Cuba's National Gender Strategy for the Agriculture Sector that looks to increase the role and participation of women in the primary sector.

166. Most critically, the project responds to and favours the implementation of the State Plan for confronting Climate Change "Tarea Vida", identifying prioritized areas and places, their effects, and main actions to be undertaken so that these communities and their livelihoods can adapt and be more resilient to the effects and impacts of global climate change. It is also consistent with the National Plan for Economic and Social Development until 2030 (PNDES-2030) that identifies food and energy production among the six strategic government sectors for which it is important to take into account environmental considerations, especially the effects and impacts of global CC. While Cuba is still in the process of developing its National Adaptation Plan, the project is fully aligned with Cuba's NDC that was recently submitted which highlights the country's vulnerability to climate change in the form of sea level rise and increased temperature, amongst other impacts, and prioritizes adaptation and the use of nature-based solutions to managing climate impact, targeting mangroves as a key ecosystem. Cuba's NDCs have also prioritized the adaptation and protection of food production systems (as part of community wellbeing) as well as the need for access to climate smart technologies for both adaptation and mitigation.

167. The project is also aligned with the Country Priorities Framework developed by the GoC and FAO that identifies main national priorities for receiving FAO Assistance including adaptation to CC and the sustainable management of natural resources. As a result, selected institutions implement activities of adaptation to CC and promote the sustainable management and development of natural resources, in line with the National Environmental Strategy, the National Strategy for Biological Diversity and other programs, such as the National Action Program to Combat Desertification and Drought and the Sustainable Land Management Program.

168. **Panama:** The proposed project is consistent with national sustainable development strategies, policies and plans. According to the Government Strategic Plan 2019-2024, Panama is committed to complying with the Sustainable Development Goals (SDGs), which implies eradicating extreme poverty and reducing by at least half the proportion of men, women and children of all ages living in poverty in all dimensions by 2030. In September 2015, Panama adopted by Executive Decree No. 393 the 2030 Agenda and the SDGs as part of its national development agenda, promoting actions that contribute to achieving the goals, seeking the alignment of efforts with all sectors of society. This proposal seeks to support the most vulnerable regions by contributing directly, not only to Objective 13 where the need to adopt urgent measures to combat climate change and its effects is established; but to other SDGs such as Goal No. 10 that refers to the reduction of inequalities, since throughout history it has been recorded and proven that the less economic inequality a community or population system has, the greater the capacity to respond to the impacts of disasters.

169. The project also addresses key issues identified in Panama's NDCs as well as in its Third National Communication submitted to the UNFCCC that stresses the lack of national and scientific capacity to fully assess vulnerability to impacts derived from sea level rise and other climate change related impacts to communities and national sectors of relevance.

170. The project is related to the evolution of institutions in environmental matters and legal regulations, as well as laws, decrees, resolutions, and others. Some of these are: in 1972, a title of Ecological Regime

was added to the National Constitution; in 1986, the Institute of Renewable Natural Resources (INRENARE by its acronym in Spanish) was created; In 1998, the General Environmental Law was passed and the National Environmental Authority (ANAM by its acronym in Spanish) and the Panama Maritime Authority (AMP by its acronym in Spanish) were created; in 1999, the First National Environmental Strategy was approved; in 2006, the Panama Aquatic Resources Authority (ARAP, by its acronym in Spanish) was created and the Territorial Ordinance Law was approved in the Ministry of Housing; in 2008, a Second National Environmental Strategy was approved; The National Policy on Climate Change (Executive Decree No. 35 of 2007) is created, which has improved the regulation of its policy of mitigation and adaptation to climate change, which has been incorporated into the General Environmental Law of Panama (Executive Decree 100 of 2020 and Executive Decree 131 of 2021).

171. The project is also consistent with the National Climate Change Strategy 2050, approved by Executive Decree, which establishes a roadmap with the objective of directing the country towards a low-carbon economy with mitigation and adaptation actions with a sustainable economic, social and environmental growth as well as compliance with the SDG 5 that favours the achievement of gender equality as a cross-cutting axis in development and the environmental management. The project is also supported by the Practical Guide for Adaptation to Climate Change in Marine-Coastal Zones of the Panamanian Pacific, which aims to formulate a series of measures that make the way for the development of coastal communities. In addition, that such measures strengthen the resilience of these communities in the face of the current climate with its extremes and fluctuations, in a way that allows them to adapt to global climate change. Moreover, the achievement of the Strategic Government Plan 2019-2024 of Panama is framed within objectives and goals indicated through a large participatory process called “national consensus”. The consensus includes environment and CC issues, the prevention and management of risks disasters, the promotion of actions to combat the effects of global CC as part of the climate action of the 2030 Agenda and the SDGs.

172. The project also relates to other national legal relevant instruments such as the National Forestry Strategy 2050, which targets to guarantee the conservation of this important resources, stimulate the sustainable forest industry, conserve the forest heritage as an important basis of ecosystems and mitigate the effects of CC. As part of the measures that promotes this strategy, it is the Alliance for a Million Hectares, which is a great public-private initiative that seeks the conservation, reforestation and recovery of 1 million hectares of forests and degraded lands in Panama. This initiative promotes a reduction in the deforestation of natural forests, carbon sequestration, generating multiple benefits such as economic, social and environmental to the country (Components 2 and 3). Moreover, the project is also consistent with Panama’s National Policy for Oceans⁸⁵ and the National Plan for Gender and Climate Change⁸⁶. Both plans particular emphasis on the importance of gender for the conservation of the natural environment.

173. The project is further aligned with the National Climate Change Plan for the Agricultural Sector of the Republic of Panama, which promotes sustainable production schemes and production diversification that incorporate variables for adaptation to global climate change (Component 2). It also favours the implementation of Panama’s National Water Security Plan that establishes a roadmap that must be executed to improve Panama’s quality of life, supports its inclusive economic growth, and ensures the integrity its environment (Component 3). Additionally, the project is in line with the National Biodiversity Strategy and its 2018-2050 Action Plan (Component 3) and its roadmap for the comprehensive management of biodiversity through the implementation of five strategic priorities: (1) conservation and restoration; (2) reduction of pressures on biodiversity; (3) environmental knowledge, awareness and education; (4) sustainable use and management; and (5) integration and governance. As well as with Panama’s National Footprint Reduction Program that aims at incorporating sustainable development indicators into existing productive practices, and at reducing impacts on national resources and GHG emissions.

174. The project is also supported by the Practical Guide for Adaptation to Climate Change in Marine-Coastal Zones of the Panamanian Pacific, which aims to formulate a series of measures that make the way

⁸⁵ [Política Nacional de Océanos de Panamá](#), 2022

⁸⁶ [Plan Nacional de Género y Cambio Climático](#), 2021

for the development of coastal communities. In addition, that such measures strengthen the resilience of these communities in the face of the current climate with its extremes and fluctuations, in a way that allows them to adapt to global climate change.

175. At local level, the project results will provide support in delivering on the 2030 Food Security Action Plan included within the Colon Regional Development Plan. The Action Plan foresees activities targeted for small producers in rural districts to improve competitiveness and integrated innovation processes into artisanal production as well as traditional agroindustry. Actions under this target are to be focused with a sustainability focus that reduces environmental impact and enhances adaptive capacity for climate resilient agriculture and livestock in the district.

176. The results and lessons learned will be an important contribution to the fulfilment of the state's obligations in national communications on CC. Additionally, the project may also contribute to the process for the establishment of the REDD+ strategy of Panama.

177. It is important to highlight that Panama addresses the relationship between gender and climate change in its policies and strategies. The National Ocean Policy contemplates gender equality transversally to achieve “progress towards equal opportunities and access for women to ocean resources and the benefits that derive from their conservation and sustainable use.” This is materialized through actions with a gender and youth orientation within each of its thematic axes (Biodiversity and marine resources, Maritime governance and security, blue economy and logistics development, Science, technology and innovation), as well as specific ones within a fifth axis strategic. Additionally, MiAmbiente has the National Gender and Climate Change Plan. This plan is adopted through Executive Decree No11. on June 16, 2022 and proposes action strategies for ten prioritized sectors for being capable of energizing a comprehensive process of mainstreaming the gender perspective in the climate agenda. These sectors are: energy, forests, watersheds, marine-coastal, biodiversity, livestock, agriculture and aquaculture, resilient human settlements, public health, sustainable infrastructure and circular economy. For each of them, objectives, results, actions and indicators were established to ensure the equal participation of men and women in mitigation and adaptation, and their consequent impact on the reduction of emissions.

E. RELEVANT NATIONAL TECHNICAL STANDARDS

178. The project will work with relevant authorities in both countries to ensure the project meets national and local technical standards and regulations, including those on natural resource management in both countries for on-ground action as well as those protecting the rights of workers and vulnerable populations. The general rules / regulations / guidelines / instruments listed below will serve as a reference for compliance with the general components of the program.

Table 2: Main Regulations of relevance and project alignment

National Regulations	Project Compliance
Panama	
Constitution of Panama (2004)	Establishes the normative, legal and political framework for Panama, including laws for the protection of human and political rights (Arts 131- 145) and establishes an ecological framework (Arts 118 -121)
General Environmental Law of Panamá (2009)	Adherence to the Law including its article 16 that requires environmental impact assessment process for the implementation of large-scale actions in the establishment and expansion of agriculture, livestock, hunting and forestry as well as in fishing productive activities (fish hatcheries and farming of shrimp, crocodile, turtle and crabs)
Regulation of Water uses- Decree Law No. 35 of September 22, 1966,	Regulation for the exploitation of state waters ensuring their exploitation according to the social and ecological interest and establishes regulation for water uses. Project alignment: Project will consider uses and water regulation into field actions in components 2 and 3.
Integrated management of hydrographic basins (law 44 of 2001)	Include into the Adaptation plan, considerations about land use plan for the hydrographic basin state in art. 2, including carrying capacity of the natural environment.

	Project alignment: Project will take law into consideration into potential alternative value chain proposed related to water use including climate smart practices in agriculture, fishing, and ecotourism.
National Water policy- Executive Decree No. 84 of April 9, 2007	States, water management as part of the economic, social, and environmental development, possible through a systematic and participatory approach. Establish principles for water use (equity, environmental sustainability, prioritization, value, governance, information among others) that will guide project implementation and associative capacities created for its management
National Plan on Water Security: 2015-2050- Water for all. Creation of National Water Council and Technical secretariat (Cabinet resolution N°114, August 23.2016)	Is an Instrument of national inter institutional coordination of involve sectors for water uses that allows to guarantee water supply for human uses, productive uses and reduce associated risk to climate extreme events such as drought or floods. Project alignment: Project will be in line with goal 3 that has Adaptation plans as main actions and goal 4, working on the identification of sea level rise affectation to coastal communities of municipalities of Colon. Art. 4 creates National Water Council and art. 5 creates its technical secretariat in Ministry of Environment. Project actions will be in line with goals 3 and 4 mentioned and will work in close collaboration with MiAmbiente to fulfill all the procedures, policies and strategies, local and national, related to water availability as a result of EbA project interventions.
Administrative Resolution No. 88 of August 23, 2011	Establishes technical guidelines for the preparation of Evaluation and Audits for Environmental Impact Studies for Coastal Marine Zones and Inland Waters, including the development of impact studies for projects in coastal marine areas. Project alignment: National environmental impact assessment will be conducted if required in project activities of component 2 or 3 according with this national legislation.
Administrative Resolution No. 103 of October 7, 2011	Establish guidelines for Environmental Audit and Inspection of Companies in Coastal Marine Areas and Inland Waters applicable to companies and activities that may affect coastal marine resources and continental waters in the jurisdiction of the Natural Protected Areas and Protection. Project alignment: if necessary, will conduct a National environmental impact assessment if required (triggered interventions along Portobelo National Park) in project activities of component 2 or 3 according with this national legislation as well as AF environmental and social standard.
Regulation of the process of elaboration and adoption of the guides of good environmental practices foreseen in article 23 A - chapter II title IV of the law I of the general env. law (Ex. Decree 111, Aug 25, 2016)	This decree defines and establishes the procedure for the creation of guides of best environmental practices. Project alignment: Project will be in line with the definition, scope and technical standards establish in this decree in the field EbA activities and it best practices, lesson learned and codification process.
Wetland National Policy (Executive Decree 127 - December 21, 2018)	Modify and standardize national regulations on wetlands in accordance with international conventions and the national context and ensure its compliance to guarantee its conservation, protection and sustainable use. Action 3 will create a wetland diagnosis including limits and demarcation according MiAmbiente criteria. Project alignment: Project will act in accordance to regulation in interventions in coastal wetlands (component 2) and ensure actions in component 3 (regenerative aquaculture) are aligned with regulations.
Forest legislation (Law 1 of 1994)	Protection conservation, enhancement, education, research, management and rational use of the forest resources of Panama. Art. 5 states type of forests, management plans, forest sustainable use, reforestation plans, managed regeneration and Environmental Impact Studies. Project alignment: Per legislation and if required for actions in components 2 and 3 the project will conduct a National environmental impact assessment notably on actions in mangrove forests
Family Agriculture (Law 127)	Article 8 mentioned the objective of promote the access to services to improve life quality, production, and commercialization of the familiar agriculture. Include strategies of commercialization and marketing according to the type of family agriculture. National plan states the necessity of technical assistance and training. Project alignment Art- 18 mentions different mechanism to be adopted to facilitate associativity of agricultural farmers and promote strengthening of the existent organization relevant to component 3. Project will be in line with this law and will

	consider national promotion mechanism to help and promote local farmer associativity, training and technical assistance needs.
National Forestry Strategy to 2050 (Executive decree 10, April 2nd, 2019)	Recognized mangroves as part of forests of Panama and recognized its carbon storage capacity This is how blue carbon is considered as an integral part of ecosystem services of the Forestry Sector and a green economy, with a view to integration to emerging markets. Project alignment: Project will consider mangroves as part of key ecosystems that generates barriers that benefits coastal community resilience. Potential action could be done in these ecosystems in targeted municipalities.
National Policy on Agricultural Transformation 2001 (Law 25 of June 2001)	States several elements to achieve agricultural transformation including technological alternative for national producers, increase livelihood of self – producers as well as new productive alternatives. Project alignment: project will be in line with this policy in the promotion of climate smart practices into the component 3.
Panama's Declaration of Indigenous Peoples Rights	Establishes the process for ensuring free informed prior consent of indigenous communities that the project will follow in consultation indigenous populations and project implementation in areas that have been identified by the project as having indigenous populations.
Work Code of Panama of 1995	Establishes applicable labour laws to be followed to ensure the safety, human and labour rights of all Panamanian workers, including establishing working hours and ensuring non-discrimination. Chapter 3 focuses on conditions for rural work that the project will comply in the implementation of Components 2 and 3, amongst others.
Law 15 of 1977 by which the Inter American Convention on Human Rights is Approved	Approves the international framework for human rights as applicable and valid in Panama guaranteeing rights for all Panamanian people
Public Policy of Equal Opportunities for Women (PPIOM)	promote the participation of women in the culture of conservation, environmental protection, use and access to natural resources, and the benefits generated for sustainable development, in order to improve the quality of life of the population from a gender equality and equity perspective
National Gender and Climate Change Plan	proposes strategies to accelerate a comprehensive process of mainstreaming the gender approach in prioritized sectors of the climate agenda and promotes equality in the access of women and men to spaces for consultation, training and decision-making in each of the prioritized sectors.
Cuba	
Constitution for the Republic of Cuba (2019)	Establishes the normative and legal framework for the Republic of Cuba including the role of the central, provincial and municipal governments and representation. Establishes in its Chapter 5 Political Rights and Guarantees protecting human dignity in the form of education, jobs, health, social security and including equal access to women to all political and economic rights and protection against violence (Art 43) and establishing the right of children and adolescents to education and prohibiting child labour
Law 85 of 1998, Forestry Law	The objectives of the Forestry Law, Law 85 of July 21, 1998, are to establish the general principles and regulations for the protection, increase and sustainable development of the nation's forest heritage; to control forest resources by means of the established regulations and the competent bodies and organizations; to promote and encourage reforestation for economic, protective or social purposes, as well as forestry management in plantations and natural forests; conserve the biological diversity resources associated with forest ecosystems; protect forests against deforestation, irrational logging, forest fires, free grazing, pests and diseases, and other actions that may affect them; regulate the multiple and sustainable use of forest resources and promote the rational use of non-wood forest products. "Article 27" also states that no logging may take place, irrespective of the type, and that, inter alia, forest strips along the coastline and forests in the Keys shall be subject to special protection arrangements. Project alignment: Project will be in line with the Law and will follow the principles and regulations for the protection of the nation's forest heritage.
Law 129 of 2019 on Fishing Regulations	This regulation, without directly addressing CC, includes various measures that have been used to protect fisheries and marine resources, and which are also good adaptation practices. This includes the elimination of the most aggressive fishing practices for the species and the environment; the implementation of new minimum sizes for catches of different species; the control of fishing activity at times of

	<p>reproduction of some critical species; the introduction of longer fishing bans in reproductive periods and the establishment of Areas under special use and protection regimes. These are defined as legally established protected areas in which fishing activities are governed by special provisions.</p> <p>Project alignment: Project will be in line with sustainable fishing practices and standards stated by this law.</p>
Decree-Law 77/2023, Coastal Zone Management (“ De Costas”)	<p>Establishes the set of mechanisms, actions and instruments that must be applied in the coastal and protection zone, aimed at its sustainable use, as well as the protection of human settlements, and the processes of economic and social development in them. The Decree-Law defines the coastal zone and its protection zone and establishes a classification that takes into account the structure and configuration of the different types of coasts, criteria from which the extension of this zone is established. The execution of works or activities in the coastal zone, including those for protection, are conditioned on the acquisition of the environmental license and compliance with its requirements in accordance with the provisions of “Article 119” of Law No. 150, Environmental Law, and corresponding legislation</p> <p>Project alignment: The project works in components 2 and 3 will adhere to the policy requirements, in terms of licensing and environmental compliance, in accordance with what is established. If necessary, it will carry out a national environmental impact assessment if necessary on the project activities in accordance with this national legislation.</p>
DL 136 Forest heritage and wildlife and their contravention	<p>Establish the following subjects: (I); Forests (II); Protection and conservation of forest heritage and wildlife (III): Common provisions (1), Fire control (2), Clearing (3), Reforestation (4); Use (IV); Control of wild fauna (V); State service for the protection of forest resources and wildlife (VI).</p> <p>Project alignment: Project will fulfil requirement of title 4 if restoration actions take place in mangrove ecosystems. if necessary, will conduct a National environmental impact assessment if required in project activities of component 2 or 3 in accordance with national legislation.</p>
Law 124 of 2017 on Terrestrial Waters	<p>Most recent law issued in the country on the protection and management of natural resources. Declare measures to reduce vulnerability to the current or expected effects of climate change and is thus referred to within the objectives of the Law.</p> <p>Project alignment: productive climate smart practices promoted by the project in component 3 will be in line with the scope of this law about sustainable use of land and water. Also, EbA measures in component 2 will be in line with its principles.</p>
D/L 50/2021 “On the conservation, improvement and sustainable management of soils and the use of fertilizers”	<p>This Decree-Law establishes general regulations for the conservation, improvement and sustainable management of agricultural and forestry soils and the use of fertilizers. It is governed by the principles of Sustainability, prevention, progressivity, responsibility, subsidiarity and cooperation.</p> <p>Project alignment: project will be in line with the contravention of this law at the time to promote climate smart agricultural practices in FFS component 3.</p>
Decree-Law 200 System environmental violations	<p>establish applicable violations in the field of the environment, without prejudice to the provisions in force or that are established from time to time in relation to certain sectors of environmental protection.</p> <p>Project alignment: project will be in line with the contravention of this law at the time to promote climate smart agricultural practices in FFS component 3.</p>
Resolution 139 of 2010 of the Ministry of Science, Technology and Environment	<p>Establishes the application of environmental impact studies to activities related to:</p> <ul style="list-style-type: none"> • Tourist facilities, in particular those that are planned in coastal ecosystems. • Changes in land use that may cause significant deterioration in this or other natural resources or affect the ecological balance. • Beach improvement and rehabilitation projects. <p>Project alignment: Project will consider environmental regulations and monitoring activities as well as national Environmental impact assessment in field actions especially for components 2 and 3, including potential eco touristic activities. If necessary, will conduct a National environmental impact assessment if required in project activities of component 2 or 3 according with this national legislation as well as AF environmental and social standard.</p>

<p>Law 150/2022 “On the Natural Resources System and the Environment.”</p>	<p>This Law establishes the basic principles and rules that regulate the actions of the State, citizens and society in general to ensure the implementation and functioning of the Natural Resources and Environment System. Its purpose is to provide substantive elements for the protection and sustainable use of natural resources and the environment, the Natural Heritage, and to incorporate the environmental dimension in economic and social development plans within the established deadlines, and to promote greater participation multidisciplinary, intersectoral and citizen in the implementation of other policies linked to natural resources or that are related to environmental management and quality.</p> <p>Project alignment: The project will be aligned with the Law and will follow the principles and standards for the protection and sustainable use of natural resources. It will allow the inclusion of the environmental dimension in economic and social development plans. It is applied to the results of the three components of the Project.</p>
<p>Law 148/2022 “Law on Food Sovereignty and Nutritional Food Security.”</p>	<p>It establishes the general legal framework to achieve food sovereignty, as well as strengthen food and nutritional security based on the protection of the right of every person to healthy and adequate food, regulates the organization of sovereign and sustainable local food systems that articulate intersectoral and interinstitutional way the production, transformation, marketing and consumption of food.</p> <p>Project alignment: Applies to the fulfilment of the Project objectives set out in the three components.</p>

F. PROJECT COMPLEMENTARITY WITH OTHER FUNDING SOURCES

179. There is no duplication with other funding sources but, rather, opportunities for building partnerships. The project is complementary with other ongoing initiatives and will ensure continuous coordination with related national projects in Cuba and Panama. Lessons will be shared through national coordination mechanisms, also considering that the Ministries of Environment and Agriculture are involved in all cases, hence creating an opportunity for mutual learning. Furthermore, best practices will serve be disseminated through the bi-national network that will be created for the project thus creating an ample opportunity for upscale at a regional setting. The following table shows the synergies and complementarities with relevant projects and initiatives.

Table 3: Complementary Projects in Cuba and Panama

Cuba		
Project and dates of implementation	Characteristics	Entry Points for Coordination and Project Additionality
<p>Coastal Resilience to Climate Change in Cuba through Ecosystem Based Adaptation - "MI COSTA" (GCF/UNDP/AMA) (2021-2029)</p>	<p>The project is focused on implementing an integral coastal ecosystem-based approach for coastal resilience including SLR and storm intensity. It will invest in the restoration of coastal ecosystems as well as in enhancing an enabling legal framework for EbA and on informed communities. The project will be implemented along two large coastal stretches that include interventions in Batabanó and San Cristobal.</p>	<p>Mi Costa will focus on EbA for general coastal resilience and protection. Project focused on community adaptive capacities, but not on food security on productive systems within coastal areas that will be the target of the project. The project will not provide support to productive associations nor measure the projected loss and damage due to SLR.</p> <p>Synergies and no duplication actions:</p> <ul style="list-style-type: none"> -Opportunities for coordination learning with CITMA (main actor for both projects) enhance it adaptation to CC information and actions to achieve a sustainable production level linked with EbA -Sustainable production work of this project will complement adaptation efforts to producer level with high possibility of dissemination and inclusion of sustainable practice. -Proposed project actions can be articulated with monitoring protocols and management plans being created through the GCF project

<p>Coastal recovery in communities in Cuba and the Dominican Republic (Caribbean Biodiversity Fund)</p>	<p>The project is focused on marine ecosystem recovery in the Fauna Refuge of the Batabanó Golf located in the Batabanó municipality. Among the project's main expected results is the creation of the Caribbean School for the restoration of coastal wetlands.</p>	<p>Focused primarily on marine ecosystems and the role of coastal wetlands on their protection and conservation not on addressing climate impacts from SLR. Synergies and no duplication actions: -The project results will serve to inform the proposed project and will provide a greater opportunity for knowledge sharing. Information developed can support the implementation of restoration actions of the proposed project.</p>
<p>Increased climate resilience of rural households and communities through the rehabilitation of productive agroforestry landscapes in selected localities of the Republic of Cuba (IRES-Cuba)" (GCF/FAO/MINAG) (2020- 2027)</p>	<p>The project will restore productive landscapes to preserve ecosystem services through the use of innovative methods and financial incentives. Amongst these, will be the use agroforestry and silvopastoral systems that will be introduced in 35,000 ha to improve water infiltration. The project will be implemented in the provinces of Matanzas, Villa Clara, and Las Tunas that do not coincide with the proposed project.</p>	<p>Project recently started in Cuba in 2020 and will be focused on different ecosystems and target areas than that of the project. Similarly, it will provide support through agricultural cooperatives. Synergies and no duplication actions: - best practices and lessons learned on productive practices as NbS for adaptation will be considered by the proposed project as applicable considering different ecosystems into comp. 2 and 3. - Systematization of these experiences will be also shared with Panama through the binational platform.</p>
<p>Mainstreaming biodiversity into mountain agricultural and pastoral landscapes of relevant ecosystems in Eastern Cuba (Global Environmental Facility FAO/MINAG) (2022-2026)</p>	<p>The project will reduce pressures on key fragile mountain and pre-mountain ecosystems of Eastern Cuba, by mainstreaming biodiversity in agriculture/livestock production, and implementing integrated landscape management (ILM) and planning. To this end, the project will contribute to the strengthening of governance, legal framework, policies and programs and will introduce new and innovative sustainable production practices, including the promotion of locally produced, high-quality and environmentally friendly food products. The project will also address potential environmentally friendly value chains.</p>	<p>One of the municipalities targeted is the mountain and agricultural and pastoral landscapes of Baracoa. Part of the experience to be develop in this zone promotes the sustainable production practices of products such as coconut, to promote environmentally friend food products and value chains. The project however does not address the role of SLR and its impact on potential food productive losses nor adaptive actions to reduce this loss. Synergies and no duplication actions: -The proposed project will promote complementary actions for protecting key ecosystems relevant to productions that are menaced by SLR and floods. It should be noted that the current proposal will be focused on coastal and not mountain ecosystems. -Relevant results on coconut value chain will be shared with Panama specially into component 3 framework promoting link between producers through binational cooperation mechanism.</p>
<p>Environmental Foundations for Local Food Sustainability (BASAL) (EU/COSUDE/ CITMA/MINAG) (2013-2021)</p>	<p>The project is focused on generating climate resilience to the agricultural sector in Cuba through improved technologies and productive practices as well as capacity building to the productive sector. The project was implemented in 3 municipalities in the Pinar del Rio (Consolación del Sur focused on rice), Artemisa (Guira de Melena focused on diverse crops) and Camaguey</p>	<p>Project implemented in specific municipalities identified through key crops. The focus, while inter-sectoral (both CITMA and MINAG implemented), was limited to these municipalities with a strong capacity building element focused on the productive sector. The project did not consider the interplay between NbS and productivity. Synergies and no duplication actions: -productive practices as well as working through local groups and organizations will be replicated by the proposed project, such as organic fertilizers, seedling production, agricultural production processing among others.</p>

	(Jimaguayu focused on livestock).	-Current project will have a wider approach for food security that includes enhancing local government structures as well as linking productive practices to coastal ecosystems that is not foreseen in the BASAL project.
Reduction of Vulnerability to Coastal Flooding through Ecosystem-based Adaptation in the South of Artemisa and Mayabeque Provinces (Adaptation Fund/ UNDP/AMA) (2014-2021)	The project is focused on the restoration of 84km of mangrove lined coastline implementing an EbA approach for coastal resilience. It also implemented a community-based approach of ecosystem awareness.	The project has recently closed being implemented in nearby provinces to the Batabanó municipality. The project focused on coastal resilience through EbA with promising results. However, a productive approach was missing from the project design and was incorporated during the project's last year at a limited level. Synergies and no duplication actions: -Lessons learned on the implementation of an EbA approach for coastal ecosystems will be considered -community awareness techniques
Building coastal resilience in Cuba through natural solutions for adaptation to Climate Change. UNDP-AMA	The project focuses on strengthening capacities for disaster risk reduction in 15 municipalities in northern Cuba, which are located within the Sabana Camagüey ecosystem. Gender-sensitive adaptation strategies to climate change are implemented in the main development sectors and governments, at the national, local and community levels. EbA measures are used for the rehabilitation of more than 250ha of mangrove ecosystem	The project is at the implementation phase, focusing on coastal resilience through EbA. It will provide Community-based demonstration solutions, supporting more than 50 urban agriculture production units and establishing 4 Resilient Demonstration Gardens that will constitute an example of friendly community production where solar energy and water capture, the use of ecological management alternatives and meliponiculture. Synergies and non-duplication of actions: The proposed project will replicate EbA measures in the intervention sites and will use the HVR study methodology focused on the community to update the DRR plans of the municipalities and the design of a new EWS on the SLR. The current project will have a focus on face the challenges of CC, reduce vulnerability and strengthen the resilience of communities and their livelihoods
Adaptation Plan of the coastal zone of Havana, UNDP-AMA	Aimed at formulating an Adaptation Plan for the Coastal Zone of Havana, which considers medium and long-term climate risks, and specific vulnerabilities and integrates adaptation measures and investment decisions in the development planning process with the participation of key national and local stakeholders. The achievement of this objective will directly benefit the decision makers of the Government of Havana and its six municipalities, the decision makers of the six priority sectors at the provincial and municipal level, and the inhabitants, prioritizing women and vulnerable groups	The project includes 6 coastal municipalities on the north coast of Havana (Playa, Plaza de la Revolución, Center Havana, Old Havana, Regla and East Havana). Synergies and non-duplication of actions: It makes synergy with the purpose of adopting measures in the short and medium term to face the impacts of climate change; protect, restore and promote sustainable use of ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt the loss of biodiversity, make human settlements inclusive, safe, resilient and sustainable
Incorporating multiple environmental considerations and their economic	Financed by the Global Environment Facility, it seeks to generate environmental benefits, with the identification	The Project began in 2018 and has a duration of 6 years. One of its objectives is to carry out the economic valuation of the BSE, the Methodological Guide developed in Cuba was used, for the

implications in landscapes. ECOVALOR. UNDP-AMA	and implementation of economic and financial mechanisms that take into account ecosystem services and their economic implications.” It intervenes in five Cuban provinces, Pinar del Río, Matanzas, Villa Clara, Las Tunas and Holguín and 30 coastal municipalities, except in Matanzas, where it works in the entire province.	valuation of ecosystem goods and services and environmental damages according to Gomes-Escobar (2021); Gomez et al. (2015, 2017), by calculating ecosystem value and indirectness, as appropriate, based on the ecosystem services identified as prioritized. Synergies and non-duplication of actions: This methodological guide will be taken into account as part of the analyzes in C1 of the DLIS.
Panama		
Project	Characteristics	Entry Points for Coordination
Adapting to climate change through integrated water management in Panama (Adaptation Fund / Fundación Natura) (2018-2021)	The project aimed at enhancing water management capacity for food and energy security through watershed management in the river watersheds of Chiriquí Viejo and the Santa María River. The project also piloted climate smart agricultural and sustainable livestock practices to manage both flood and drought conditions from precipitation-related weather events.	Fundación Natura will be a key partner in project implementation and will be one of the executing partners. The project did not take into account SLR scenarios that had not that had not been foreseen while focusing on coastal ecosystems and their preservation as EbA for food security. Synergies and no duplication actions: -Lessons learned and best production practices will be incorporated into the proposed project, such as sustainable production of black shell in mangroves could be one of relevant production activities compatible with EbA. - Lesson learned to improve associativity between producers and producers net will be and useful input for component 3. - There is not duplicity due its different scope and location.
Improved technical production of coconut and other harvests in the Low Coasts of the Colon Province (Ministry of Agriculture and Livestock Development/ Institute of Agriculture and Livestock Innovation of Panama (IDIAP)	The project aimed at promoting sustainable production of coconut as well as to diseases related to coconut. The project is looking into research into coconut processing as well as into identifying a circular economy approach.	Synergies and no duplication actions Research developed by the IDIAP will be integrated into the proposed project, particularly in its 3 rd component. The proposed project in turn will provide a valuable climate lens that is currently absent from the project.
Diagnosis and management of terminal diseases that affect the coconut tree in the Costa Abajo de Colón. (2020-2023)	This Technical Assistance project has as main objective, to diagnose different diseases that seriously affect the yields of coconut crops, established in the Districts of Chagres and Donoso in the province of Colón, located on the Costa Abajo. In addition, an appropriate management to minimize or eliminate the effect produced by the causal agents of the diseases. It is expected to contribute to the support of the economy of the producers of Costa Abajo de Colón; considering that for them, this crop represents an important contribution to the sustenance of their families.	This T.A project will work not only in the diagnoses of the deceases but also in crop management alternatives that minimize the damaging effects of pathological agents and best cultivation practices at a greater scale through FFS while incorporating climate change projections and impacts to coconut production and ensuring EbA sustainability. Synergies and no duplication actions: - Proposed project could include best practices that consider CC effects in the zone -knowledge sharing between producers of Cuba and Panama to share practices and identify sub products under sustainable standards. - Dissemination of the results of the project linked to CC adaptation practices.
Protection of carbon reserves and sinks in the	Demonstrates the contribution that mangrove ecosystems	Project ended in May 2018. Main results include a) 13,000 hectares of delimited and demarcated

<p>mangroves and protected areas of Panama (IKI, Ministry of Environment, Wetlands international, International Conservation, UNDP) (2014-2017- 3.2M USD)</p>	<p>make to the management of risk and climate change both from the adaptation and mitigation perspective. His research improves understanding of the dynamics of the carbon in mangroves and associated ecosystems in Panama. This knowledge is incorporated into strategies national and reports to international conventions.</p>	<p>mangroves b) a protocol for measuring carbon in mangroves a) guide of best practices for restoration of mangroves .c) Managed to initiate a process of restoration of mangroves in Las Lajas lagoon d) A pilot program in three districts of the province of Chiriquí that managed to strengthen the capacities of various community leaders and the regional office of the Environment Ministry in Chiriquí. Synergies and no duplication actions: - Consider its results as inputs to EbA related to mangrove restoration, including guide for Adaptation to Climate Change in Marine-Coastal Zones of the Panamanian Pacific to formulated adaptation measures. -Consider educational actions as way to local dissemination of knowledge. -Incorporate technical results about mangrove values contribution to promote it sustainable management not only as a natural value but also as a natural barrier against CC effects and the potential sustainable use of this ecosystem linked with communities' economic activities.</p>
<p>Increase forest cover to capture carbon and reduce vulnerability in priority watersheds in Panama (CABEI/ GCF) (CN formulation stage- propose implementation: 5 years and 92M USD)</p>	<p>Restoration, reforestation and sustainable management of productive ecosystems for clean and resilient development, by promoting approaches, knowledge, technologies and investments for climate action in vulnerable communities in priority watersheds.</p>	<p>This project is not yet started, but some synergies can be included regarding climate smart practices proposed. Synergies and no duplication actions - Investment to dynamize green and blue economy Productive and conservation practices associated to mangroves such as communities eco-tourism, restoration and revegetation of mangrove areas and other associated wetlands to strengthen the resilience, cultivation of oysters as a carbon sink, reduction of eutrophication and economic development in fishing communities that in turn contributes to the restoration of mangrove forest and marine-coastal zones, management and co-management of filtering marine species (black shell) to reduce eutrophication of the marine-coastal zone due to runoff from the basin and increase the resilience of the productive ecosystem, restoration of marine biodiversity and its role in the carbon cycle through ghost net extraction and sustainable management</p>
<p>Ecosystem-based adaptation to increase resilience to climate change in the Central American dry corridor and arid zones of the Dominican Rep. (UNEP/CABEI) (CN approval stage- 263M USD -7 countries – 7 years of expected implementation Investment for Panama: 750k per year)</p>	<p>Targeted into Centro American dry corridor, include 2 basins of Panama located in the pacific coast (rather than the Caribbean). Include Ecosystem based adaptation in rural communities and technologies of efficient use of water in rural communities of targeted municipalities.</p>	<p>This project is not yet started, but some synergies can be included regarding climate smart practices proposed despite project areas being in opposite coastlines. Synergies and no duplication actions - Climate smart practices, such as agroforestry systems to relevant crops in targeted municipalities from Cuba and Panama for crops such as coconut housing production - Promote damage and losses methodologies from AF project into relevant crops of GCF project to enhance their results. -Project will be focused on the Central American Dry Corridor and not the Caribbean coastline</p>
<p>Strengthening Climate Resilience in Livelihoods and Coastal Ecosystems of the</p>	<p>Specifically, the Programme will be addressing the following objectives: a) improve local and</p>	<p>This project just started and there are important synergies between both projects but no duplication. Synergies and actions without duplication:</p>

<p>Central Pacific of Panama (Implemented by Fundación Natura) – Adaptation Fund Grant Amount: USD 9,998,420,</p>	<p>national capacity to respond to climate hazards through the development of effective tools for science-based decision-making, as well as risk reduction systems with an approach based In nature; b) generate greater resilience in vulnerable ecosystems and essential livelihoods, through concrete restoration actions and climate-smart management of marine-coastal ecosystems; productive diversification; and innovation for adaptation; and c) build and improve governance. climate change and the management and appropriation of knowledge on the matter, at the local, regional, and national levels, for the implementation of tangible adaptation and resilience measures to climate change.</p>	<p>Improve the organizational capacities of producer associations to optimize the livelihoods of vulnerable communities in coastal areas. Diversify local productive value chains to increase the income and food security of small producers, favoring livelihoods and resilience against the impacts of climate change. There is no duplication as the project will focus on the Central Pacific Region and not Western Caribbean Region of Panama. However, there are important opportunities to make synergies related to the implementation of solutions for resilient livelihoods and capacity building.</p> <p>Synergies and no duplication actions</p> <ul style="list-style-type: none"> - The programme area is the Central pacific and targets different municipalities. - The project similarly aims to increase the resilience of the communities and their livelihoods in the coastal zone and will bring important lessons learned and opportunities for collaboration notably in the implementation of EbA solutions. - Project by improving governance for climate change and management of knowledge at different levels will support project objectives and help build necessary capacity at different levels which will be beneficial and complementary to project objectives.
<p>Regional Initiatives</p>		
<p>Caribbean Biodiversity Fund</p>	<p>An umbrella fund created with permanent and non-permanent funding to targeted Caribbean countries (including access to sink funds) for conservation and sustainable development in the Caribbean region.</p>	<p>The fund provides support through funding and grants incentivize Caribbean nations to meet the goals of the Caribbean Challenge Initiative for marine and coastal environments including for local action.</p> <p>no duplication actions the initiative does not include Cuba nor Panama within its scope of action.</p>
<p>CIDC: Alliances for Coconut Industry Development for the Caribbean (EU/International Trade Center/Caribbean Agricultural Research and Development Institute (CARDI)</p>	<p>Initiative to increase the food availability and reinforce incomes of small-scale farmers through improved competitiveness of the coconut sector through better regional integration and improved production performance targeting 11 mainly English-speaking Caribbean countries.</p>	<p>The project has provided support in facilitating technical expertise on production processing and commercialization of coconuts and coconut products. It has developed research on integrated pest management for coconut and developed methodological guides.</p> <p>Synergies and no duplication actions: The initiative has not considered climate change within its scope it also does not include Cuba nor Panama nor most Spanish Speaking Caribbean countries (Dominican Republic being the exception) hence guidelines are not accessible to local producers. The project will build upon lessons learned for coconut production and guidelines while looking to expand on these.</p>
<p>Climate Change Impact Assessment on the sandy coasts of the Caribbean: alternatives for control and resilience (Association of Caribbean States)</p>	<p>The objective is to improve the resilience of coastal communities towards climate change and sea level rise, through the establishment of a coastal erosion monitoring network and the exchange of best practices in beach</p>	<p>Synergies and actions without duplication: The project seeks to develop actions for the rehabilitation of beaches in those coastal sectors that, due to their social and economic importance, require immediate action. The project does not represent a duplication of actions since it contemplates an implementation location different from that of the present proposal, focusing on the Caribbean Region of Panama.</p>

	rehabilitation, observation and conservation.	
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G. LEARNING AND KNOWLEDGE MANAGEMENT

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

180. Learning and knowledge management will be a cross-cutting priority across project components. At the incipient stages of the project, a strategy for capitalization, knowledge management and communication will be developed and implemented, based on a baseline survey carried out at the beginning of the project, to ensure a good visibility of the Project's activities from its inception. It will be linked to the M&E and will become an integral part of a coherent process. This strategy will aim to capture: (i) project's successes with case studies; (ii) production of posters, leaflets and brochures to disseminate information on the project, its activities and achievements; (iii) written, audio and video reports on the programme innovations and successes, and their dissemination through different channels (print, radio, internet); and (iv) the organization and participation in key regional events to disseminate project finding and facilitate knowledge exchange across the region.

181. Under Component 1, a sub-component has been specifically included to capture best practices and lessons learned in assessing loss and damage methodologies for slow onset hazards that will allow to systematize best practices in the implementation and use of loss and damage methodologies. Through the implementation of such methodologies, impacts on productivity in the face of slow onset will be estimated, hence providing the opportunity for the project to inform international standardized methodologies to be enhanced through on-ground real-time action. These experiences will be systematized in the forms of toolkits, guidance notes and similar publications to allow for the replication and upscale in similar contexts (coastal ecosystems facing slow onset climate hazards). These knowledge products will provide an increased understanding on the applicability and use of loss and damage methodologies not only as reactive measures to assess impacts from specific disasters but also as tools to guide adaptation actions and evaluate resilience capacity. This is particularly relevant in the face of slow onset impacts where total losses are already felt but not yet calculated, and where an opportunity for the implementation of risk mitigating and adaptive measures exists to reduce loss and damage to local agricultural productivity and its effects on food security and local livelihoods. The evaluation of the impact of adaptive actions implemented through the project will provide important inputs to coastal communities facing similar pressures.

182. Under Component 2 and 3 the project will also make use of an FFS approach that favours on-the-ground experimentation through a learning-by-doing approach that will incorporate lessons learned within municipalities for replication in neighbouring areas through concrete results that favour local solutions adapted to the conditions of the groups involved, especially considering women and the indigenous population. This is a key aspect to ensure the long-term change and appropriation that the project is looking for and has proven to be effective in upscaling agriculture best practices in a concrete manner.

183. The M&E process that will be launched at the beginning stage of the program, will aim to capture the lessons learned from the start, and generate early recommendations to allow adjustments or changes -if needed- for an effective systematization of experiences and lessons learned that guide effective solutions that can be executed in an inclusive manner.

184. The bilateral cooperation that will be established between Cuba and Panama will also create the opportunity for both countries to innovate and expand on the loss and damage methodologies to other sectors while enhancing bilateral cooperation in climate action as well as promote South-South exchange and the organization of regional events to facilitate dissemination and coordination with other relevant projects in the region.

H. CONSULTATIVE PROCESS

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

185. Stakeholders were consulted throughout the preparation of the project and priority issues were discussed in particular to seek their inputs on the proposed program activities as well as their view on the following topics: the type and scope of needed capacity building of different stakeholders, lessons learned from previous projects, possible synergies with other projects, priority areas of intervention, the gender strategy of the proposed project and the gathering and production of project related knowledge products and its dissemination and exchange between the two countries and at the regional level. Key informant interviews were carried out, combined with group discussions. The lists of stakeholders that have participated in these national consultations are included in Annex 8.

186. During the Project concept preparation phase, due to COVID restrictions, the project resorted to mainly virtual consultations through virtual meetings and the delivery of surveys. Some consultations were also conducted in the field (see Annex 2). These took place with key national and local governments in both countries notably to identify perceptions around CC and CC risks as well as to validate project interventions.

187. Consultations with local producers in both Cuba and Panama took place through the use of online and telephone interviews and surveys with the support of the Ministries of Environment in both countries. These consultations allowed the project to better identify challenges to agricultural production and perceptions of climate impact as well as perceived needs, including the lack of technical guidance and inputs to enhance productivity in both rice and coconut harvesting. Consultations have also included indigenous people through interviews with the Heads of Indigenous People and the Indigenous Representative at the Ministry of Environment. These consultations enabled the identification of a few indigenous people in Panama and the identification of their main needs that will be integrated into components 2 and 3.

188. Consultation included meetings (virtual and small in person settings) and communications with the Ministries of Environment, Agriculture, Fishing and municipal governments in Panama (Chagres, Santa Isabel and Portobelo) that have been recorded through project minutes and through online surveys. In the case of consultations with Cuban municipalities these have taken place through surveys considering the challenges of accessing virtual platforms in local communities.

189. More in-depth stakeholders' consultations were carried out during the project full proposal development. Consultations were conducted in the targeted municipalities in both Cuba (October/November 2022) and Panama (April 2022) with productive associations, women's organization and women focal points, water boards and community representatives. For this consultation a survey was carefully designed, and the same survey was distributed in the selected municipalities of both countries to facilitate comparative analysis of results. The consultative process adopted a gender sensitive participatory approach to ensure meaningful participation of women and vulnerable groups in the process and ensure their concerns and experiences are taken into account in the design of the project but also throughout the implementation of planned activities notably for Components 2 and 3. A gender analysis is included in Annex 1 and a summary of the key findings of these consultations is provided in Annex 3. A gender strategy will be prepared at the incipient stages of the project.

190. Direct beneficiaries particularly smallholder farmers and women living in vulnerable areas to climate change were met around focus groups and direct interactions, the total number of female farmers met was often equivalent to the number of male farmers. Key issues were raised and related to their need to better understand climate change, specific impacts and associated adaptation options, soil degradation (loss of fertility, erosion and salinization), resilience building against floods and violent rainfall and winds among others. These preliminary consultations provided an opportunity to gather views of stakeholders at the central and local levels on major climate change challenges and responses. Most of the expressed needs

in the two countries were around improving agricultural production through climate resilient agricultural practices and technologies and support the diversification of livelihoods notably through sustainable fisheries and aquaculture, sustainable fisheries and processing and transformation of key products. Based on information collected, the components, outputs and activities of this Programme have been refined.

I. FUNDING JUSTIFICATION

191. The basis of the project is the creation of resilience through the implementation of a comprehensive portfolio of subprojects in vulnerable coastal areas that support important livelihoods, which need to be maintained for the sustainability of populations, the permanence of high value ecosystems to protect lives, goods and services vital to the local, regional and national economy; and development with a multisectoral approach. The intervention is proposed in such a way that the expected results are interconnected and allow to create synergy in the expected impact. The expected benefits in a scenario with the program versus a scenario without a program are presented in Table 4.

Table 4. Justification for project funding requested.

Components/Outputs	Baseline (without AF resources)	Alternative (with AF resources)
1. Climate change adaptation planning and regional cooperation		
1.1 Loss and damage of agricultural and fishing productivity methodology implemented in nine target coastal municipalities in the face of slow onset climate impacts	Municipal governments have an abstract idea of CC impacts based on national plans and observed changes. In the case of Cuba, while there is a general greater awareness, it is limited to general impacts that are not necessarily locally specific and hence do not translate into on the ground actions nor investments by local governments. Little capacity from municipal governments to manage vulnerability to climate impacts, particularly slow onset event.	Identification of projected food productive losses to local economies and livelihoods by municipal governments because of slow onset climate impacts Local government capacity to identify potential adaptation measures to reduce climate vulnerability to slow onset impacts is limited. Development of Participatory Adaptation and Risk Management Plans help guide adaptive action. Municipalities will be able to project the concrete cost of CC and the value of adaptation and equipped with greater capacity to adjust budgets to finance adaptation planning.
1.2 Damage and Loss Information Systems (DLIS) for slow onset climate hazards institutionalized at a sectoral and local level and shared binationally for monitoring and evaluation and adaptive planning	Data is dispersed and capacity limited to host information on damage and losses to slow onset impacts hazards and much less analytical capacity for the development of information products useful for adaptive action and planning. Decisions over loss and damage to agricultural production to specific disasters (storms) made without a capacity to analyse long term trends to slow onset impact hence undercounting and underestimating the impact of climate change to local agricultural production, livelihoods and food security. Little capacity to evaluate the true cost of adaptation inaction nor to prevent projected damages. Capacity to implement adaptation action is limited by lack of measures or methodologies to evaluate their impact in reduced losses and increased resilience. Local	Damage and loss information systems designed in a manner that is appropriate and methodologically consistent to both Cuba and Panama favouring the housing and processing of loss and damage data to slow onset impacts. National and local capacities created for data processing allowing for the analysis of long-term trends to slow onset impacts and calculating full (and ongoing) impact of CC to local agricultural productivity. Information products are developed to provide valuable inputs to inform NDCs and adaptation action to reduce projected losses. These measures can be evaluated through reduced loss impact to projected CC (SLR and temperature projections and their materialization). Standardization of loss and damage methodologies across two countries and nine coastal municipalities provides the scale necessary to better inform loss and damage methodologies and their implementation as well as their transformation in tools for adaptive planning and risk management across the Wider

	<p>investments are hence not necessarily linked to increased resilience.</p> <p>Existing loss and damage methodologies remain theoretical exercises with limited recorded experience (or retrofitted analysis) on how to adjust to local capacities and challenges. When these are implemented following disasters, they are not necessarily incorporated into national and sectoral datasets or are done inconsistently thus not favouring comparability nor knowledge sharing across countries.</p>	<p>Caribbean. Lessons learned provide valuable insights to enhance methodologies.</p> <p>Bilateral cooperation amongst Panama and Cuba is enhanced at various levels including at a producer level through interlinked FFS across target sites that favour the infield implementation of lessons learned within a regional network with potential to be mobilized across the Wider Caribbean.</p>
<p>1.3 Best practices and lessons learned in assessing damage and loss methodologies for slow onset hazards systematized as a tool for adaptation planning and risk management to food security and agriculture- and fishing-based livelihoods</p>	<p>Innovative loss and damage methodologies remain theoretical exercises with little information regarding the calculation of on-ground implementation in the face of slow onset impacts (vs one off disasters). Loss and damage methodologies remain reactive tools for DRR to specific disasters.</p> <p>Adaptive action to reduce losses cannot be evaluated in a methodological manner and hence their impact in reducing climate risk is limited and cannot be measured. Lessons learned from regional best practices are not communicated to other vulnerable coastal communities and not necessarily implemented nor upscaled across a wider setting. Coastal communities remain with little capacity to implement best practices.</p>	<p>Innovative loss and damage methodologies are tested on the ground with lessons learned systematized and incorporated to enhance the methodology and better incorporate its use to slow onset hazards. Replication is favoured through the development of tool kits and guidance notes for upscale and use in similar contexts in the region.</p> <p>Loss and damage methodologies allow for the incorporation of resilience measures and capacities to manage slow onset impacts and hence become tools to guide adaption planning.</p> <p>Bilateral cooperation amongst Panama and Cuba is enhanced at a producer level through interlinked FFS across target sites that favour the infield implementation of lessons learned within a regional network with potential to be mobilized across the Wider Caribbean.</p> <p>Coastal communities are made aware of existing best practices and have access to extension support through interlinked FFS and South-South cooperation.</p>
<p>2. Ecosystem based adaptation (EbA) measures implemented in key ecosystems to protect local food production and promote resilience and food security</p>		
<p>2.1 Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their communities, livelihoods and local food security</p>	<p>Little knowledge to identify ecosystem services as related to food security and resilience. Agricultural, and in some cases, tourist-based expansion further degrade valuable ecosystems. Short-term economic gains favoured over long-term resiliency by productive sectors and government authorities.</p> <p>Ecosystem degradation is continued at existing rates due to unsustainable practices, exposing local livelihoods to recurrent and exponential climate impacts.</p> <p>Loss of provision of important ecosystem services, such as</p>	<p>Increasing awareness on ecosystem-food-coastal resilience nexus. Valued ecosystems make ecosystem services easier to be identified and incorporated into local development metrics. Identification of coastal vulnerability based on climate impacts and ecosystem health that result in ecosystem protection.</p> <p>Awareness on EbA as a potential adaptation alternative is incorporated, socialised, and implemented through a hands-on learning process (FFS). Impact can be analysed based on reduced exposure to agricultural losses through its incorporation as a measure of resilience in loss and damage methodology.</p> <p>Critical ecosystems are protected through EbA measures. EbA solutions are implemented and maintained by local communities with an</p>

	protection against storms, water regulation and reduced impacts from rising sea levels.	increased awareness to their value in reducing projected loss and livelihood protection. Communities reduce their exposure to loss and damage from slow onset impacts as a result of EbA actions implemented.
3. Improved resilience of nature-based livelihoods and local food security		
3.1 Climate-smart agricultural and fishing productive solutions adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts	Unsustainable productive practices result inviable to climate impacts as SLR, coastal erosion and marine intrusion into aquifers and agricultural lands make these practices unsustainable. Increased degradation of protective ecosystems to make up for productive losses hence increasing vulnerability to climate impacts. Food insecurity increases in the region as nature-based livelihoods are lost due to low adaptive capacity.	Adaptive capacity of small producers is increased through extension services, access to technology and inputs for climate smart food production across traditional agricultural and fishing based livelihoods. Food security is enhanced by the implementation of climate smart practices that will result in reduced exposure to slow onset impacts (reduce losses and damages). Extension support is created for ongoing learning, innovation, and experimentation with climate smart practices through FFS that are created and interlinked allowing for regional knowledge sharing at a producer level. Cooperative associations among producers are created to maintain investments and enhanced for increased inclusivity and participation of women and vulnerable communities.
3.2. Diversified and EbA-compatible livelihoods identified and supported for agricultural and fishing-dependent households	Traditional livelihoods remain insufficient to make up for economic losses due to climate impact and ecosystem degradation. Traditional livelihoods fail to fully incorporate women and indigenous populations that per national assessments continue to be those most exposed and vulnerable to climate change. Information on potential livelihoods for coastal communities does not flow down for territorial action hence communities remain vulnerable.	Alternative livelihoods are created across target sites ensuring their compatibility with EbA and made inclusive to women and indigenous populations. Food security and livelihoods are further protected by the introduction of alternative revenue streams from artisanal oyster culture and other alternative livelihoods that are resilient to slow onset impacts and compatible with EbA measures. Knowledge exchange between target sites on alternative livelihoods exists in a manner that favours not only local actions (FFS) but also can be evaluated for its role in providing increased incomes and resilience to slow onset impacts.

J. PROJECT SUSTAINABILITY

192. The sustainability of the Regional Project has been addressed in the design of the programme through the incorporation of inclusive and gender approaches in the targeting of beneficiaries in order to ensure that no one is left behind and that benefits are distributed equitably. Various activities across all three components have been incorporated for building capacities in different actors, on climate adaptation and resilience, in such a way that said capacities allow the continuity of the measures adopted for the execution of this program. Further, local participation in the design of the project ensures the ownership of the proposed solutions, and the interconnection of the different activities to enhance the results.

193. **Component 1.** At the core of realizing many of these improvements for the establishment of a Damage and Loss Information System that remains operational in the long term is the need to institutionalize data collection and use in sustainable settings and strengthening host institution's ability to obtain, maintain, use and distribute the data. The project will work closely with key stakeholders to ensure

sustained engagement at different levels (municipal, country and regional) in order to institutionalize maintenance and use of the data for the DLIS. Moreover, sustainability will be guaranteed by building the capacities at the various levels, through the continued commitment of the competent institutions in the monitoring and technical assistance of the actions implemented by the project, and by building greater awareness and equal participation of the key actors identified by the project. The project will also pay particular attention to enhance in the way these data are obtained, formatted, and managed to enhance their quality, utility and credibility. The project will also aim to establish and sustain nationally led processes in the countries to create ownership of the database and increase its usefulness and relevance to national and sub-national contexts. Finally, the database and all relevant analysis and results from project activities will be shared with all key stakeholders and the public for developing wider understanding of risks and warranting actions from all sections of society and at different scales (local, national, binational and regional).

194. The sustainability of the binational coordination platform will be favoured through its framework within existing binational agreements and priorities developed by Cuba and Panama. These agreements for the most part have remained general and have lacked an actionable agenda as it relates to climate change that will be added through this project and the coordination of developing similar information systems on loss and damage as well as through the infield support that will be promoted by promoting exchange and coordination between FFS across the target sites. Ministries in both Cuba and Panama have committed to ensuring its sustainability and funding of bilateral cooperation actions beyond the project duration.

195. **Component 2 & 3.** The project will build capacities at multiple levels through these two components including enhancing productive and community associations in their ability to implement climate smart technologies and nature-based solutions. By promoting on FFS approach the project ensures that the acquired expertise in the field is maintained and replicated within local actors that can experiment in their own plots but also become facilitators to other producers. This allows the project to address the lack of extension support that has been cited during project consultations in a way that is scalable and has demonstrated to be sustainable in past projects beyond project duration.

196. By prioritizing in field work at a municipal setting, the project also allows for key actors to gain knowledge on the development and maintenance of nature-based solutions while the information gained by the loss and damage methodology generates a concrete value to local ecosystems in the potential reduction of livelihoods and food productivity. Hence creating a community interest in their upkeep contributing to a sense of ownership by farmers and fishermen. Communities will therefore be able to not only develop these solutions, but also have the capacity and interest to maintain them. Nature based solutions, and EbA in particular, have demonstrated to have the added benefit of reduced maintenance cost as time progresses in comparison to grey infrastructure.

197. By working through community productive associations, the project has also looked to the sustainability of inputs provided for climate smart and diversified productive practices as these associations will have the organizational structure required to continue providing extension support (through FFS) but also in ensuring that members to these associations maintain the inputs provided. Revenue generated by additional productive incomes through alternative livelihoods and reduced losses will provide the income required to maintain inputs beyond the project's lifetime. To address existing capacity gaps within these organizations the project has considered the need for strengthening these organizations in their productive and managerial capacity through project initial actions.

198. **Regional approach.** The regional character promoted by the project will allow project results to be sustainable as made applicable in a wider setting by incorporating lessons learned that are not just nationally nor site specific (a common challenge of national projects). The documentation and dissemination of the good practices and lessons generated by the programme will help sustaining the programme's outcomes. These lessons will be systematized and packaged for wider dissemination within the Wider Caribbean to develop guidelines that are accessible to other regional producers facing similar challenges. The systematization of the use of loss and damage methodology also provides an opportunity to be further replicated within the Caribbean region and made applicable to SLR challenges facing the

region that will be benefitted by the piloting experiences and structures developed in Panama and Cuba. The project will further engage with regional initiatives that have looked to address common productive and climate challenges in the region such as AEC, CELAC and will favour participation in regional fora such as the Regional Platform for Disaster Risk Reduction in the Americas and the Caribbean and Regional Climate Weeks to enhance the dissemination of project results and their replication. Participation of Cuba within the CARICOM community (particularly in providing technical assistance in disaster risk management) as well as Panama's role within SICA and its Environmental commission (CCAD) will provide a platform for regional knowledge management across a wider audience to include Central American countries with a Caribbean coastline. Technical support offered by both countries could include the use of the interlinked FFS developed through the project.

K. ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

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

199. The project has been designed to generate positive economic, social, and environmental impacts, including specific inputs from women and marginalized and vulnerable groups of the target communities and by incorporating best practices from other projects. However due to the nature of the activities planned under Components 2 and 3, the entire project has been categorized as a medium risk (Category B) project.

200. The proposed project fully aligns with the Adaptation Fund's Environmental and Social Policy (ESP) and its 15 principles. To align with these policies and related guidelines, this section provides a brief summary of the risks assessment outcomes, which are provided in greater detail in Annex 3 (ESMP).

201. The project fully complies with all applicable national laws and regulations (see Part II, Section F), focuses on marginalised and vulnerable groups, adopts a gender and indigenous people sensitive approach, incurs no infringement on human rights and health and plans no resettlement whatsoever. With regards to the subproject implementation, activities have been designed to minimise potential risks while interventions will be small scale and very localised interventions, proposed and managed by the communities themselves (where possible), in cooperation and under guidance from the implementing agencies.

202. The summary below outlines the findings of the preliminary screening process to identify and evaluate potential environmental and social impacts and risks of proposed interventions. The 15 safeguard areas outlined in the Adaptation Fund's ESMP have been analysed during the screening process. Planned activities under Components 2 and 3 represent 'concrete' interventions, including physical interventions, and as such, some interventions have the potential, without an environmental and social safeguarding system, to create negative environmental and social impacts. As such, some interventions under this outcome fit into the medium (B) risk category. According to the classification system of IFAD social and environmental risks (PESAC 2021 Edition), the equivalent category is "Moderate".

203. An initial review of environmental and social impacts has been made below. As part of the proposal design, an analysis was developed to assess the environmental and social impacts and risks for fully identified activities.

Table 5. Checklist of environmental and social principles

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>		The project fully complies with the country's policies, regulations and laws. With a "B" social and environmental risk category, the project adheres to the assurance that all safeguards are in place to ensure

		that the investment activities do not exacerbate environmental degradation. During implementation, monitoring of adaptation interventions will be carried out to further monitor compliance with national legislation
<i>Access and Equity</i>		Considering the large number of rural families residing in the project area, some may be excluded from participating and benefiting. here is, therefore, a moderate risk that certain community members may benefit more than others.
<i>Marginalized and Vulnerable Groups</i>		There is a risk that due to social and cultural factors in the rural population, the most vulnerable population (women, youth, indigenous peoples and people with disabilities) will be excluded during the implementation of project activities and have insufficient access to the associated benefits
<i>Human Rights</i>	x	The project activities will not involve any activity that may result in the violation of human rights of any person during its implementation.
<i>Gender Equity and Women's Empowerment</i>		The cultural factors prevailing in the rural population influence the maintenance of existing gender gaps and limit the empowerment of women. There is, therefore, a risk that women will not benefit equitably from the proposed project's interventions.
<i>Core Labour Rights</i>		The cultural factors prevailing in rural areas could influence household heads to incorporate minors (children, adolescents and young people) in participating in some activities on which households depend for their subsistence.
<i>Indigenous Peoples</i>		There are no indigenous communities or population in the execution area of the Cuban program that self-identify as indigenous. In Panama there are some indigenous people in the selected communities and the project will try to ensure their active participation in project activities, consultations and as beneficiaries. In any case, the project design took into account avoiding initiatives whose orientation or execution would disparage the rights and responsibilities of indigenous populations.
<i>Involuntary Resettlement</i>	x	The project does not include activities that cause involuntary resettlement.
<i>Protection of Natural Habitats</i>	x	The project will not involve the unjustified conversion or degradation of critical natural habitats. Project activities will aim to restore and promote the sustainable management and protection of natural habitat as well as ecosystem functions and services.
<i>Conservation of Biological Diversity</i>		The interventions will not cause loss of biodiversity and deforestation will be avoided. There is a risk however that lack of knowledge may result in the introduction of exotic or invasive species.
<i>Climate Change</i>		The project will not generate significant and/or unjustified increase in greenhouse gas emissions or any other cause of climate change. Floods in coastal areas and rise in sea level may impact project results.
<i>Pollution Prevention and Resource Efficiency</i>		The project is in areas where there are sources of contamination of surface and underground waters due to the discharge of urban/rural household wastewater, solid waste and the use of agrochemicals in agricultural activities.
<i>Public Health</i>		There is risk under the COVID19 context.
<i>Physical and Cultural Heritage</i>	x	No risk identified to physical and cultural heritage
<i>Lands and Soil Conservation</i>		The project will ensure that all relevant environmental codes and standards will be followed during the implementation of the project.

	The project will support the implementation of activities that promote sustainable soil and land management; accordingly no negative impacts are anticipated.
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PART III: IMPLEMENTATION ARRANGEMENTS

A. PROJECT MANAGEMENT

Describe the arrangements for project/programme management at the regional and national level, including coordination arrangements within countries and among them. Describe how the potential to partner with national institutions, and when possible, national implementing entities (NIEs), has been considered, and included in the management arrangements.

204. **IFAD** will be the Multilateral Implementing Entity (IE) for this project accredited by Adaptation Fund (AF) Board to receive direct financial transfers from the Fund. IFAD will report to the AF on the overall management and performance of the Project. IFAD will provide overall project supervision, including mission and conduct the mid-term and final evaluation of the project.

205. **The FAO** will be the designated Executing Agency (EA) responsible for overall project coordination and management, budget execution, as well as the monitoring and supervision entity during the implementation of the project by the executing entities. The FAO will receive funding from the AF through the IFAD under an agreement between the two UN agencies. that any specific requirement from AF, will be transferred to the Executing Agency (FAO). The FAO will provide technical, financial and management support at all stages of project implementation by providing support to country offices in Cuba and Panama and will be reporting to IFAD on the overall management and performance of the Project. The FAO will carry out all the procurement processes and preparation of disbursement and payment requests in accordance with the procurement procedures of FAO and the annual budgets and procurement plans prepared by the executing entities.

206. The FAO will consistently ensure proper financial management practices. Costing prepared by the project will take into consideration all elements of the project activities including project management and local partners' activities and administrative costs. The FAO will release project funds against benchmarks and deliverables throughout the life of the project. A financial system will be established by FAO to monitor and control disbursement and expenditure of the project. The FAO will remain cautious of this and monitor the quantity and quality of procurements. The FAO will encourage the preparation of quarterly cash flows showing benchmarks for amount stipulated in the project.

207. **In Cuba, the Ministry of Science, Technology and Environment (CITMA – Ministerio de Ciencia, Tecnología y Medio Ambiente) will be the executing entity (EE), while in Panama, the Ministry of Environment (MiAmbiente) will be the EE.** In Cuba, CITMA's Environment Agency (AMA – Agencia de Medio Ambiente) will implement the project through the Institute of Tropical Geography (IGT – Instituto de Geografía Tropical). CITMA along with MiAmbiente - both national focal points to the AF - will ensure the oversight, monitoring and control of all project activities.

208. The EE, through their focal point (FP) will coordinate and facilitate the internal monitoring meetings. The EE, through each project management unit (PMU), and will be responsible for the delivery of the quarterly reports, the preparation and execution of work plans for their subprojects, preparation and monitoring of the annual budgets of the subprojects and consultancies, preparation of procurement plans. The two Ministries will act as the main technical counterpart of the project, accompanying, and supervising the implementation of all activities and facilitating coordination with other government counterparts such as the Ministries of Agriculture, Fisheries Authorities, local Governments, among other institutional actors. Both ministries will ultimately be responsible for the timely delivery of inputs and outputs and for

coordination of all other responsible parties including other line ministries, relevant agencies, and local government authorities. Both Ministries of Environment will accompany and monitor the mid-term and final evaluation of the project.

209. **A Project Management Unit (PMU)** will be established in each country within the respective EE to oversee the daily management of the project. The PMUs will be composed of a national coordinator, a M&E specialist, a gender and social inclusion specialist, an accountant, and an administrative and financial assistant. The gender and social inclusion specialist will guarantee the gender focus and the participation of women (young and adults). The National Coordinators will oversee the daily management of the project. Moreover, each component will have a specialist in charge of facilitating the implementation of the component's technical activities in accordance with IFAD's strategies, methodologies, approaches, and policies. The national coordinator will be directly responsible for the implementation of project activities and compliance with the related outputs, indicators, and targets by facilitating the Terms of Reference process, supporting procurement and contracting processes, supervising field work, reviewing and providing technical guidance to the outputs, and supporting the monitoring and evaluation of the contracted activities. In addition, the specialist will also be responsible for facilitating support and follow-up coordination with institutional counterparts, local authorities, project beneficiaries and other key actors. The PMU staff will be recruited competitively, in compliance with FAO's procurement procedures, and in accordance with the AF Gender Policy. Women candidates will be encouraged. The PMU will be responsible for providing technical leadership of the project, managing, and coordinating project activities, overseeing project operations for efficient and effective implementation, including procurement actions, contracting, financial management, coordination and oversight of daily project operations. In addition, the PMU will be responsible for preparing and submitting reports, communications and monitoring and evaluation of the project.

210. **Regional Coordination Unit (RCU)** will oversee the PMUs management of the programme. More specifically it will carry out the following main functions: (i) instruction and coordination of operational activities and processes at the regional level in the three components of the program with the involvement of the partners planned for implementation; (ii) supervision of implementation in the countries; (iii) preparation of activity reports to be submitted for review and approval to the Regional Project Steering Committee (RPSC) and drafting of the minutes of the sessions of the said Committee; (iv) monitoring and evaluation of activities at the regional level; (v) the consolidation and periodic summary of the accounting situations communicated by the fiduciary management teams in the countries. To support these activities, the RCU will be led by a Regional Coordinator who in addition to ensuring delivery of the units' functions will also oversee disseminating lessons learned from program activities among throughout region. The RCU will be established in the regional office of FAO in Panama.

211. **A Regional Project Steering Committee (RPSC)** will be set up and include a FAO Regional project coordinator, PMU project coordinators and team members from Cuba and Panama, relevant ministries in both countries', representatives of IFAD and FAO reference projects in charge of implementation in both countries and technical and financial partners supporting the implementation of the programme. Regional project coordinator will act as secretary (preparation of documents and logistics). The RPSC will meet virtually on a bi-annual basis. During its sessions, it will also approve the work programs and budgets and the activity reports relating to the implementation of the programme. RPSC meetings will also aim to inform the coordination of operational activities and processes at the regional level, monitor execution at the regional level and, if necessary, make recommendations to improve program execution. In addition, by convening these meetings, it will facilitate dialogue among the two countries and project monitoring and evaluation.

212. Periodic informational national and regional events will be held to present program progress, lessons learned, and necessary adjustments considering national and local circumstances, if necessary. The operational plan for the execution of the program will be prepared during the first semester and presented during the inception workshop. An Operations Manual will be prepared following the standardized procedures currently in place at IFAD and applied to the programme cycle, as well as for the administrative and financial support processes.

213. Where and when necessary for the interest of beneficiaries, PMU will seek approval for budget realignment within the percentage provided for in the project financial policy. PMU will submit quarterly project performance reports to FAO and each will be complete with standard financial component according to the donor's standards. PMU will facilitate annual audits of the project financial statements. Annual audits will be performed on the basis of the terms of reference that will be submitted to IFAD for approval. The Audit report will be submitted to IFAD and AF within six (6) months after the end of each fiscal year. IFAD will review the report, submit to the Executing agency an action plan to address the eventual weaknesses highlighted in the report and monitor the implementation of this action plan.

214. **Collaborations will be set up with Local Partners** through the establishment of cooperation agreements (memorandum of understanding, MOUs) with government Ministries and other institutions, and letters of agreement (LOAs) with NGOs (e.g., Fundación Iris in Cuba and Fundación Natura in Panama) working in the same areas or with an expertise in the implemented activities. The LOAs serve as contractual agreements tied to deliverables and are limited to capacity building activities. Notably, in Cuba, the Ministry of Agriculture (MINAG), Ministry of Food Industry (MINAL) Ministry of Tourism (MINTUR), and Fundación Iris, and in Panama, Fundación Natura (a NIE), will play an active role. MoU's will also be established with FFS. The MoU will outline the activities that IPs will be directly responsible for and specify agreed disbursement arrangements with local partners and all the needed reporting and supporting documentation for the justification of expenditures incurred within its framework. Disbursement will always made in several tranches based on an annual activity budget and the release of tranche will be conditional to the justification of the previous one.

215. Using the approach of synergies, the project will also complement on-going initiatives and programs in the country having similar objectives while avoiding duplications (Table 3). Therefore, all interventions will be coordinated closely with other relevant on-going initiatives implemented in each country for more effective complementarity.

216. The project will draft an Operation Manual together with an Administrative and Financial Manual that will explicit all the accounting, internal control and operation procedures that the project will follow during its implementation period. These manuals will be submitted to IFAD for non objection before the project will receive its first disbursement.

217. The project will also acquire and install an accounting software that will be able to automatically produce all the financial reporting required by IFAD and the Adaptation Fund. The access to the accounting software will be defined in order to respect an acceptable level of segregation of duties. The purchase and set-up of the accounting software will also constitute a condition to first disbursement.

218. Figure 18 below illustrates planned implementation arrangements is included below:

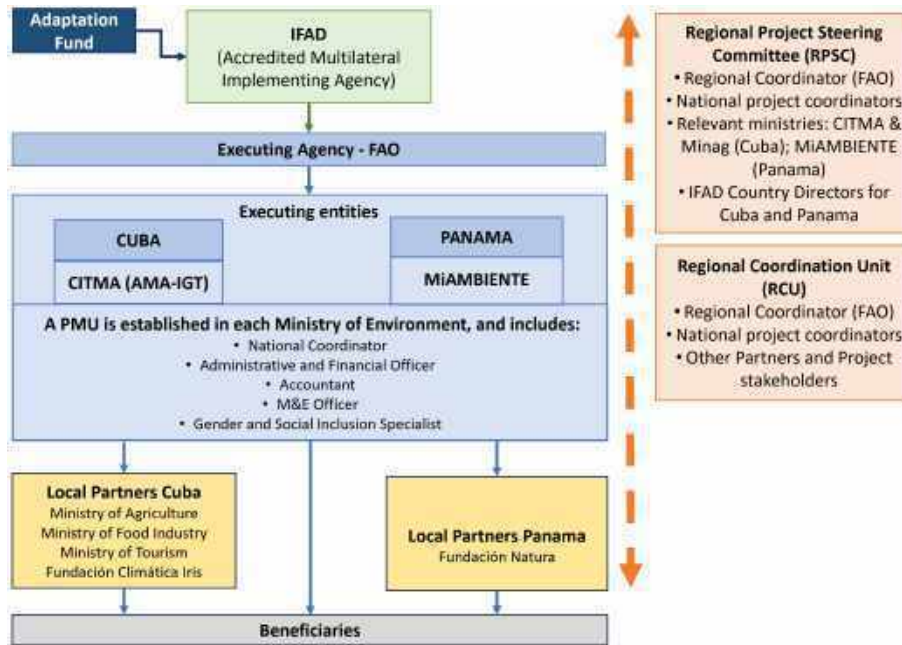


Figure 18. Project Implementation arrangements.

219. Figure 19 below illustrates the flow of funds:

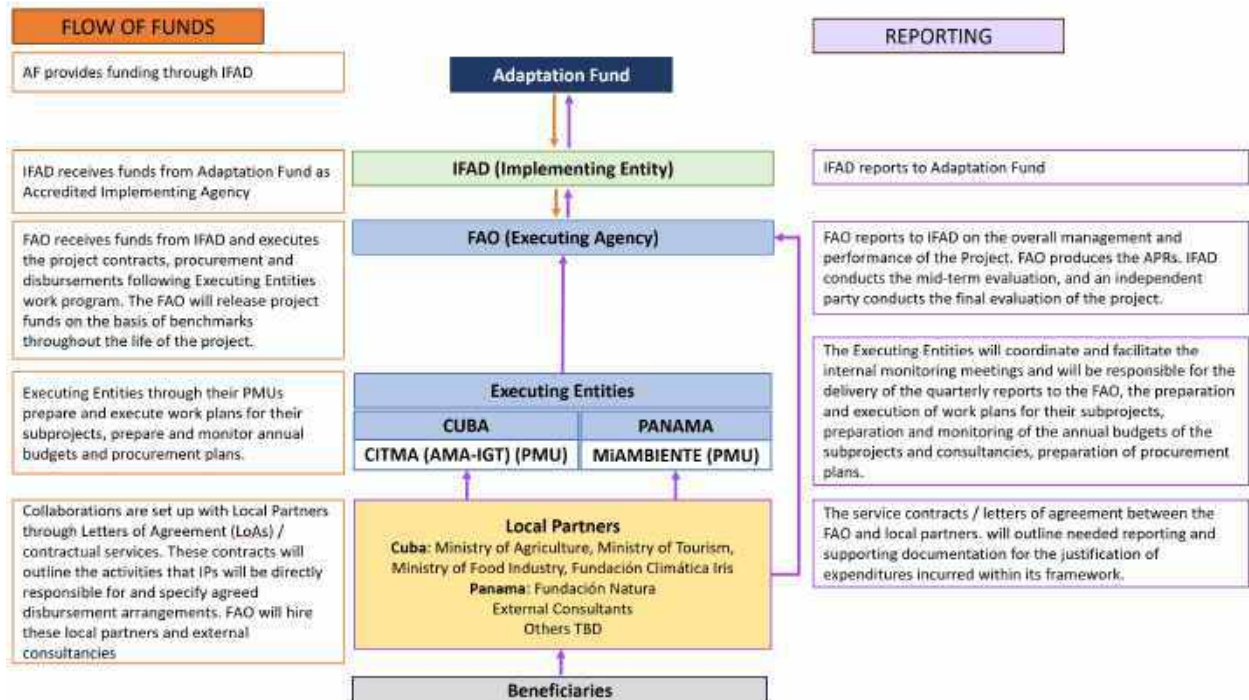


Figure 19. Flow of Funds and Reporting.

B. FINANCIAL AND PROJECT RISK MANAGEMENT

220. The identified risks and proposed mitigation measures for financial and project risk management are presented in Table 6:

Table 6. Main risks identified and proposed mitigation measures

Risk	Initial risk assessment (H = high, M = moderate, L = low)	Proposed mitigation measure	Final risk Assessment (H = high, M = moderate, L = low)
Limited capacity to manage the day-to-day implementation of the project	M	<ul style="list-style-type: none"> - Recruitment of experts with specific experiences in development project management and financial management procedures. - Competitive and transparent personnel selection processes with gender equality. - Ensure capacity and experience of hired personnel. - Ensure autonomy in operational, administrative and procurement processes. - The staff of the PMUs will be linked to the project by renewable annual contracts based on a performance evaluation. - IFAD/FAO will participate as an observer in all stages of the recruitment process. 	L
Project implementation and financial management procedures do not guarantee sufficient transparency and accountability	M	<ul style="list-style-type: none"> - Internal and external accounting and procedural audits will be performed - Only one person cannot conduct an operation in its entirety (from beginning to end, from execution to final control); - Support and supervision missions and an annual audit of the accounts. 	L
The project financial procedures do not allow for proper and regular monitoring	M	Financial monitoring based on: <ul style="list-style-type: none"> a) regular preparation of withdrawal requests and bank monitoring of the designated account and the account of operations; b) budget monitoring; c) accounting monitoring; d) technical and economic monitoring provided by the administrative and financial officer; e) preparation of quarterly financial and accounting reports (interim financial reports) to be submitted to the coordinator for signature and send for review to the Steering Committee 	L
Loss of government support may result in lack of prioritisation of AF project activities.	L	Communication and coordination channels will be established and maintained with key actors in government institutions. Regular stakeholder consultation and involvement will be undertaken to ensure that government maintains its commitment and considers the AF project as a priority project	L
Climate change and seasonal variability and/or hazard events result in poor restoration results and/or affect the production cycle reducing agricultural yields	H	Current climatic variability will be taken into account in the planning of activities along the value chains. Drought- and flood-resilient species will be used. Techniques to assist plant growth particularly in the seedling/sapling phases and to reduce risk of damage from climate change hazard impacts will be used. Species will be planted in appropriate seasons to reduce risk of hazard impact. Diversity in planted crops will reduce this risk	M

C. ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

221. The project will ensure potential adverse environmental and social impacts are identified and avoided, and where impacts cannot be avoided, a suitable plan is prepared for those impacts to be mitigated and managed. A preliminary environmental and social assessment was performed as part of the project design to ensure existing environment and social standards applicable to targeted community beneficiaries are taken into account in the context of the AF Principles.

222. An assessment against the 15 AF principles is summarized below accompanied Possible measures to avoid, minimize, or mitigate environmental and social risks:

Table 7. Risks and related Mitigation measures

Checklist of environmental and social principles	Possible measures to avoid, minimize, or mitigate environmental and social risks
<i>Compliance with the Law</i>	The project is in full compliance with the countries policies, standards and laws During the implementation a monitoring of the adaptation interventions will be provided to continue to track alignment with national law.
<i>Access and Equity</i>	<ul style="list-style-type: none"> • Incorporate the eligibility and selection criteria of target groups into the public call mechanism and instruments to access project resources. • Carry out awareness-raising and/or training events on access, equity and gender equality aimed at the staff of the directors and partners of the organizations/cooperatives of agricultural and/or fishing producers that receive resources from the project. • Implement the Stakeholder Engagement Plan. • Focus affirmative actions to encourage young people of legal working age to join existing organizations/cooperatives or develop productive agricultural or fishing ventures, to reduce labor migration in the rural sector.
<i>Marginalized and Vulnerable Groups</i>	<ul style="list-style-type: none"> • Establish targeting criteria for the target population based on the type of activities defined in the project components.
<i>Human Rights</i>	The project activities will not engage in any activity that may result in the infringement on the human rights of any person during implementation.
<i>Gender Equity and Women's Empowerment</i>	<ul style="list-style-type: none"> • Prepare the Gender Strategy of the project. • Prepare and implement the Gender Plan. • Carry out gender awareness and/or training events. • Establish differentiated targeting criteria for women's participation based on the type of activities defined in the project components.
<i>Core Labour Rights</i>	<ul style="list-style-type: none"> • The beneficiaries of the project will sign a letter in which they adhere to compliance with national law and international agreements signed to not directly or indirectly involve minors in the implementation of the funds received by the project. • In procurement processes (service providers) and in the transfer of resources to project beneficiaries, an exclusion list will be incorporated indicating that the use of project funds for the hiring or direct or indirect involvement of minors, children, adolescents and young people, in accordance with the restrictions and/or reservations indicated by national laws and international treaties signed on the matter.
<i>Indigenous Peoples</i>	<p><i>Note: mitigation measures are only applicable for Panama</i></p> <ul style="list-style-type: none"> • Develop the project's indigenous people's strategy, indicating what the mapping process will be like and the definition of community selection criteria for the systematization of good practices. • In the selected communities, apply the mechanism of Free, Prior and Informed Consent (FPIC) and the knowledge that is systematized, the project issues a certificate recognizing that the intellectual property rights belong to the tribe or ethnic group of the indigenous people interviewed.

	<ul style="list-style-type: none"> • In cases where people from indigenous peoples do not speak Spanish, the project will take the necessary steps to have a translator in the interview process.
<i>Involuntary Resettlement</i>	The project does not have activity that will lead to involuntary resettlement
<i>Protection of Natural Habitats</i>	The project will not involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognised by the national government for their high conservation value, including as critical habitat; or (d) recognised as protected by traditional leaders and communities.
<i>Conservation of Biological Diversity</i>	<ul style="list-style-type: none"> • Request service providers that the material supplied (seeds or plants) come from legal sources and that they are not reported in the official list of threatened or endangered wildlife species, in the CITES appendices and red list from IUCN. • The vegetative material to be used in restoration activities must not be reported in the national environmental framework as an exotic species or from genetically modified organisms. In case of exceptions, the service provider must have the endorsement of the national environmental authority. This requirement must be in the Terms of Reference as well as in the contract for the provision of services.
<i>Climate Change</i>	The project will not generate significant and / or unjustified increase in greenhouse gas emissions or any other cause of climate change.
<i>Pollution Prevention and Resource Efficiency</i>	<ul style="list-style-type: none"> • Improve agricultural and fishing practices through technical assistance and extension services focused on local producers. • Apply agroecological practices in agricultural crops. • Implement practices and technologies to improve access and availability of water in homes, primary production units and/or processing centers. • Management of waste from primary activities and in the transformation processes of agricultural and fishery products
<i>Public Health</i>	Develop and implement a biosafety protocol for Project staff as well as the target groups with whom there is contact, following national requirements.
<i>Physical and Cultural Heritage</i>	No mitigation measures necessary.
<i>Lands and Soil Conservation</i>	The project will ensure that all relevant environmental codes and standards will be followed during the implementation of the project. Where land is to be modified, standards will be followed to maintain the land in its natural state or as close to its natural state as is possible; and, if land is to be converted, it must promote and protect its current function.

223. The environmental and social management plan (ESMP) developed as part of the project design includes more detailed information on identified potential environmental and social impacts, their significance, mitigation measures and responsible parties for ensuring the risks are monitored and mitigated as and if they materialize (see Annex 3).

D. MONITORING AND EVALUATION PLAN

224. Project Monitoring and Evaluation (M&E) will be under the oversight of the Regional Project Coordinator of the project who will work closely and in coordination with the two country coordinators, the M&E officers and the specialists of each component, as well as other key project actors. A monitoring and evaluation manual that will describe a simple and effective system for collecting, processing, analysing, and disseminating data will be prepared in the first year of the Project.

225. A database will be developed to ensure tracking of progress towards targets and enable the generation of dashboards. The system will be regularly fed from data collected in the field by the local partners and the various studies carried out as part of the projects' implementation. The monitoring and evaluation system will be coupled with a geo-localized information system (GIS) that will allow mapping and spatial-temporal analyses. Trainings will be organized to strengthen the capacities of the various

stakeholders involved in the monitoring and evaluation system. Where possible, the M&E system will be linked to national monitoring systems (within the respective ministries). M&E arrangements will comply with the AF guidelines, and as a minimum, the following will be monitored and evaluated: project milestones, financial data, procurement data, risks assessment, ESP compliance, project results framework and lessons learned. The database will allow the monitoring and evaluation of the project by components and activities considering variables or indicators established in the results framework for both project indicators and those required by the Adaptation Fund. Information on beneficiary coverage goals will be carried out by population groups differentiated by gender and ethnicity.

226. The M&E system will contribute to: (i) track compliance with the project results framework, including programmed milestones, targets and indicators; (ii) produce, organise and disseminate information needed for the project's strategic management; (iii) support the documentation of results and lessons learned for internal use and for public dissemination of accomplishments in collaboration with the knowledge management specialist; (iv) respond to the information and documentation needs of the Adaptation Fund, IFAD and the governments of Cuba and Panama; (v) respond to project information needs on activities, gender, results and impact generated by the project.

227. **Project Inception Workshop.** During the first quarter following the formal start date of the project, an inception workshop will be held with the participation of all administrative and technical staff hired to facilitate the implementation of the project, as well as government representatives, the FAO as executing agency and IFAD as implementing agency. The workshop will have the following objectives: 1) Presentation of the main policies and procedures for the technical and financial implementation of the project to the team; 2) Support the team through the ownership process of the objectives, indicators and results of the project; 3) Preparation of the work plan and budget for the first year of the project. A report on the inception workshop will be drafted and shared with all participants. The Inception Workshop will help build ownership for the project results and to plan the first-year annual work plan.

228. **A Project Inception Report** will be prepared immediately following the Inception Workshop. It will include: (i) a detailed First 18-months/Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project; (ii) the detailed project budget and procurement plan for the first 18 months of implementation, prepared on the basis of the Annual Work Plan; (iii) a detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners; (iv) a section on progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation.

229. After the completion of the project inception workshop and the approved work plan and budget, the Project Management Unit will implement the following Monitoring and Evaluation actions:

- a. **Baseline study:** A baseline study will be conducted within the first year to collect data and serve as the basis for the assessment of how efficiently the activity has been implemented and results achieved. The study will include the target group considering subgroups of interest (men, women and indigenous population) and a control group which will be essential to determine the attribution of results to project activities.
- b. **Annual Work Plans:** The annual operational plans and their budget will be prepared annually by the PMUs and must describe in detail the activities and results expected to be achieved during the execution period, responding to the project's results and indicators. They must be submitted 15 days in advance to the Regional Project Coordinator for final approval at the annual meeting of the Regional Project Steering Committee.
- c. **Field visits:** Field visits to the sites where the project actions are developed will be held regularly at least once a month. Field visits shall be accompanied by field specialists and technicians, as well as project beneficiaries, and shall take place at the sites where climate change adaptation and/or resilience actions take place and where practical demonstrations of learning or capacity building on CC, climate adaptation and the reasoning behind building climate resilience in community livelihoods may be evidenced.

- d. **Audits:** Audits will be performed in accordance with international standards and the requirements of the Adaptation Fund and IFAD.
- e. **Semi-annual Progress Reports:** Progress reports will also be prepared by all project local partners (including extension services), service providers and submitted to the PMUs who will consolidate them to ensure a continuous monitoring of project activities and identify challenges to adopt necessary corrective measures in due time. FAO will produce the Annual Performance Reviews (APRs).
- f. **Technical reports** such as a best practices and lessons learned report - will also be completed, as determined during the project inception report.
- g. **Project Performance Reports (PPR):** The project team will prepare a PPR to reflect the progress made in meeting the project's Annual Work Plan and evaluate the project's performance in contributing to the intended outcomes through outputs and partnership work. The PPR will include an analysis of project performance over the reporting period. The PPR includes, among others, information related to financial data, procurement, risk assessment, rating, project indicators, lessons learned. The PPR includes among others, information related to financial data, procurement, risk assessment, rating, project indicators, lessons learned. The due date of the 1st annual Project Progress Report is 1 year after the Inception Workshop. The same timeline will apply for subsequent PPRs. In accordance with the Environmental and Social Policy, the PPR shall also address all environmental and social risks identified during project assessment, design, and implementation and report on sex-disaggregated targets presented in the results framework and AF indicators. The annual project performance reports shall include a section on the status of implementation of the environmental and social management plan, including those measures required to avoid, minimize, or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary.
- h. **Mid-term Review (MTR):** The baseline survey will be re-conducted during the mid-term and final year review of the Project with a view to assessing the effects and impacts at mid-term and before the end of the Project. IFAD conducts the mid-term project evaluation. The MTR will assess operational aspects such as programme management and timely and efficient implementation of activities as well as the extent to which the objectives are being achieved and identification of corrective actions that may be needed for the programme to achieve the desired impact. The mid-term and terminal evaluation reports shall also include an evaluation of the project performance with respect to environmental and social risks.
- i. **A Final Evaluation:** A final evaluation will be performed three months prior to project closure, which will include a programme completion survey. The Terminal Evaluation will follow the AF and IFAD guidelines. An independent party will conduct the final evaluation of the project.

230. Project supervision missions will be organized by IFAD, with a supervision mission mobilized at least once per year. Additional implementation support from FAO on specific identified issues will be mobilized if considered necessary by executing agencies and FAO or recommended by the supervision mission. The composition of the supervision missions will be based on an annual supervision plan. The supervision plan will highlight, in addition to the routine supervision tasks (fiduciary, compliance and project implementation), the main thematic or performance areas that require strengthening and would imply deployment of additional inputs for capacity building, in-depth analytical studies or review of existing policies.

Table 8: Monitoring and Evaluation Activities

M&E Activities	Timelines	Cost (USD)	Responsible Parties
Baseline study	Year 1	30,000	PMUs, RCU
M&E Specialist Panama & Region (50% of the time)	Annually	18,000	PMUs
M&E Specialist Cuba (50% of the time)	Annually	30,000	PMUs
Regional Project Coordinator (50% of the time)	Annually	117,500	PMUs

Supervision visits	Bi-annually	25,000	IFAD, PMUs, Government
Mid-term Evaluation	At mid-point	40,000	IFAD, external consultants
Terminal Evaluation	No later than 3-months upon project termination	40,000	IFAD, external consultants
Total: 300,500 USD			

E. RESULTS FRAMEWORK

231. The project results framework, including indicators, milestones, targets, means of verification and related assumptions are as follows:

Table 9: Results Framework

Project Objective Indicator	Baseline	Target	Means of verification	Assumptions
Reduce the vulnerability and strengthen the adaptive capacities of nine coastal municipalities in Cuba and Panama to climate change impacts				
AF Core indicator: Number of beneficiaries (direct and indirect) (disaggregated by women and men)	0	74,242 (37,121 women 37,121 men) (41,350 Cuba 32,892 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	Beneficiaries and relevant authorities are willing to participate in project activities; vulnerability to exogenous shocks (economic, extreme weather events etc.), political and economic stability, cooperation between institutions to share relevant information and data
AF Core indicator: Natural assets protected or rehabilitated (hectares of natural assets)	0	121,990 (14,297 Cuba 107,693 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of municipalities with climate-related planning instruments and frameworks defined (damage loss assessments and participatory plans)	0	9	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Damage and loss assessment results are integrated in national strategies and/or reporting commitments (e.g., NDCs)	0	3	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of agricultural and fishing-based cooperatives strengthened as a result of project support	0	28 (15 agricultural and fishing-based cooperatives in Cuba and 13 cooperatives in Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of hectares where selected EbA interventions have been successfully implemented with community participation and leadership based on good practices for enhanced coastal resilience	0	264 (152 Cuba 112 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Component 1: Climate change adaptation planning and regional cooperation				
Baseline assessments of loss and damage to agricultural and food	0	9	- Project M & E reports	Beneficiaries and relevant

Project Objective Indicator	Baseline	Target	Means of verification	Assumptions
productivity affecting local economies and livelihoods in target coastal municipalities due to slow onset climate impacts completed in target municipalities			- Progress reports - Mid-term and final project evaluations	authorities are willing to participate in project activities; vulnerability to exogenous shocks (economic, extreme weather events etc.), political and economic stability, cooperation between institutions to share relevant information and data
Participatory Adaptation Plans (PAPs) prepared at the Municipal Level through a participatory gender-sensitive process, identifying priority adaptation actions for enhanced food productivity and resilience	0	9	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Participatory Risk Management Plans (PRMPs) prepared at the Municipal Level through a participatory gender-sensitive process, identifying priority actions to reduce projected risk to food productivity	0	9	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of baseline gap analysis conducted to assess existing capacities at the various levels to implement the loss and damage methodology and adaptation actions as well as needs for the design and operationalization of the DLIS.	0	9	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of people trained by the FAO on the design and operationalization of a DLIS for Agriculture and Fishing production (including 50 percent of trained women)	0	35 (18 women 17 men)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of DLIS for Agriculture and Fishing Production operational for the target areas	0	9	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of Regional Coordination Unit (RCU) and a Regional Project Steering Committee (RPSC) established to facilitate continuous dialogue and coordination	0	2	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Number of knowledge products and knowledge sharing events to facilitate dissemination and exchange of best practices among national and local governments as well as among productive associations, community and women groups	0	10	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Component 2: Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities.				
Number of baseline analysis completed for selection of priority sites and proposed solutions for protection, conservation, and sustainable management to reduce projected damage and loss due to slow onset hazards as projected from initial flood modelling	0	1	- Project M & E reports - Progress reports - Mid-term and final project evaluations	Beneficiaries and relevant authorities are willing to participate in project activities; vulnerability to exogenous shocks (economic, extreme
No. of people trained on EbA through the FFS approach (including at least 50 percent of female beneficiaries)	0	100 (50 women 50 men)	- Project M & E reports - Progress reports - Mid-term and final	

Project Objective Indicator	Baseline	Target	Means of verification	Assumptions
			project evaluations	weather events etc.), political and economic stability
No. of hectares of coral reefs sustainably managed, restored or rehabilitated as a result of the project	0	2,024 (2,024 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
No. of hectares of mangroves sustainably managed, restored or rehabilitated as a result of the project	0	45 (30 Cuba 15 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Assessment of EbA implemented across target sites and their incidence in reducing loss and damage projections from slow onset hazards completed	0	9 (5 Cuba 4 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
Component 3: Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience				
No. of people trained through the FFS approach in climate-smart agricultural technologies or for diversified livelihoods (including at least 50 percent female beneficiaries)	0	1,200 (800 Cuba 400 Panama) (600 women 600 men)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	Beneficiaries and relevant authorities are willing to participate in project activities; vulnerability to exogenous shocks (economic, extreme weather events etc.), political and economic stability
No. of hectares where climate smart practices are being implemented	0	219 (122 Cuba 97 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
No. of people adopting climate-smart agricultural and fishing productive technologies across nine target municipalities through the FFS approach (including at least 50 percent female beneficiaries)	0	300 (250 Cuba 50 Panama) (150 women 150 men)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
No. of people benefitting from diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities through the FFS approach (including at least 50 percent female beneficiaries)	0	300 (250 Cuba 50 Panama) (150 women 150 men)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	

F. RF ALIGNMENT WITH ADAPTATION FUND

232. The following table outlines how the project aligns with the Results Framework of the Adaptation Fund:

Table 10: Results Framework alignment with the Adaptation Fund

Project Objective(s) ⁸⁷	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Overall objective: The main objective of the proposed regional project is to reduce vulnerability and strengthen the adaptive capacities of nine coastal municipalities in Cuba and Panama to climate change impacts				

⁸⁷ The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

Strengthened ability of coastal communities to undertake concrete actions to adapt to climate change-driven hazards	Number of risk-exposed coastal communities protected through adaptation measures	<u>Outcome 2:</u> Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic & environmental losses	2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	2,526,473
Strengthened ability of coastal communities to make informed decisions about climate change-driven hazards affecting their specific locations	Number of municipalities with climate-related planning instruments and frameworks defined (damage loss assessments and participatory plans)	<u>Outcome 3:</u> Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	9,151,253
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Component 1: Climate change adaptation planning and regional cooperation				
Loss and damage methodology of agricultural and fishing productivity implemented in nine target coastal municipalities in the face of slow onset climate impacts	No. of municipalities with climate-related planning instruments and frameworks defined (damage loss assessments and participatory plans)	<u>Output 2.1:</u> Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	2,124,961
Enhanced knowledge of loss and damage practices for improved adaptation planning, risk management and food security of agriculture- and fishing-based livelihoods.	No. of knowledge products and knowledge sharing events to facilitate dissemination and exchange of best practices among national and local governments as well as among productive associations and community groups.	<u>Output 8:</u> Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	401,512
Component 2: Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities.				
Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their	No. of hectares where selected EbA interventions have been successfully implemented with	<u>Output 5:</u> Vulnerable ecosystem services and natural resource assets	5.1. No. of natural resource assets created, maintained or improved to withstand	4,259,836

communities, livelihoods, and local food security	community participation and leadership based on good practices for enhanced coastal resilience	strengthened in response to climate change impacts, including variability	conditions resulting from climate variability and change (by type and scale)	
Component 3: Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience				
Climate-smart agricultural and fishing productive solutions adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts	No. of people adopting climate-smart agricultural and fishing productive technologies across nine target municipalities through the FFS approach	<u>Output 6:</u> Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	2,457,125
Diversified and EbA-compatible livelihood options for agricultural and fishing dependent households	No. of people benefitting from diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities through the FFS approach	<u>Output 6:</u> Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods	2,434,292

G. BUDGET

233. The project budget by component and outcome, the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs is presented in the table below:

Table 11: Project Budget by Component and Outcome

Project Components	Expected Outcomes	Expected Outputs	Amount (US\$)	Amount (US\$)
1. Climate change adaptation planning and regional cooperation	1.1. Loss and damage of agricultural and fishing productivity methodology implemented in nine target coastal municipalities in the face of slow onset climate impacts	1.1.1: Baseline data for loss and damage assessment collected. 1.1.2: Loss and damage analysis completed for nine municipalities. 1.1.3: Nine Participatory Adaptation Plans (PAPs) prepared at the Municipal Level identifying priority adaptation actions for enhanced food productivity and resilience to be implemented under Components 2 and 3. 1.1.4: Nine Participatory Risk Management Plans (PRMPs) prepared at the Municipal Level identifying priority actions to reduce projected risk to food productivity to be implemented under Components 2 and 3.	1,477,934	2,526,473

	1.2. Institutionalized Loss and Damage Information Systems (DLIS) at a sectoral and local level for enhanced adaptive capacity and management	1.2.1: Damage and Loss Information System (DLIS) designed and operational. 1.2.2: Technical capacity and regional coordination strengthened for the effective operationalization of the DLIS and data processing. 1.2.3: Binational mechanisms established to facilitate continuous dialogue and coordination in the design and operationalization of the DLIS methodology.	647,027	
	1.3. Enhanced knowledge on loss and damage practices for improved adaptation planning, risk management and food security of agriculture- and fishing-based livelihoods and disseminated at regional level	1.3.1: Establishment of a binational community at various scales through exchange missions, capacity building and FFS implementation in target sites. 1.3.2: Guidelines and recommendations developed compiling lessons learned from the implementation of the FAO loss and damage methodology for scale up in similar contexts.	401,512	
2. Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities.	2.1. Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their communities, livelihoods and local food security	2.1.1. Baseline studies on key coastal ecosystems for enhanced resilience and food security inform selection of priority interventions. 2.1.2. Farmers Field Schools (FFS) support local training and the implementation of EbA including restoration and sustainable management of identified critical ecosystems. 2.1.3. Selected EbA interventions implemented with community participation and leadership based on good practices for enhanced coastal resilience.	4,259,836	4,259,836
3. Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience	3.1. Climate-smart agricultural and fishing productive solutions adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts	3.1.1. Agricultural and fishing cooperatives have been created and/or strengthened cooperatives (favouring women and vulnerable populations) in their associative, productive capacities for climate smart production capacity. 3.1.2. FFS support local training and use of sustainable and resilient productive practices including coconut, plantain and rice harvesting and fishing related practices across nine target municipalities. 3.1.3. Climate-smart agricultural and fishing productive technologies adopted by local producers across nine target municipalities through the FFS approach.	2,457,125	4,891,417

	3.2. Diversified and EbA-compatible livelihood options for agricultural and fishing dependent households	3.2.1. Cooperatives have been created and/or strengthened cooperatives and/or to implement diversified EbA compatible livelihoods (artisanal oyster and mollusc cultivation in mangroves, commercialization and processing of coconut and banana-based products, nature-based tourism). 3.2.2. FFS support local training and use of sustainable and resilient productive practices for EbA compatible livelihoods across nine target municipalities. 3.2.3. Diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities through the FFS approach.	2,434,292	
Project Activity cost				11,677,726
Project Execution cost (9.5%)				1,225,500
Total Project Cost				12,903,226
Project Cycle Management Fee (8.5%)				1,096,774
Amount of Financing Requested				14,000,000

234. The detailed budget disaggregated by year, output and country (Cuba and Panama), is presented below:

Table 12: Project Budget by Country, Output and year

Year	1	2	3	4	5	Total
Cuba	USD	USD	USD	USD	USD	USD
Output 1.1.1	\$ 69,234	\$ 65,827	\$ 185,755	\$ 23,673	\$ 7,075	\$ 351,564
Output 1.1.2	\$ 8,826	\$ 13,262	\$ 15,610	\$ 12,164	\$ 6,319	\$ 56,181
Output 1.1.3	\$ 10,171	\$ 16,396	\$ 18,713	\$ 13,939	\$ 7,162	\$ 66,381
Output 1.1.4	\$ 9,171	\$ 12,796	\$ 13,681	\$ 11,598	\$ 7,675	\$ 54,921
Output 1.2.1	\$ 48,959	\$ 55,392	\$ 56,148	\$ 46,196	\$ 40,257	\$ 246,952
Output 1.2.2	\$ 11,334	\$ 4,279	\$ 4,498	\$ 4,343	\$ 3,894	\$ 28,348
Output 1.2.3	\$ 3,382	\$ 27,498	\$ 7,651	\$ 8,074	\$ 1,608	\$ 48,213
Output 1.3.1	\$ 28,454	\$ 28,588	\$ 64,586	\$ 28,388	\$ 8,481	\$ 158,497
Output 1.3.2	\$ 5,628	\$ 9,847	\$ 12,539	\$ 9,204	\$ 5,041	\$ 42,259
Output 2.1.1	\$ 417,692	\$ 562,604	\$ 311,923	\$ 288,368	\$ 181,290	\$ 1,761,877
Output 2.1.2	\$ 36,406	\$ 61,119	\$ 74,603	\$ 51,216	\$ 31,205	\$ 254,549
Output 2.1.3	\$ 28,630	\$ 54,477	\$ 67,777	\$ 46,476	\$ 22,410	\$ 219,770
Output 3.1.1	\$ 332,105	\$ 320,084	\$ 169,528	\$ 129,092	\$ 82,624	\$ 1,033,433
Output 3.1.2	\$ 19,640	\$ 39,515	\$ 40,445	\$ 32,026	\$ 15,015	\$ 146,641
Output 3.1.3	\$ 12,607	\$ 21,505	\$ 26,838	\$ 17,453	\$ 9,601	\$ 88,004
Output 3.2.1	\$ 259,248	\$ 225,496	\$ 233,835	\$ 181,979	\$ 67,250	\$ 967,808
Output 3.2.2	\$ 24,602	\$ 35,958	\$ 44,501	\$ 31,803	\$ 16,050	\$ 152,914
Output 3.2.3	\$ 24,702	\$ 37,565	\$ 46,583	\$ 32,286	\$ 19,414	\$ 160,550
Total Cuba	\$ 1,350,791	\$ 1,592,209	\$ 1,395,214	\$ 968,279	\$ 532,371	\$ 5,838,863
Panama	USD	USD	USD	USD	USD	USD
Output 1.1.1	\$ 234,257	\$ 129,130	\$ 3,000	\$ 3,000	\$ 3,000	\$ 372,387
Output 1.1.2	\$ -	\$ 166,700	\$ -	\$ -	\$ -	\$ 166,700
Output 1.1.3	\$ -	\$ 73,500	\$ 139,200	\$ -	\$ -	\$ 212,700
Output 1.1.4	\$ -	\$ 68,300	\$ 128,800	\$ -	\$ -	\$ 197,100
Output 1.2.1	\$ 48,959	\$ 55,392	\$ 56,148	\$ 46,196	\$ 40,257	\$ 246,952
Output 1.2.2	\$ 11,334	\$ 4,279	\$ 4,498	\$ 4,343	\$ 3,894	\$ 28,348
Output 1.2.3	\$ 3,382	\$ 27,498	\$ 7,651	\$ 8,074	\$ 1,608	\$ 48,213
Output 1.3.1	\$ 28,454	\$ 28,588	\$ 64,586	\$ 28,388	\$ 8,481	\$ 158,497
Output 1.3.2	\$ 5,628	\$ 9,847	\$ 12,539	\$ 9,204	\$ 5,041	\$ 42,259
Output 2.1.1	\$ -	\$ -	\$ 108,050	\$ 108,050	\$ -	\$ 216,100
Output 2.1.2	\$ -	\$ 790,400	\$ -	\$ -	\$ -	\$ 790,400
Output 2.1.3	\$ -	\$ -	\$ 762,855	\$ 254,285	\$ -	\$ 1,017,140
Output 3.1.1	\$ -	\$ 328,667	\$ -	\$ -	\$ -	\$ 328,667
Output 3.1.2	\$ -	\$ 73,500	\$ 207,370	\$ 207,370	\$ -	\$ 488,240
Output 3.1.3	\$ -	\$ -	\$ 279,105	\$ 93,035	\$ -	\$ 372,140
Output 3.2.1	\$ -	\$ -	\$ 341,973	\$ -	\$ -	\$ 341,973
Output 3.2.2	\$ -	\$ -	\$ 35,812	\$ 393,928	\$ -	\$ 429,740
Output 3.2.3	\$ -	\$ -	\$ -	\$ 249,260	\$ 132,047	\$ 381,307
Total Panama	\$ 332,014	\$ 1,755,802	\$ 2,151,587	\$ 1,405,134	\$ 194,327	\$ 5,838,863
Execution	USD	USD	USD	USD	USD	USD
National PMU	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 396,000
Regional PMU	\$ 171,000	\$ 101,000	\$ 86,000	\$ 86,000	\$ 106,000	\$ 550,000
Exchanges	\$ 41,000	\$ 56,400	\$ 44,800	\$ 86,400	\$ 50,400	\$ 279,000
Total Execution	\$ 291,200	\$ 236,600	\$ 210,000	\$ 251,600	\$ 235,600	\$ 1,225,000
Total Implementation	\$ 207,355	\$ 207,355	\$ 237,355	\$ 207,355	\$ 237,355	\$ 1,096,774
Total Project Cost	\$ 2,181,359	\$ 3,791,965	\$ 3,994,156	\$ 2,832,367	\$ 1,199,653	\$ 13,999,500

H. DISBURSEMENT SCHEDULE

235. The disbursement schedule is presented in the Table below:

Table 13: Project calendar with associated milestones

Milestones	Expected Dates
Start of Project/Programme Implementation	Q1 2025
Mid-term Review (if planned)	Q3 2027
Project/Programme Closing	Q1 2030
Terminal Evaluation	Q2 2030

Project cost	Upon signature of agreement	One year after project start	Year 2	Year 3	Year 4	Year 5	Total
Activity cost	2,919,431	2,335,545	2,335,545	1,751,659	1,751,659	583,886	11,677,726
Execution cost	204,167	204,167	204,167	204,167	204,167	204,167	1,225,000
Implementation cost	182,796	182,796	182,796	182,796	182,796	182,796	1,096,774
Total	3,306,394	2,722,508	2,722,508	2,138,621	2,138,621	970,849	14,000,000

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

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT⁸⁸

Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project/ programme. Add more lines as necessary. The endorsement letters should be attached as an annex to the project/programme proposal. Please attach the endorsement letters with this template; add as many participating governments if a regional project/programme:

<i>H.E. Milciades Conception Minister of Environment Ministry of Environment Republic of Panama</i>	<i>Date: June 30, 2023</i>
<i>Sr Ulises Fernández Gómez Director of International Relationship Ministry of Science, Technology and Environment Republic of Cuba</i>	<i>Date: December 13, 2023</i>

⁶ Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Letter of Endorsement by Government

June 30, 2023
DM-1291-2023

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

Subject: Endorsement for the proposal "**Strengthening the adaptive capacity of coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management and local food security**"

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

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the International Fund for Agricultural Development (IFAD), and executed by the Ministry of Environment of Panama.

Sincerely,



MILCIADES CONCEPCIÓN
Minister of Environment of Panama

MC/AGA/LCD/imp/mz




cc.: IFAD

Albrook, Calle Broberg, Edificio 804
República de Panamá
Tel.: (507) 500-0855

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MINISTERIO DE CIENCIA, TECNOLOGÍA Y MEDIO AMBIENTE
Dirección de Relaciones Internacionales

DRI: 1939/2023

**Letter of Endorsement by Government
Ministry of Science, Technology and Environment (CITMA) of Cuba**

December 13, 2023

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

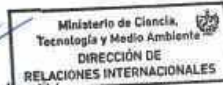
Subject: Endorsement for Project "Strengthening the adaptive capacity of coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management and local food security"

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

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by International Fund for Agricultural Development (IFAD) and executed by Food and Agriculture Organization (FAO) with the technical support of the Environment Agency (AMA-IGT) and the Ministry of Science, Technology and Environment (CITMA) and the Ministry of Agriculture (Minag).

Sincerely,

Ulises Fernández Gómez



Director of International Relationship
Ministry of Science, Technology and Environment
Republic of Cuba

Calle 18 A # 4118 e/ 41 y 47, Playa, La Habana 11300, CUBA.
Tel: (537)214 4256, Fax:(537)214 4257 e-mail: ulises@citma.gob.cu

PJR

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B. IMPLEMENTING ENTITY CERTIFICATION

*Provide the name and signature of the Implementing Entity Coordinator and the date of signature.
Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Implementing Entity coordinator: Mr Juan Carlos Mendoza Casadiegos, Director, Environment, Climate, Gender and Social Inclusion Division	
Date: 8 January 2024	e-mail: juancarlos.mendoza@ifad.org
Ms Janie Rioux Senior Technical Specialist – Climate Change- AF coordinator ECG division	email: j.rioux@ifad.org
Project contact person: Mr Oliver Page, Regional Lead Environment and Climate Specialist	
e-mail: o.page@ifad.org	
Ms Isabel de la Peña, Country Director for Cuba	
e-mail: i.delapena@ifad.org	
Mr Enrique Hennings, Country Director for Panama	
e-mail: e.hennings@ifad.org	

ANNEX 1 - STAKEHOLDER CONSULTATIONS (CONCEPT NOTE STAGE)

Several presentations, interviews and surveys were included into the consultation process feeding into the Concept Note proposal for both countries. The scope of the consultation was to identify project objectives, possible components, effects of CC facing in Cuba and Panama in targeted zones, possible adaptation solutions, including solutions based on nature, data collection for risk management against climatic threats in the area, implementation of economic diversification measures for the region through sustainable and resilient activities. It was also explained that a binational proposal scope will allow a teamwork and share experiences between both countries.

Panamá

- **Aquatic Resources Authority:** Provided information about the projects they are carrying out in the Province of Colón, for the aquaculture of the Tilapias and Colosomas breedings. They provided us with contact information and shared information about the Fishing cooperative of Donoso and Chagres.

They do not have information of CC projects in the area nor that they have used nature as a means of defense barrier.

- **Authority of tourism:** Because of their contact with organized groups from the coastal sector, they consider that CC is affecting fishing, agriculture, livestock and tourism, and mentioned some local communities that face floods and landslides, such as Palmas bellas in Portobelo, Chagres, Govea, Miramar and Coclé del norte. These last three suffer from erosion of the coastline and damages to coastal roads. According to them, important actions should include climate resilient infrastructure and a water harvesting plan, increase of agroforestry systems, use of resilient seeds, minimize the use of pesticides, awareness actions with local population on CC, and dissemination through radio, television and other media.

- **Ministry of Agriculture:** Reported the relevance of the coconut production in the zone. Since 2016, they are involved into a project that includes agroforestry systems into this production to stimulate the production of the coconut tree to increase the income of the families that are dedicated to the activity. It will be interesting to include climate resilient practices into this project to ensure adaptation to extreme events and temperatures are included into these crops to guarantee a long-term production.

- **Municipalities:** Mentioned that they have built a retaining wall on the coastal edge of Piña and that they are interested in building a wall to Aníbal Beach.

In **Chagres** municipality, consider that CC is affecting tourism, fishing, agriculture and livestock in the area. In addition, they mentioned that the actions to face CC effects must include the implementation of sustainable agriculture, management of sand extraction, such as in the Aníbal beach of the Nuevo Chagres district and the management mishandling of waste. In **Portobelo**, consider that CC is affecting fishing, agriculture and tourism. Relevant actions to mitigate effects of CC were related to the construction of retaining walls to face the force of the waves and fillings for the protection of the town of Puerto Lindo. Some of the main communities mentioned as most affected were Isla Grande, Puerto Lindo, Ballestilla and San Antonio (already lost part of their beaches due to the rising tides). Relevant floods were mentioned in Nuevo Tonosí, Portobelo downtown, Buenaventura and the community of María Chiquita. In **Santa Isabel** Municipality do not have knowledge about CC projects and they mentioned that do not have any department to take care of environmental issues. They considered that CC is affecting tourism, fishing, agriculture, tourism and livestock. Several actions mentioned to face CC were reforestation actions in the areas of the basins and the affected areas. Relevant floods and sea-level rise areas inside the municipalities were Palenque, Palmira, Cuango and Santa Isabel.

According to surveys from Ministry of Environment, Tourism Authority, Ministry of Agriculture, and Representatives from municipality council from Chagres, Portobelo and Santa Isabel, at least 14 from 18 of the people said that within these municipalities' projects are carried out that are using nature as a barrier to reduce environmental shocks and impacts, such as SLR among others.

When demanded about a department inside the municipalities which includes protective activities to coastline, the majority of participants answered negatively.

Question about existing CC plans into municipalities, the majority of the answers was other, which includes no relevant mention about what those were plans except a mention about a dump. This reflects a lack of knowledge about CC and the relations with the effects of them into their lives and productive activities.

According to the same survey, participants mentioned as main productive activities sensitives to extreme weather events and SLR are fishing (13 mentions), agriculture (8 mentions) and tourism (8 mentions).

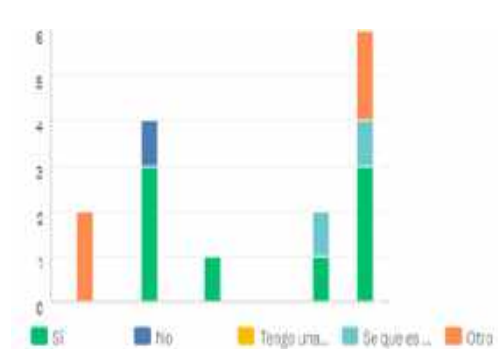
• **Indigenous people.** As mentioned earlier the consultations have been severely limited by the travel restrictions imposed due to the COVID-19 pandemic. The consultations with the indigenous communities in Panama have also been adversely affected as a result and also further compounded by their geographical remoteness. To ensure the inclusion of the indigenous people, the design of the concept note has been conducted in consultation with Mr. Iniquilipi Chiari Lombardo, the Head of Indigenous People, Representative at the Ministry of Environment. These consultations have enabled their initial assessment and the identification of the key economic sectors that they operate in. These have been identified as mainly fishing, tourism through the making of handicrafts and agriculture. Due to the pandemic, tourism has been severely affected, therefore the project will focus on integrating the indigenous people into the components 2 and 3, including in tourism when it picks up again.

Cuba:

The Ministry of Environment (CITMA) and the Ministry of Agriculture, and their different directions, are the two ministries involve into this formulation process. Furthermore, during the formulation process some Cuban specialized institution, such as Agricultural Engineering Institute, Soil institute, Agroforestry research institute, Tropical Fruit Institute dependent of both ministries participated in consultative meetings and concept note design, in compliance with the specific functions assigned within the framework of its competences. As part of the integrated and articulated work system, alternative options to consultancy process were employed due to current context of Covid-19 to establish interaction with the territories. In Cuba, as part of the restrictive measures implemented to reduce the spread of the disease, the mobility of people between the different provinces of the country was regulated, representing a limitation to specify the planned routes to the selected municipalities in the framework of the elaboration of the Concept Note.

Virtual meetings between Technical Personnel in La Habana with FAO and Panama, held along one year, as well as survey with producers of targeted municipalities were include into this consultation process. Municipality selection process went through three important stages. 1) Conciliations with the municipalities considering the same selection criteria. 2) Definition of the initial proposal and the intervention in the provinces of Cienfuegos (coastal municipality) and Ciego de Ávila (non-coastal municipality to work the coconut chain). 3) At third stage, the final identification was made of the areas to be intervened in the municipalities selected for the implementation of the project, according to similar climate threats in coastal municipality with similar livelihoods (fishing and agriculture).

Surveys and interviews: Producers- Cuba and Panama:



A similar survey was taken among Panama and Cuba producers, and some Protected Area managers were interviewed, in order to focalized actions mainly into field components (Table 1.2).

Most of the producers in Panama reported that they do know what CC is, but they did not associate the effects of floods or storms with CC. Some recognized problems with water, floods or change in rain patterns and temperatures, but did not identify cause-effect relations with CC. In addition, they did not foresee any long-term changes in terms of climate or extreme events that affect their productive activities. They did not report adaptive measures taken by them into their productive

activities yet.

In the case of Cuba, direct links between floods, droughts and intensive storms and climate change are clearer for the producers, but only few of them mentioned the possible effects over their productive activities.

Protected Area Managers:

From **San Lorenzo protected area in Panama** indicated a strong impact on the coastal and beach areas, through the intrusion of the sea towards the coast along the coast of Colon, due to CC. They mentioned that almost all the communities had to develop containment areas (hills and levees) to avoid flooding.





About ecosystems they mentioned the existence in 12,000 hectares of the protected area, 90% of the ecosystem is rainforest, 40% beaches and 5% mangroves (mainly zones next to Chagres River, that is part of the Panama Canal). They mentioned the importance of the rainforest and the main effects from CC over it derived from the SLR and storms and their effect over the soil, which increase the tree fall in the area (because the soil is not enough to generate enough support for trees of a certain size). He also mentioned that the wetlands in this park is in good conditions and it is a zone of difficult access and because of that is less intervened. Also, is part of the Chagres River in the Canal Zone. The main threat to the protected area is related to neighbor communities (Gatun lake sector, North West margin, Escobado community, Achioté). The need for housing for the communities, the illegal hunting and agriculture of subsistence are some activities that generate pressures over this protected area.





From **Portobelo protected area in Panama** participants indicated the importance of the mangrove ecosystem along the coast of that municipality and that ecosystem is in good conditions, excepts in the area of Portobelo, where it is affected by waste. She recognized the importance of the mangrove could protect the population of the zone. Despite the fact that they did not have any recent study about the state of the mangrove, they had a recent episode of floods in the municipality on 2018, indicating how the SLR is affecting them.

From the **protected area in Batabanó in Cuba**, ecosystem conservation and restoration are the most challenges for her. She mentioned some extreme episodes of floods, hurricanes and droughts during the last 3 years. She mentioned that CC will affect all coastal forests and fauna provided services, and the productive activity that are carried out and directed. She also mentioned the possible effects of the SLRs in the coastal zones and villages, that could represent threats, such flooding, corals deaths, disappear of fish species, rains shift, heat increases and the risks of new diseases.

Consultation participants (Concept Note Stage)

Panamá		
Municipal council- Donoso: meeting – survey)	Municipal council- Chagres (meeting- survey)	Municipal Council – Portobelo (meeting – survey)
<p>Hector Pino Mata-Ileana Sanchez-Thais Kenya Gutierrez-Benjamin Reys-Hadiel Melo-Juliana Rodriguez -José Ramirez-Felicito Terán-Armando Johnson</p> 	<p>Maria Esther Estil-Leopoldo Babará-Osvaldo Marinez-Sebero Castañeda-Tomas Mejía-Horacio Jimenez-Adrian Guerra -Graciela Vasquez-Katherine Martinez</p> 	<p>Alejandro Vargas -Angel Cat- Nidia Esther Cano -Marlene Zúñiga-Jonels Jimenez-Fernando Kelly-Dalys Chifundio-Zumakira Oliveros -Vides Ronco-Lauris Rodriguez -Meybis Delend-Wilam Mendoza -Sonia Molinar -Dimas Melachor-- Ana Barrera- Mario Ortiz-Anabel Chifundio-Arlen Bonilla - Yosimar Peña</p>
Municipal Council Santa Isabel: (meeting-surveys)	Institutional consultations (meeting-surveys)	Producers- Surveys/ phone interview
<p>Tomás Salazar-Siria Melisa de Cordoba-Luis Barrera-José Anibal Valencia-Pablo Salazar-Bredio Barrios-Brenda Mencha-Tilsio Nuñez Sanchez</p> 	<p>Abel diaz (Tourism Authority) -Rogelio Caballero (Tourism Authority)-Yaribel Perez (Tourism Authority)-Maryuri Estrada (Acuatic Resource Authority)-Katherin Aimeed Aguirre (Acuatic Resource Authority)-Ivan Elias Mendoza (National Council for Sustainable Development - CONADES)-Olga Carrasquilla de Yopez CONADES -Carlos Abrego (Min of Agriculture-MIDA) Armando Solís (Min of Agriculture)-Sr. Lucas-Tecnico MIDA, Colón.-Iliana Martinez (Miambiente)-Edna Deliz Florez (Miambiente)-Mabel Zúñiga (Miambiente)-Belen Guevara (Miambiente)-Luis Acosta (Miambiente)-Maribel Pinto (Miambiente)- Carlos Alberto Ortega (Ministry of Public Works)-Randino (In charge of National</p> 	<p>Paulina Govea Hector Platanal Vielka tenis Lucio Medina Vicente Rivas Elvia Vega Oscar Río Diego</p>

		Protected Area of San Lorenzo)-Daylene (in charge of Protected Area of Portobelo)	
Indigenous people: (meeting-interview)			
<p>Iniquilipi Chiari- Indigenous Representative at Ministry of Environment- Arcadio Castillo- Coordinator of the Association of Central American fishermen.</p> <p>Carolina Paredes Rodríguez- Handcraft seller- Yiri Milushka Rodriguez</p>			
<p>Interviews with protected areas managers and Head of Indigenous People Representative from Ministry of Environment (and from Kuna etnia) allows FAO to identify disseminated indigenous people along the intervention area. Buglé and Ngábe families have been identified in Donoso District. In Portobelo, there are approximately 50 Emberá houses located in La Estacada neighborhood, the majority dedicated to fishing and tourism through the sale of handicrafts. They are about to constitute a cooperative of boats and agriculture. Several attempts to contact them was done but there is not possible yet. Also, there are some Kunas families are also lived within the municipality whose main productive activity is also handcraft mainly for tourists.</p>			
<p>In addition, Mr. Arcadio Castillo, from the Association of Artisanal fishermen of central America based in Panama, confirmed via phone, that on these 4 municipalities there are several indigenous families that get married with local people and migrates to there. Despite that fact, they mention that they are not part of any governance systems such as is present in the "comarcas" (indigenous territories). In Colón there are only 2 or 3 families that dedicates to artisanal fisheries. Men between 20 and 35 years. They are not associated. They catch lobsters and fish. About climate impact he mentioned that the type of fish that they catch today are different than before, they find horse mackerel (jurel) instead of snappers and they must navigate approx. 8 hours to get lobsters. Before they find another species and near shores. About black shell harvest as an alternative, he mentioned there are not so much artisanal fishermen in Colón municipalities but this is an alternative that is being promoted in Guna yala indigenous territory (comarca), a province next to Colón.</p>			
	<p>Ministry of Environment and FAO try to contact them by phone or personally through other local professionals of the Ministry of Environment, but it has been difficult to reach so many people. Considering contact is with someone external to their community they do not feel confident to give information about them. Further because they are spread along the targeted communities, COVID measures and the fact that they do not belong to a governance system, such as existent in indigenous territories contact was limited. Sometimes they fear about losing other possible government incentives for strengthening capacities is difficult to establish. Due to that situation, FAO is already generating an agreement with the Fund for the Development of Indigenous People-FILAC, an NGO with indigenous scope in the region, to continue direct consultation and FPIC process that allows the inclusion their necessities and concerns.</p>		
Cuba			
Cuba: Producers- surveys*	Cuba- Virtual Meetings	Cuba- Institutional sectors (meetings)	
<p>Batabanó: María Teresa Aguiar P.A Gulf of Batabano, Maura Lopez tree Nursery UEB Melena del Sur. Consolación: Roberto Rodríguez (CITMA regional)-Rodolfo Esteves(producer-Credit and service Cooperative-CCS) San Cristobal: Milagros bien Flores (municipality directive)-Ricardo Gonzalez Bofil (Basic Unit of cooperative production UPBC)-Felix Tamayo Arrenciba (Producer- Credit and service Cooperative- CCS) La Sierpe: Rafael Antonio Obregón Obregon (National Association of small agriculture- ANAP)-Andreis Oreste García -producer (Basic Unit of cooperative production UPBC)</p> <p>*Consultation via mail (survey with questions) due to COVID national confinement and mobility difficulties between la Habana and local regions.</p>	<ol style="list-style-type: none"> 1. Meeting Cuba/ Panama: information and projects developed in Cuba. October 28, 2020. 2. Logic frame and theory of change proposal and consultation process between both countries (Cuba and Panama). November 18, 2020. 3. Cuba feedback about logical framework and theory of change proposal. November 11, 2020 4. Concept note advances with attendance of both countries (Cuba and Panama) May 3, 2021 5. Concept note Validation with attendance of both countries (Cuba and Panama) June 16, 2021 	<p>Orlando Rey, Jamileth Lamonche, José Quintana, Bernardo Calero, Ileana Santos (Ministry of Agriculture), Lázaro Aldama (MINAG artemisa) Ulises Fernandez, Pedro Ruiz, Jessica Fernandez, Yamiléth Crespo, (Ministry of Environment-CITMA), Yoandra Gomez (CITMA Sancti Spiritu) Carmen Duarte, Enrique Cisneros, Sarilena Ramos Agricultural Eingeniering Institute (IAgric). Ordenis Gonzalez (Dir. Dpt Siense and innovation Sacti Spiritu), J. Carlos Perez (Dir. Dpt Siience and innovation Pinar del Río), Malbis Betancourt (Dir. Dpt Siience and innovation Guantanamo).</p>	
Cuba: Consultation process			
<p>The activities committed for the consultation stage were limited in Cuba basically due to the energy scenario faced by the country, with a considerable impact on the generation capacity and the availability of fuels that guarantee mobility to the intervention territories, therefore, structures alternatives that allowed progress in the mentioned process were used based on the existing capacities in the territorial. Before carrying out this process, several meetings were held to plan this activity where the entities involved participated. The consultation process was carried out successfully in the 5 intervention municipalities (Los Palacios, San Cristóbal, Batabanó, La Sierpe and Baracoa),</p>			
National, territorial, and local coordinators		Participating entities	
PhD. Maritza García García. WADA, President MSc. Edelsy Carmona Lescay. AMA, Head of Environment Department		Ministry of Science, Technology and Environment (CITMA) <ul style="list-style-type: none"> • Environment Agency (AMA) • Institute of Tropical Geography (IGT) 	

<p>PhD. Orlando Enrique Sánchez León. IGT, Director Mr. Francisco Cutie Rizo. IGT, Deputy Scientific Director MSc. Zarith Perez Perez. IGT, Specialist MSc. Wendy Arredondo Agudin. IGT, Specialist MSc. Yamile Lamothe. Minag, Deputy Director of Science, Innovation and Environment PhD. Carmen Duarte Diaz. I Agric, Researcher PhD. Enrique Cisneros Zayas. IAgric, Head of Irrigation and Drainage Department Engr. Luis Hiran Riverol. I Agric, Researcher msc. Leonardo Cruz Quiñones, CSASS, Director PhD. Yamilka Jourbert Martínez, UPSPA, Director PhD. Alexander Miranda Caballero, INCA, Director PhD. Elein Terri Alonso. INCA, Researcher PhD. Lazaro Maqueira. INCA, Researcher Engr. Miracles of Charity Ben Flores. CITMA San Cristóbal, Specialist BSc. Elaines Quiñones Echeverría. CITMA Batabanó, Head of Section BSc. Geysier Osvaldo Gomez Alonso. Minag La Sierpe, Delegate Engr. Malvis Betancourt Betancourt. Minag Guantánamo, Head of Science Department MSc. Sarilena Ramos Diaz. IAgric, Specialist, Head of Extension Group PhD. José Alfredo Carballo Concepción. FLACSO, Researcher PhD. Abel Betanzos Vega. IPC, Specialist</p>	<ul style="list-style-type: none"> • Sancti Spiritus Environmental Services Center (CSASS) • Environmental Services Unit "Alejandro de Humboldt" (UPSA) • Delegations and provincial offices of CITMA <p>Ministry of Agriculture (Minag)</p> <ul style="list-style-type: none"> • Institute of Agricultural Research (IAGRIC) • Provincial and municipal delegations of the Minag <p>Ministry of Higher Education (MES)</p> <ul style="list-style-type: none"> • National Institute of Agricultural Sciences (INCA) • Latin American Faculty of Social Sciences (FLACSO) <p>Ministry of the Food Industry (MINAL)</p> <ul style="list-style-type: none"> • Fisheries Research Center (CIP) 	
<p>Municipality Los Palacios</p> <p>Surveys were carried out on technicians and producers from the sectors of Agriculture, CITMA and municipal governments, in the Bacunagua, Paso Real San Diego, Paso Quemado and Palacio Norte Popular Councils.</p> 	<p>San Cristobal Municipality</p> <p>A meeting was held to present the project to both residents (producers and fishermen) and decision-makers of the municipal government. Residents of the settlements of Aspiro, El Canal, Chirigota, Minas, Las Tecas, Arroyo Seco, Autopista and Tierras Negras, belonging to the Popular Councils of Santa Cruz, José Martí, Los Pinos, Rio Hondo, Niceto Pérez, San Cristóbal II and The Mambi were surveyed.</p> 	<p>Batabano Municipality</p> <p>A meeting was held to present the project to both residents (producers and fishermen) and decision-makers of the municipal government. The consultations were carried out in the Surgidero Popular Council of Batabanó, preferably to residents belonging to the fishing, agriculture and forestry sectors (it belongs to MINAG in Cuba).</p> 
<p>La Sierpe Municipality</p> <p>Inquiries were made to producers, fishermen and housewives from the settlements of Mapos, Natividad, San Carlos and El Jibaro.</p>	<p>Baracoa Municipality</p> <p>Surveys were carried out and the project was presented to the municipal government and other institutions involved. Residents of the Agriculture, Fishing and Forestry sectors were surveyed in the popular councils of Cayo Guines, Miramar and Nibujón.</p>	

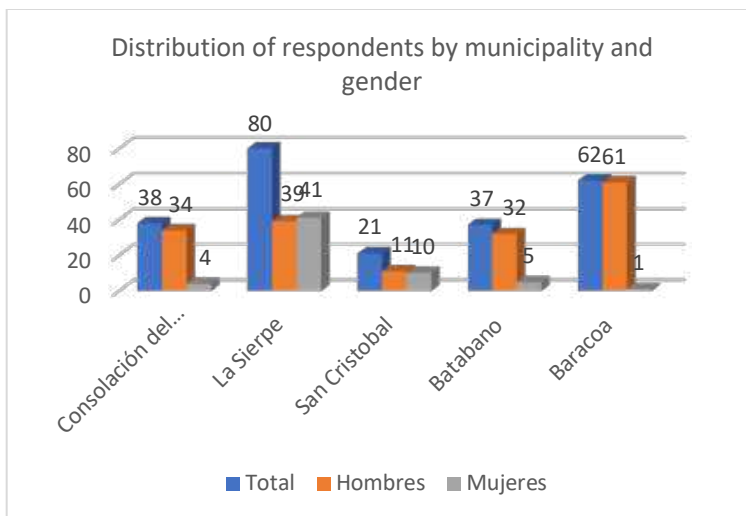


ANNEX 2 – STAKEHOLDER CONSULTATIONS (FINAL PROJECT PROPOSAL)

A series of consultations were conducted in target municipalities in Panama in April 2022 and in Cuba in between October and December 2022. A total of 356 surveys were carried out between the two countries. In Cuba, 238 surveys were carried out and the distribution between men and women was 74% and 26% respectively, while in Panama 118 surveys were carried out with a participation of 42% of men and 58% of women. A summary of main findings is presented below.

I. CUBA

In Cuba a total of 238 surveys were conducted to assess the relevant socio-economic and environmental context and identify potential activities to be implemented in the context of the project in selected municipalities. The surveys were conducted by the centers for studies and environmental services and municipal specialists from the CITMA Environmental Agency, relevant agencies from the Ministry of Agriculture, as well as specialists from the Ministry of Higher Education. Results highlight the importance of agriculture as a key sector as well as potential for commercial fishing, sport fishing and the local development of tourism activities. Moreover, respondents also noted the need to diversify and expand their economic activities, strengthen local markets, promote sustainable tourism initiatives, agrotourism, aquaculture, improve their living conditions, road infrastructure, as well as support for the implementation of environmental strategies to improve their production and quality of life. During the consultation process, it was not possible to identify people from indigenous peoples or Afro-descendants. In Cuba, all of the coastal communities are heterogeneous, with a balanced presence of white, black and mixed-skinned people, for which reason the consideration of minorities was deemed not relevant.



As can be seen on the graph above, 68% of respondents dedicate themselves to agriculture, 24% to fishing and 4% to Forestry. Key actors from the CITMA, Ministry of Education and local governments were also consulted, while they are not part of the productive sectors, they are important actors considering their decision-making roles in the intervention sites. Out of the 238 surveys, 177 were distributed to male respondents which represents 74% of the sample and 61 to female respondents, representing 26% of the sample.



Summary of key findings:

- Between 45 and 77% of respondents found that their productive activities are being impacted by extreme weather-related events including strong winds, extreme hydrometeorological events, salinity, seawater temperatures, drought and heavy rain and temperatures.
- More than 50% of respondents found that soil fertility has been impacted over the past 10 years due to long droughts causing a decrease in yields.
- The use of green technologies remains limited with only 21% of respondents implementing such measures.
- More than 40% of respondents implement good practices to conserve, protect and improve the quality of soil, water and forest resources. They have a variety of crops, from short and long cycle crops (root vegetables, vegetables, rice, bananas, etc.), to permanent ones (fruit trees, coconut, etc.).
- The economic activities within the selected communities revolve around agriculture, commercial fishing and sport fishing with a wide potential for the development of the tourism sector at the local level.
- The consulted population expressed their need to diversify and/or expand their economic activities, strengthen local markets, promote sustainable tourism initiatives, agrotourism, sustainable fisheries, aquaculture, improve their living conditions, road infrastructure, development of environmental strategies that improve their production and quality of life.
- During the consultation process, it was not possible to identify people from indigenous peoples or Afro descendants. In Cuba, all of the coastal communities are heterogeneous, with a balanced presence of white, black and mixed-skinned people, for which reason the consideration of minorities as the consultation is not pertinent.
- Other communities of municipalities with similar edaphoclimatic conditions and socio-economic characteristics could also be considered in the context of the project.
- Strategically address the coverage of basic needs of the population, specifically in inputs for agriculture and commercial fishing.
- Strengthen strategies or financial instruments that facilitate payment for environmental services, programs and management plans for marine-coastal ecosystems.
- Guarantee the inclusive approach for vulnerable populations, including women, the elderly and children, who face differentiated needs and conditions for adaptation to climate change.
- Strengthen the technical capacities of institutions for training programs in natural disaster risk management.

(i) Municipality Consolación del Sur

Consolación del Sur municipality has a territorial area of 1,111.9 km². It is home to 59 settlements of which 53 are rural and 6 are urban. It was founded around the year 1569, it is located on the southern plain of the central eastern part of the province, bordering to the north with the municipalities of Viñales, La Palma and Consolación del Sur, to the south with the Caribbean Sea, to the east with the Consolación del Sur municipality and to the west with the Pinar del Río municipality.

The predominant landscape is the plain, occupying more than 96 percent of the territory, while the elevations extend from the end of the Sierra de los Órganos to the beginning of the Sierra del Rosario. The

soils, for the most part, are of medium category with type II predominating. In the town there is an administrative structure of 13 Popular Councils, 11 reporting centers and more than 60 establishments.

The main economic sector is agriculture, which constitutes a great source of employment for residents. The production and marketing of tobacco is an important activity, for which there are two specialized factories. Other lines that stand out for their production volumes are rice, various crops (mainly root vegetables and vegetables) and livestock (obtaining milk and meat).



The consultation process was conducted in the Consolación del Sur municipality in October 2022 in the settlements of El Ranchón, El Palenque, El Vivero, the Economic Houses, belonging to the Popular Councils of Herradura, Villa 1, Alonso Rojas, Puerta de Golpe and Pueblo Nuevo. A total of 38 surveys were carried out distributed in the aforementioned settlements (34 men and 4 women).



Agriculture. 84% of the surveyed population is dedicated to agricultural and livestock production. The main crops that are planted are: rice, grains, tobacco and root vegetables and tubers, with rice and grains being the most produced. The main livestock items are: Poultry (778), rams (474), pigs (106), goats (289), bulls (158), cows (701) and horses, heifers, calves, oxen and yearlings. The final destinations of the productions are directed to the local market, points of sale, subsistence and social programs.

Aquaculture production and fishing. Three of the respondents have Fishing as their main activity, there are 8 who dedicate themselves to it as another alternative activity, for subsistence purposes, the main one being agriculture. They belong to the state company Pesca Río, they use a boat with a capacity of 1000kg,

the fishing is preferably coastal marine waters, and fresh water (Presa Herradura and Ramírez). They use traditional passive, active and semi-active fishing methods. All of the respondents noted fishing conditions before were much more favorable than today, not only due to the effects of CC but also due to the economic difficulties and shortages in the country. Practices are carried out to protect and improve the quality of soils, water and the environment, through the application of fertilizer, magnesite, calcium carbonate and crop residues, irrigation and crop rotation. There are permanent crops such as banana, mango and guava. It was raised that the project must influence training in sustainable fishing actions, soil protection and risk and disaster management, to help communities increase the productivity of their systems through conservation of natural resources.

Basic services. 90% of the surveyed population has access to drinking water, almost entirely supplied by the municipality's aqueduct network. Only three people who do not have access to drinking water are supplied through pipes. 100% of the population has electricity from the National Electric System (SEN).

Capacity building. Only 26.32% of respondents have received training on Disaster Risk Reduction issues and 52.63% on agricultural issues. Topics covered included: good agricultural practices, integrated pest management and soil management and conservation, seed production, soil preparation, irrigation systems, land leveling, rice, pasture and forage production and cultural attention. 80% of the surveyed population would like to receive training on the following topics: agricultural insurance, storage, agricultural calendars, fertilization, risk management, pest control, agricultural extension, etc.

Climate change. 63% of the respondents acknowledge that they have had losses and damages due to extreme weather events, only 42% of them have a record of the losses. 82% of respondents considered having a good perception on the impact of extreme weather events on agricultural production. They also noted the increased salinity of the waters and increased temperatures (ambient and seawater) had a negative impact on agricultural production and fisheries. 76% noted the strong winds have caused damage to crops, generally lodging of rice. Respondents state that the lack of water has brought about intense drought and therefore soil degradation, which has caused a decrease in agricultural yields and a total loss of production. 24% carry out good agricultural practices for production, more than 40% have perceived the increase in pests, changes in soil fertility, pollution, and other variables that were represented.

(ii) Municipio San Cristobal

The municipality has an extension of 934 km² and an estimated population of 71,420 inhabitants (2017). The municipality covers the alluvial plain from the south to the south coast furrowed by several rivers including the largest: the San Cristóbal River and with several reservoirs, as well as a large part of the Sierra del Rosario. The economy is fundamentally agricultural with some industrial development in the city of San Cristóbal. It is also home to an active sugar mill (November 30) and a vineyard "Bodegas San Cristóbal".



The consultation process began in mid-October 2022 and included the distribution of 21 surveys (11 men and 10 women) to residents of the settlements of Aspiro, El Canal, Chirigota, Minas, Las Tecas, Arroyo Seco, Autopista and Tierras Negras, belonging to the Popular Councils Santa Cruz, José Martí, Los Pinos, Río Hondo, Niceto Pérez, San Cristóbal II and El Mambí.



Agriculture. 95.23% of respondents (10 men, 10 women) dedicate themselves to agriculture as their main activity. Only one respondent is dedicated to fishing. The total cultivated area by respondents is of 235.84 hectares. All respondents noted they experienced losses and damages associated to extreme weather events. But only a minority could estimate the scale of the loss. The main livestock items include: Poultry (180), rams (80), pigs (325), goats (46), bulls (12) and cows (154).

Aquaculture production and fishing. Only one of the respondents dedicates to fishing and with his own boat, and is interested in receiving capacity building on relevant themes.

Basic services. 90% of the population has access to potable water. Two respondents do not have access to potable water and fetch it from nearby water points. All respondents have access to electricity.

Capacity building. Respondents expressed interests in receiving capacity on disaster risk management and actions related to soil protection and sustainable fisheries to increase yields and protection of natural resources.

Climate change. 57% of respondents considered having a good perception on the impact of extreme weather events on agricultural production. They also noted the increased salinity of the waters and increased temperatures (ambient and seawater) had a negative impact on agricultural production and fisheries. All the respondents considered water availability was not an issue. 47% noted the strong winds has had some impacts notably through fallen trees. 38% noted impacts linked to heavy rain and drought

events over the past 10 years. 52% perceived an increase in pests, changes in the fertility and contamination of soils. 62% of respondents implement good practices, such as rotation, furrow systems, planting of pines around some crops (malanga), planting on terraces, natural vegetation around the crops, minimum tillage, reduction of monoculture, among others. 95% implement new green technologies, through the protection of soils, conservation agriculture, protection of trees and environmental conservation.

(iii) Municipio Batabanó

Batabanó is a municipality and town in the Mayabeque Province of Cuba. Its surface covers an extensive mangrove-covered coastal wetland, as well as extensions of fertile land on the southern plain of Havana. Main economic activities are Agriculture and Fishing. In 2004, the municipality of Batabanó had a population of 25,664. With a total area of 187 km² (72 sq mi).



In December 2022, 37 surveys were conducted in the Municipality in Surgidero de Batabano (“consejo” or people’s council). Out of the 37 surveys only 5 were distributed to women, two of which worked in agriculture, two in the fisheries sector and one in forestry. In other cases, wives of producers dedicated most of their time to housekeeping tasks and caretaking of children and elders.



Agriculture. 13.5% of respondents dedicate themselves to agriculture. The main crops are rice, coffee, coco, fruit trees, plantains, root vegetables and vegetables, as well as some mangrove and palm crops. Most of the respondents obtain the seeds for the crops through their own production or self-management. Respondents acknowledged losses related to extreme weather events, yet most of them do not have clear records of these losses. Main livestock items include Poultry (22), cows (10) and horses.

Capacity building / needs. Respondents noted the need for agricultural equipment such as boots, gloves, scissors, fertilizers, machetes, files, etc., as well as some livestock inputs. Respondents are interested in receiving training in risk and disaster management and sustainable fisheries systems, but they do show interest in receiving it. Regarding agricultural production, those who are dedicated to this activity, are interested in topics such as: storage, agricultural calendars, fertilization, risk management, pest control, etc.

Fisheries. More than 95% of respondents are registered as fishers and own a license for commercial fishing, as well as motorized boats. The most harvested species are snapper, grunt, biajaiba, cubera, caballerote and lobster. They fish using traditional methods and noted the fishing conditions have deteriorated and they do not receive support or capacity building, and expressed interest in receiving training on mangrove functionality, fishing techniques, cooperatives and access to fishing insurance. None of them practices aquaculture.

Basic services. 100% of the population has access to potable water and electricity.

Climate change. More than 70% of respondents are aware of the impacts of extreme weather events on agricultural and fisheries production. They noted lack of water has brought drought and impacted production. Moreover, strong winds from hurricanes and storms impacts fishing outings and yields. There has also been a deterioration in soil fertility. They implement good agricultural practices such as live fences and use of green pesticides. On farms or plots where the surveys were carried out, there are permanent crops such as: coconut, coffee, and fruit trees.

(iv) Municipio la Sierpe

La Sierpe is a municipality and town in the Sancti Spiritus Province of Cuba. It is located in the south-eastern part of the province, 30 kilometers (19 mi) from Sancti Spiritus, the provincial capital. In 2004, the municipality of La Sierpe had a population of 16,937. With a total area of 1,035 km² (400 sq mi),[1] it has a population density of 16.4/km² (42/sq mi).



In La Sierpe, the agricultural sector, in addition to its economic and productive dimension, fulfills a relevant essential social function, for what it means for the employment of large sectors of the population, however,

it is a reality that the use of pesticides and other chemical components in the cultivation of rice is a barrier to the conservation of the environment and a constant threat to the health of the inhabitants of the territory.

The fundamental economic activity is agriculture and livestock dedicated mostly to the production of dairy cattle to satisfy the demands of the municipality and increase the collection of the dairy mix of the province. Another important economic activity relates to the harvest and industrial processing of rice for national consumption.

The consultation process began in October 2022 and included the distribution of 80 surveys in the communities of Natividad, San Carlos and El Jibaro. 51% of respondents were women.



Agriculture. 81% of respondents (39 men, 26 women) dedicate themselves to agriculture as their main activity. The main crops are rice and seeds, but there is also production of cacao, banana, tobacco, meat and root vegetables. Respondents acknowledged loss related to extreme weather events, the minority could estimate damage to the extent of approximately 50 hectares. main livestock items are: Poultry (22), rams (27), pigs (27), goats (66), bulls (63), cows (55) and horses and heifers. The respondents use to develop their agricultural activity agricultural inputs such as boots, gloves, scissors, fertilizers, machetes, files, containers for water and food, vaccines, wire, among others. Good agricultural practices are carried out by the surveyed residents such as: field to produce organic matter, crop protection and rotation, among others, however, it is important to consider strengthening the implementation of green technologies that contribute to the environment because there is a high number of respondents who did not carry out this type of practices.

Fisheries. None of the respondents' main livelihoods activity was related to fisheries. Eight respondents noted fishing as an alternative livelihood activity for subsistence. They use traditional fishing techniques and note fishing conditions use to be more favorable due to climate change but also economic difficulties and gaps in the country. None of the respondents works in aquaculture.

Capacity building. The following capacity building seem relevant: sustainable fishing, soil protection and risk and disaster management. Respondents also noted their interests in receiving training in mangrove functionality, cooperatives, and access to fishing insurance. 96% of respondents would like to receive capacity building on the following themes: agricultural insurance, storage, agricultural calendars, fertilization, risk management, pest control, agricultural extension, etc.

Basic services. 97.5% of respondents have access to potable water and 98% to electricity access

Climate change. 82.5% of respondents considered having a good understanding of the impacts of extreme weather events on agricultural and fisheries activities. They also noted an increase in the salinity of soils, and temperatures (both ambient and seawater). All these have negatively impacted agricultural production and fisheries. Moreover, the lack of water has brought intense drought and degraded soils. Only 5% of respondents found strong winds impacted production.

(v) Baracoa

Baracoa is located northeast of the province of Guantánamo in the easternmost region of the country with a territorial extension of 974.36 square kilometers and is home to approximately 82,000 inhabitants.

The main products of the region are coconut, cocoa and coffee, although since the late 90s of the last century tourism has become one of its main sources of income due to its extraordinary beauty.

The municipality faces a great natural and geographical challenge, which is the great predominance of mountainous areas with 95 percent and a terrain inclination of more than 15 percent, which does not allow technological development or the introduction of mechanization in agriculture, having to maintain for production fundamentally, the traditional methods of tilling the land and the use of beacons or terraces for containment.



Between October and November 2022, 62 surveys were conducted in the localities of Cayo Guines, Miramar and Nibujon. Out of the 62 respondents only one was a woman. The wives of other respondents are mostly responsible of housekeeping tasks, caretaking of children and elders and support productive activities of their husbands.



Agriculture. 63% of respondents dedicate themselves to agriculture and 32% to fisheries. In the case of agriculture, the main crops include cocoa, coconut, fruit trees, bananas and root vegetables, the seeds for the crops are generally obtained from their own plot. It is recognized by the respondents that they have had losses and damages caused by extreme weather events, although the vast majority do not keep a record of these losses. The main livestock lines are poultry (528), rams (207), pigs (260), goats (75), bulls (24), rabbits (50), cows (25) and horses (21). The majority of the population surveyed noted they require agricultural inputs such as boots, gloves, scissors, fertilizers, machetes and files, as well as livestock inputs: containers for water and food, vaccines and wire. Practices are carried out to improve the quality of soils such as: the use of organic matter, the use of picks or crop residues, planting of pastures, erosion control, use of live barriers, among others. 90% of those surveyed report that there is a diversity of crops on their farms, although not many apply their rotation for soil protection, nor silvopastoral systems, because they are unaware of the subject.

In the vast majority of the farms or plots there are permanent crops such as: coconut, coffee, cocoa and fruit trees.

Fisheries. Most respondents are not registered as fishers and don't possess a fishing license for commercial purposes. They use traditional methods such as the harpoon and string, they all state that fishing conditions were much more favorable before than today, they do not receive government support to develop their activity. None of the respondents is engaged in aquaculture. The fishing that takes place in this area is mostly for subsistence.

Capacity building. More than 40% of those surveyed have not received training in risk and disaster management or in sustainable fishing systems, but they do show interest in receiving it. Respondents are interested in receiving training related to issues of climate change, agricultural insurance, storage, agricultural calendars, fertilization, risk management, pest control, etc. With regards, to fisheries they also expressed interest in receiving training on mangrove functionality, fishing gear, associations and cooperatives, and access to fishing insurance.

Basic services. More than half of the population does not have access to potable water and they get their supply from other sources such as rivers, streams, springs and wells. 95% of respondents have access to electricity.

Climate change. According to respondents' lack of water has resulted in droughts which has impacted yields. Moreover, strong winds are believed to have affected agricultural production. According to respondents there has also been a reduction in the fertility of the soil over the past 10 years, loss of coastal trees, increase in pests and crop diseases, and increased pollution close to cultivation and fishing zones.

II. PANAMA

The methodology used for the consultation process was supported by a survey-type tool, with a structure of sessions that collect information on the livelihoods of producers and fishermen, specific information on

climate change, and information related to damage. and losses in their crops and activities. Previous interviews were conducted with public officials from some institutions such as: MiAmbiente, MIDA, AMP, ARAP, among others, to find out about the platforms and/or officials that manage or administer an information system that could have contact with producers and fishermen in the selected communities.

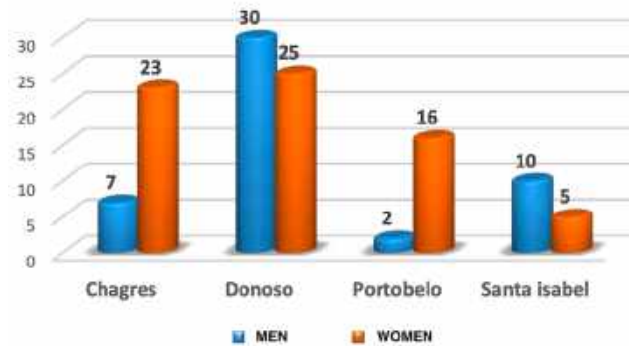


KoBoCollect was used as a tool to collect and systematize key information in the communities during the consultation process. Data related to the production of the items associated with the project (coconut, plantain and artisanal fishing) were taken into account.

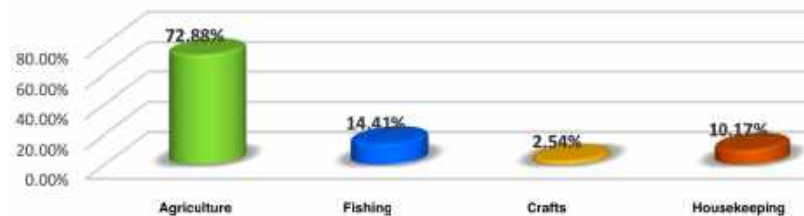
The consultation tool in KoBoCollect allowed geo-referencing, organizing, relating, debugging and subsequent analysis with the information obtained during the consultation process. The implementation of strategic consultations to strengthen adaptation capacities in Panama, was carried out in 4 of the 6 districts of the province of Colón, which are: Donoso, Chagres, Portobello, Santa Isabel.

Altogether, 69 women (58%) and 49 (42%) men were consulted. The greater participation by women is due to the fact that at the time of contact with the leaders or managers of each community, it was explained to them that we were looking for broad participation and inclusion of women producers and fishermen.

Distribution of Respondents by Gender in Panama



Distribution of Respondents by Sector in Panama



Main findings:

- **Agriculture.** The main crops referred to during consultations were: coconut, plantain, roots and tubers, found within the communities visited with a total approximate area planted for agricultural production. Distributed as follows: Coconut, with an approximate planted area of 16.37 Ha (8m x 8m distance between plants); plantain with an approximate planted area of 9.38 Ha (Distance between plants 3m x 3m); roots and tubers with an approximate planted area of 5.42 Ha (Distance between plants 1m x 1m). To a lesser extent, other items were found such as: rice, corn and coffee. Hydrological variables are of great importance since they directly influence crop cycles, pests, diseases and agricultural production in the area.
- **Basic services.** 52% of the surveyed population has access to drinking water, mostly from rural and/or community aqueducts that often remain without service due to flooding in winter, making the service is suspended and/or intermittent in the community. The population that does not have access must take actions to harvest rainwater, purchase storage containers, take water from rivers and/or streams, and wait for tanker trucks for supply. 70% of respondents have access to electricity.
- **Fisheries.** 58.82% of the consulted fishermen are not registered with the maritime authority of Panama. According to the perception of the fishermen surveyed, they agree that they have been affected in the last 5 to 10 years by climate change, storms and hurricanes, causing loss and damage to their boats and homes. They also noted a reduction in the number of fish and species that used to be found in previous years; forcing them to move to new and more distant sites.
- **Other categories.** The artisans specifically in the districts of Donoso and Portobelo were dedicated to the elaboration of typical costumes and palm fiber baskets. The respondents which fall under the housekeeping category expressed their interest in participating in workshops on gastronomy, elaboration and/or preparation of handicrafts, given the opportunity with the project. Respondents also mentioned the opportunity to resume cultural practices that have been lost over time, such as: typical accessories, made with fish scales and/or shells, handicrafts and kitchen utensils, made with coconut by-products, and some wood. such as teak, guayacán and cocobolo, are the opportunity to link the by-products to the possible results of the project.
- **Climate change.** 71% of the population agreed that during the last 5 years they have perceived relevant changes in temperature. On the other hand, the rainy season and strong winds have affected the

agricultural activities developed by the communities with 46% and 42% respectively. One of the variables that did not present an expected impact on agricultural activities among the communities were the landslide and the lack of water in the last five years with percentages of 48% and 60% respectively. Respondents made reference to the following climate change impacts:

Climatic drivers	Fishing	Agriculture	Craft/Tourism
SLR	Changes tides, coastal profile and results in loss of buffer zones impacting fishing habitats (e.g., mangroves) impacting fish species (e.g. making it hard for fish to spawn). Forcing fishermen to move to more distant places and diversify their economic activity.	Increase salinization of soils and water and impacting soil fertility and yields.	Affects the tourism potential, impacting crafts selling and limiting access to certain touristic sites (beaches)
Extreme weather events (hurricanes, storm surge)	Fishing activity conducted fewer days in the year as a result of adverse weather conditions and less fish spawning.	Damage to crops including coconut, banana, affected by strong winds and storms, causing fall of stems and impacting fertility of soils as a result of water runoff and erosion	Impacts touristic season, infrastructure, and access to sites
Temperature changes	Temperature changes affect currents, chemistry of seawater affecting biodiversity in the seas and rivers (incl. reproduction, migration, etc.)	Affects production, yields and quality of the products, fixation of nitrogen, the diversity of microorganisms in soil, and increases diseases and pests	Touristic infrastructure and facilities may be impacted, destination may become uncomfortable for tourists.
Droughts	Reduction in the entry of freshwater into the oceans and impact on species who depend on coastal habitats and species for feeding (crustaceans, fingerlings)	Decreases availability of water resource impacting agricultural production and cost of irrigation	Impacts visiting months of the destination, and which may become uncomfortable to visit for tourists

Main recommendations:

- The economic activities within the selected communities revolve around agriculture, artisanal fishing and tourism, however, the population consulted expressed their need to diversify and/or expand their economic activities, strengthen local markets, promote sustainable tourism initiatives, agrotourism, sport fishing, aquaculture, improve their living conditions, road infrastructure, coverage of basic needs, development of environmental strategies that improve their production and quality of life.
- During the field consultation, it was possible to identify people from indigenous and Afro descendant peoples. It is worth mentioning that the communities visited within the districts of the province of Colón do not geographically belong to any region or indigenous people. Therefore, the participation of minorities during the consultation will not be considered relevant, to determine whether it is an indigenous or Afro-descendant population, respectively. In this context, the entire population interviewed was referred to in this document as belonging to the local communities, given that they themselves identify themselves as part of the community in which they live and not as an indigenous or Afro-descendant people.
- In some localities, livelihood activities in the primary sector, such as: agricultural production and artisanal fishing, and in the secondary sector, such as: tourism, were carried out and/or represented mostly

by men; however, activities related to culture, transformation and/or value addition, such as: the manufacture of handicrafts and clothing, cuisine and gastronomy typical of the localities are developed mostly by women.

- The data collected from key items of agricultural production in the communities visited for field consultation are accurate and representative for the purposes of the project, however, there are other communities that could be considered that also align with the scope of the project.
- The set of local climatic factors that intervene in the geography and topography of the communities visited, as well as the effect of the wind on the surface, the slopes, the height above sea level, buffer areas and the orientation of the land; it conditions agricultural and forestry cycles and, therefore, the development of crops and the presence of endemic and/or native flora and fauna species; In addition, it also influences the cycles of pests and diseases, the production of goods and services, and therefore, the local economy of livelihoods.
- The agro-meteorological information is very useful to use it in the development of models that intervene in the development of crops, susceptible to floods in the predictive determination of the behavior of water on the surface of crops. These hydrology estimates must be incorporated into the validations of the communities with different scenarios and at variable levels (high, medium, low) to estimate the damages and losses that may possibly be caused throughout the value chain with parameters such as: rainfall estimates, runoff and topographic profile of the land.
- There is need to strategically address the coverage of basic needs of the population, specifically the issue of accessible and constant drinking water for the communities, since it involves the entire issue of basic sanitation for food consumption, care, and health of people, from children to seniors.
- The reduction of disaster risk through adaptation actions based on ecosystems, such as: the restoration of coastal habitats and mangroves that can become buffer zones and be an effective measure against storms, saline intrusion, and erosion.
- There is opportunity to strengthen strategies or financial and economic instruments such as payment for environmental services (PSA), programs and management plans for marine-coastal ecosystems.
- The project will ensure an inclusive approach for vulnerable populations, including women and minority groups facing differentiated needs and conditions for climate adaptation.
- The project should strengthen the technical capacities of institutions for training programs in risk management and disasters caused by natural phenomena.

Annex 3 – Environmental and Social Plan Matrix

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
Social dimension						
<p>Due to the large number of rural families residing in the project area, they may be excluded from participating and benefiting.</p> <p>Risk level: low.</p>	<p><i>Activated environmental and social principle (Fund): Access and equity</i></p> <ol style="list-style-type: none"> 1. Establish criteria for targeting the target population according to the type of activities defined in the project components. 2. Incorporate the eligibility and selection criteria of the target groups in the mechanism and instruments of the public call for proposals to access project resources. 3. Implement the Stakeholder Participation Plan. 	<p>Annually issue the public call for the call to target groups.</p>	<p>Cuba: - CITMA⁸⁹ (AMA⁹⁰)</p> <p>Panamá: - MiAmbiente⁹¹</p> <p>FAO</p> <p>Project Management Unit (PMU)</p> <p>Regional Coordination Unit (RCU)</p>	<ol style="list-style-type: none"> 1. Project design document. 2. Request for bids 3. Results of bids. 4. Six-monthly progress report on the implementation of mitigation measures. 	<p>Verification every 6 months.</p> <p>The implementation of mitigation measures starts from year 1 until the date of completion of the Project.</p>	<p>Within the operational costs of Component 3 of the project</p>
<p>Cultural factors (attitudes and behaviours) prevailing in the rural population have an impact on maintaining existing gender gaps and limiting women's</p>	<p><i>Activated environmental and social principle (Fund): Gender equity and women's empowerment.</i></p> <ol style="list-style-type: none"> 1. Develop the project's Gender Strategy. 2. Elaborate and implement the Gender Plan. 	<p>Mitigation measures do not require public consultation.</p>	<p>Cuba: - CITMA (AMA)</p> <p>Panamá: - MiAmbiente</p> <p>FAO</p> <p>Project Management Unit (PMU)</p>	<ol style="list-style-type: none"> 1. Gender strategy of the project. 2. Project gender plan. 3. Report of awareness and/or training events. 4. Six-monthly progress report on the implementation of mitigation measures. 	<p>Verification every 6 months.</p> <p>The implementation of mitigation measures starts from year 1 until the date of</p>	<p>Within the operational costs of Component 3 of the project</p>

⁸⁹ Ministry of Science, Technology and Environment of Cuba

⁹⁰ Environment Agency

⁹¹ Ministry of Environment of Panamá

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
empowerment, which could keep women on the margins or exclude them from accessing the project's resources. Risk level: medium.	3. Conduct gender sensitisation and/or training events. 4. Establish differentiated targeting criteria for women's participation according to the type of activities defined in the project components.		Regional Coordination Unit (RCU)		completion of the Project.	
The prevailing cultural factors in rural areas could have an impact on the heads of household to incorporate minors (children, adolescents and young people) in the participation of some activities on which households depend for their subsistence. Risk level: medium.	<i>Activated environmental and social principle (Fund): Core Labour Rights</i> <i>Standard 5 activated (IFAD): Labour and working conditions.</i> 1. The project beneficiaries will sign a letter in which they adhere to comply with national law and international conventions to not directly or indirectly involve minors in the implementation of the funds received by the project. 2. In procurement processes (service providers) and in the transfer of resources to project beneficiaries, an exclusion list shall be included indicating that the use of project funds for the contracting or direct or indirect involvement of minors, children, adolescents and young people is prohibited, in accordance with the restrictions and/or exceptions indicated by national laws	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	1 Letter of accession prohibiting child and adolescent labour. 2. Exclusion list. 3. Aide-memoire of the Supervision Missions 4. Six-monthly progress report on the implementation of mitigation measures.	Verification every 6 months. The implementatio n of mitigation measures starts from year 1 until the date of completion of the Project.	Within the operational costs of Component 3 of the project

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
	and international treaties subscribed on the matter.					
The project operates in sectors or value chains that are characterised by gender inequality practices, lack of opportunities and labour migration. Risk level: low.	<i>Activated environmental and social principle (Fund): Access and equity.</i> <i>Standard 5 activated (IFAD): Labour and working conditions.</i> 1. Carry out awareness-raising and/or training events on access, equity and gender equality aimed at the staff of the boards and members of the organisations/cooperatives of agricultural and/or fishing producers that receive resources from the project. 2. Focus affirmative actions to encourage young people of legal working age to join existing organisations/cooperatives or to develop productive agricultural or fishing enterprises, to reduce labour migration in the rural sector.	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	1. Report of awareness and/or training events. 2. Exclusion list. 3. Aide-memoire of the Supervision Missions 4. Six-monthly progress report on the implementation of mitigation measures.	Verification every 6 months. The implementation of mitigation measures starts from year 2 until the date of completion of the Project.	Within the operational costs of Component 2 of the project
Ignorance of indigenous peoples' ancestral knowledge for disaster risk reduction, natural resource management and agricultural and	<i>Activated environmental and social principle (Fund): Indigenous peoples and Physical and cultural heritage.</i> <i>Standards activated (IFAD): Cultural Heritage (standard 3) and Indigenous peoples (standard 4)</i>	The process of approaching the indigenous communities identified for the systematisati	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO	1. Project indigenous peoples' strategy. 2. Report on the implementation of the FPIC mechanism. 3. Minutes of the process of acceptance or refusal to participate	Verification every 6 months. The implementation of mitigation measures	Within the operational costs of Component 3 of the project

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
<p>fishing practices could be excluded in the process of identifying and systematising good practices.</p> <p>Risk level: low.</p>	<p><i>Note: Mitigation measures applicable for Panama.</i></p> <ol style="list-style-type: none"> 1. Elaborate the indigenous peoples' strategy of the project, indicating how the mapping process will be carried out and defining the criteria for the selection of communities for the systematisation of good practices. 2. In the selected communities, apply the Free, Prior and Informed Consent (FPIC) mechanism and the knowledge that is systematised, the project issues a certificate recognising that the intellectual property rights belong to the tribe or ethnic group of the indigenous people interviewed. 3. In cases where indigenous people do not speak Spanish, the project will make arrangements for a translator for the interview process. 	<p>on of good practices will be carried out in a public manner, applying the FPIC mechanism.</p>	<p>Project Management Unit (PMU)</p> <p>Regional Coordination Unit (RCU)</p>	<p>in the interview process, under the FPIC mechanism.</p> <ol style="list-style-type: none"> 4. Six-monthly progress report on the implementation of mitigation measures. 5. Systematised good practices of indigenous peoples' document. 	<p>starts from year 1 until the date of completion of the Project.</p>	
<p>Transmission of the SARS-CoV-2 virus (type 2) causes severe acute respiratory syndrome (COVID-19) in the rural population and project staff.</p> <p>Risk level: medium.</p>	<p><i>Activated environmental and social principle (Fund): Public health</i></p> <p><i>Standard 6 activated (IFAD): Community health and safety.</i></p> <ol style="list-style-type: none"> 1. Develop and implement a biosecurity protocol for Project staff and target groups approached, following national requirements. 	<p>Mitigation measures do not require public consultation.</p>	<p>Cuba: - CITMA (AMA)</p> <p>Panamá: - MiAmbiente</p> <p>FAO</p> <p>Project Management Unit (PMU)</p>	<ol style="list-style-type: none"> 1. Biosecurity protocol to reduce SARS-CoV-2 virus transmission. 2. Purchasing and procurement processes for health care material. 3. Aide-memoire of the Supervision Missions 4. Six-monthly progress report on the 	<p>Verification every 12 months.</p> <p>The implementation of mitigation measures starts from year 1 until the date of</p>	<p>Within the operational costs of Components 2 and 3 of the project</p>

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
			Regional Coordination Unit (RCU)	implementation of mitigation measures.	completion of the Project..	
Environmental dimension						
Lack of knowledge of the restrictions of environmental regulations by service providers could lead to the acquisition and supply of vegetative material from genetically modified organisms or exotic species to the project, causing possible pressure on native and endemic biodiversity. Risk level: low.	<p><i>Activated environmental and social principle (Fund): Conservation of biological diversity</i></p> <p><i>Standard 1 activated (IFAD): Biodiversity conservation.</i></p> <p>1. Request from service providers that the material supplied (seeds or plants) come from legal sources and are not reported on the official list of threatened or endangered wildlife species, the CITES appendices and the IUCN red list.</p> <p>2. Vegetative material to be used in restoration activities shall also not be reported in the national environmental framework as alien species or from genetically modified organisms. In case of exceptions, the service provider must have the endorsement of the national environmental authority. This requirement shall be in the Terms of Reference, as well as in the contract for the provision of services.</p>	Mitigation measures do not require public consultation.	<p>Cuba: - CITMA (AMA)</p> <p>Panamá: - MiAmbiente</p> <p>FAO</p> <p>Project Management Unit (PMU)</p> <p>Regional Coordination Unit (RCU)</p>	<p>1. Terms of reference.</p> <p>2. Invoices or purchase documents.</p> <p>3. Final report on the procurement of the required services.</p> <p>4. Six-monthly progress report on the implementation of mitigation measures.</p>	<p>Verification every 6 months.</p> <p>The implementation of mitigation measures starts from year 1 until the date of completion of the Project.</p>	Within the operational costs of Components 2 and 3 of the project

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification of (Monitoring and reporting)	Frequency of verification	Cost estimate
<p>The project is in areas where there are sources of surface and groundwater contamination due to the discharge of urban/rural domestic wastewater, solid waste and the use of agrochemicals in agricultural activities.</p> <p>Risk level: moderate.</p>	<p><i>Activated environmental and social principle (Fund): Pollution Prevention and Resource Efficiency.</i></p> <p><i>Standard 2 activated (IFAD): Resource efficiency and pollution prevention.</i></p> <ol style="list-style-type: none"> 1. Improve agricultural and fishing practices through technical assistance and extension services focused on local producers. 2. Apply agro-ecological practices in agricultural crops. 3. Implement practices and technologies to improve water access and availability in households, primary production units and/or processing centres. 4. Management of waste from primary activities and in the processing of agricultural and fishery products. 	<p>Mitigation measures do not require public consultation.</p>	<p>Cuba: - CITMA (AMA)</p> <p>Panamá: - MiAmbiente</p> <p>FAO</p> <p>Project Management Unit (PMU)</p> <p>Regional Coordination Unit (RCU)</p>	<ol style="list-style-type: none"> 1. Agricultural and fisheries investment plans. 2. Environmental and social management plan of each beneficiary organisation. 3. Aide-memoire of the Supervision Missions 4. Biannual progress report of the Project Management Unit. 5. Six-monthly progress report on the implementation of mitigation measures. 	<p>Verification every 6 months.</p> <p>The implementation of mitigation measures starts from year 2 until the date of completion of the Project.</p>	<p>Within the operational costs of Components 2 and 3 of the project</p>
Climate dimension						
<p>Flooding in coastal areas and sea level rise, causing damage and economic losses to the rural population and their livelihoods.</p>	<p><i>Standard 9 activated (IFAD): Climate change.</i></p> <ol style="list-style-type: none"> 1. Implementation of Ecosystem-based Adaptation (EbA) practices with community participation and leadership and based on good 	<p>Mitigation measures do not require public consultation.</p>	<p>Cuba: - CITMA (AMA)</p> <p>Panamá: - MiAmbiente</p> <p>FAO</p>	<ol style="list-style-type: none"> 1. Baseline study reports. 2. Legal constitution of agricultural and fisheries cooperatives. 3. Farmer Field School Reports. 	<p>Verification every 6 months.</p> <p>The implementation of mitigation measures</p>	<p>Within the operational costs of Component 2 of the project</p>

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
Risk level: moderate.	<p>practices to enhance coastal resilience.</p> <p>2. Develop baseline studies on key coastal ecosystems to improve resilience and food security, while targeting priority interventions.</p> <p>3. Development of new agricultural and fishing cooperatives and/or strengthening of existing ones (favouring women and vulnerable populations) to improve their associative and productive capacities for a climate-smart production capacity.</p> <p>4. Adoption of climate-friendly agricultural and fisheries production technologies by local producers through the Farmer Field School (FFS) approach.</p>		<p>Project Management Unit (PMU)</p> <p>Regional Coordination Unit (RCU)</p>	<p>4. Aide-memoire of the Supervision Missions.</p> <p>5. Biannual progress report of the Project Management Unit.</p> <p>6. Six-monthly progress report on the implementation of mitigation measures.</p>	starts from year 2 until the date of completion of the Project.	
<p>Limited knowledge of climate change impacts and climate change adaptation options.</p> <p>Level of risk: moderate.</p>	<p><i>Standard 9 activated (IFAD): Climate change.</i></p> <p>1. FFS will support local training and implementation of EbA, including restoration and sustainable management of critical ecosystems.</p> <p>2. Establishment of a binational community at various scales (local, sectoral, productive, national and civil associations) through exchange missions, capacity building and</p>	Mitigation measures do not require public consultation.	<p>Cuba: - CITMA (AMA)</p> <p>Panamá: - MiAmbiente</p> <p>FAO</p> <p>Project Management Unit (PMU)</p> <p>Regional Coordination Unit (RCU)</p>	<p>1. Farmer Field School Reports.</p> <p>2. Binational community activities report.</p> <p>3. Disaster and Loss Information System (DLIS).</p> <p>4. FAO's Damage and Loss Assessment (DLA) Reports.</p>	<p>Verification every 6 months.</p> <p>The implementation of mitigation measures starts from year 2 until the date of completion of the Project.</p>	Within the operational costs of Components 1 and 2 of the project

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultatio n activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
	<p>implementation of FFS in the project target sites.</p> <p>3. Strengthening institutional technical capacity and regional coordination for the implementation of the Disaster and Loss Information System (DPLS) and data processing.</p> <p>4. Development and implementation of established bi-national mechanisms to facilitate ongoing dialogue and coordination in the design and implementation of FAO's Damage and Loss Assessment (DLA) methodology.</p> <p>5. Development of guidelines and recommendations compiling lessons learned from the application of FAO's damage and loss methodology (DLA) for scaling up to similar contexts in the region.</p>			5. Six-monthly progress report on the implementation of mitigation measures.		
Limited capacity in the development and application of sustainable production tools and practices to contribute to the diversification and improved resilience of production systems to the effects of change.	<p><i>Standard 9 activated (IFAD): Climate change.</i></p> <p>1. Elaboration and implementation of Participatory Risk Management Plans (PRMPs) at the Municipal Level, identifying priority actions to reduce the projected risk to food productivity linked to agricultural and/or fishery chains.</p> <p>2. Elaboration and implementation of Participatory Adaptation Plans</p>	Mitigation measures do not require public consultation.	<p>Cuba: - CITMA (AMA)</p> <p>Panamá: - MiAmbiente</p> <p>FAO</p> <p>Project Management Unit (PMU)</p> <p>Regional Coordination Unit (RCU)</p>	<p>1. Participatory Risk Management Plans (PRMPs).</p> <p>2. Participatory Adaptation Plans (PAPs).</p> <p>3. Biannual progress report of the Project Management Unit.</p> <p>4. Six-monthly progress report on the</p>	<p>Verification every 6 months.</p> <p>The implementation of mitigation measures starts from year 2 until the date of</p>	Within the operational costs of Components 2 and 3 of the project

Environmental and Social Management Plan Matrix						
Environmental/ Social and climate Impacts	Recommended Mitigation/Enhancement measures	Public consultation activities	Responsible institution in implementation phase	Means verification (Monitoring and reporting)	Frequency of verification	Cost estimate
Risk level: moderate.	(PAPs) prepared at the municipal level, identifying priority adaptation actions to improve food productivity and resilience linked to agricultural and/or fisheries chains.			implementation of mitigation measures.	completion of the Project.	
Limitations in weather monitoring systems, disaster risk reduction and data quality reduce the capacity of institutions to assess and quantify economic losses; anticipate, prepare for, warn of and reduce climate-induced disasters; and increase the resilience of rural people and their main livelihoods. Risk level: moderate.	<i>Standard 9 activated (IFAD): Climate change.</i> 1. Development and implementation of a systematic and comparable Disaster and Loss Information System (SIDP) for Cuba and Panama. 2. Application of the FAO's Damage and Loss Assessment (DLA) methodology to assess the direct economic impact of disasters in the agricultural sector for Cuba and Panama.	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	1. Disaster and Loss Information System (DLIS). 2. FAO's Damage and Loss Assessment (DLA) Reports. 3. Six-monthly progress report on the implementation of mitigation measures.	Verification every 6 months. The implementation of mitigation measures starts from year 2 until the date of completion of the Project.	Within the operational costs of Component 1 of the project

ANNEX 4 – OPTIMAL AND MINIMAL DATA REQUIREMENTS FOR DAMAGE AND LOSS ASSESSMENTS

The outlined computation method for the FAO Damage and Loss Assessment methodology provides a large degree of flexibility regarding data requirements, as it can function with variable degrees of data availability. Below are the optimal and minimal data requirements necessary for a functional damage and loss assessment in each sub-sector. Indications of the necessary baseline data is also provided.

Data requirements for damage and loss assessment in crops:

- number of hectares of crops damaged and/or destroyed, by disasters, disaggregated by type of crop (minimal requirement);
- expected yield reduction in partially affected plot areas (t/ha) by crop (minimal requirement);
- number of damaged/destroyed machinery, equipment and facilities by type (optimal requirement);
- volume of destroyed stored crops by crop type (optimal requirement);
- volume of destroyed stored inputs by input type (optimal requirement);
- average yield (t/ha) by crop (minimal requirement);
- types of cultivated crops per area (minimal requirement);
- hectares of planted crops by crop type (minimal requirement).

Data requirements for damage and loss assessment in livestock:

- number of livestock deaths, by animal type (minimal requirement);
- number of livestock injured, sick or affected by disasters, by animal type (minimal requirement);
- expected reduction in milk, egg, etc. production per affected animal by product type (minimal requirement);
- volume of destroyed stored animal products from previous slaughters by type (optimal requirement);
- volume of destroyed stored inputs by input type (optimal requirement);
- number of damaged/destroyed machinery, equipment and facilities by type (optimal requirement);
- average volume of meat production per animal-by-animal type (minimal requirement);
- number of livestock herd size by animal type (minimal requirement).

Data requirements for damage and loss assessment in forestry:

- size in hectares of destroyed merchantable forest stands by stand type (minimal requirement);
- size in hectares of destroyed pre-merchantable forest stands by stand type (minimal requirement);
- standing timber volume per hectare in merchantable stands by stand (minimal requirement);
- average timber volume per hectare in pre- merchantable stands by stand (minimal requirement);
- age of destroyed pre-merchantable stands (minimal requirement);
- stored timber volume destroyed by disaster (minimal requirement);
- salvaged and re-sold timber volume (minimal requirement);
- real interest rate (minimal requirement);
- number of stands per forest (minimal requirement);
- number of damaged/destroyed machinery, equipment and facilities by type (optimal requirement);
- average annual value of non-timber forest activities (optimal requirement).

Data requirements for damage and loss assessment in aquaculture:

- types of aquaculture activity in affected areas (land-based pens, water-based tanks, etc.);
- size in hectares of fully-affected aquaculture areas by type (minimal requirement);
- size in hectares of partially-affected aquaculture areas by type (minimal requirement);

- average production per hectare by aquaculture activity type (minimal requirement and baseline);
- expected yield reduction per hectare in partially-affected aquaculture areas (optimal requirement);
- volume of destroyed stored production by aquaculture type (optimal requirement);
- volume of destroyed inputs by input type (optimal requirement);
- number of damaged/destroyed machinery, equipment and facilities by type (optimal requirement).

Data requirements for damage and loss assessment in fisheries:

- types of fishing activities in the affected areas (small-scale, industrial, etc.) (minimal requirement);
- average volume of daily/weekly/monthly capture by fishing activity (minimal requirement);
- number of days fishing activities are suspended due to disaster by fishing activity (minimal requirement);
- number of fully and/or partially damaged infrastructure, vessels, equipment and other assets by asset type (minimal requirement);
- volume of inputs and stored capture destroyed by disaster (optimal requirement).

ANNEX 5 – GENDER ANALYSIS AND ACTION PLAN

I. Situational analysis

1.1. Panamá

Demographics. The total estimated population for Panama in 2022 is 4,408,581 people, 50% of whom are women. The masculinity index is 101 at the national level but reaches 111 in rural areas. This behavior can be explained by the selectivity of the labor market, specifically the service sector in urban areas, which creates incentives for female migration between rural and urban areas⁹². The Panamanian population has a life expectancy of 73.86 years, with women's life expectancy being 6.36 years higher than men's (80.09 and 73.73 respectively)⁹³. In the year 2021, the maternal death ratio was 65.2 x 100,000 live births and were more frequent in the 20-24 age group and in the health region of the Ngäbe Buglé indigenous region⁹⁴. Infant mortality for the same year was 11.94 children (1000nv), showing a steady decline during the last two decades⁹⁵.

Performance according to international gender equality indices. According to the WEF Global Gender Gap Report 2022, Panama ranked 40th in the world with an index of 0.743⁹⁶, among a total of 146 countries. The Global Gender Gap Index benchmarks the evolution of gender-based gaps among four key dimensions (Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment) and tracks progress towards closing these gaps over time.

Poverty. Approximately one out of every five people in Panama is in a situation of multidimensional poverty. Sixty-six percent of those affected live in rural areas, and nearly a quarter of the national total belong to the Ngäbe Buglé Comarca⁹⁷. Indigenous women have the highest rates: 93.7% for Gunas women, 89.8% for Ngäbe Buglé women and 70.9% for Emberá women (UN Women)⁹⁸.

Discriminatory social norms. Panamanian society continues to be a sexist society despite the progress made towards equality between men and women in recent years. Socioculturally determined stereotypes, attitudes and behaviors generate gaps in the enjoyment of rights and limit women's opportunities. In rural areas this phenomenon is even more marked and is expressed in long working hours, little or no recognition of women's economic contribution to the family economy and production, the absence of recreational opportunities and the almost exclusive assignment of domestic and care-giving tasks.

Literacy and schooling. According to the results of the last Census 2023, Panama has only 3.7% of people who do not know how to read or write, so it is considered, according to UNESCO, free of illiteracy, that is, with less than 5%. At the national level, 74.8% of adult women have attained at least one year of secondary education, compared to 68.6% of adult men. The percentage of male and female producers with no level of education is very similar, 12% and 10.5% respectively, while 58% of male and female producers and 47% of women have completed primary school at most. In contrast, 30% of men and 42% of women have secondary or higher education⁹⁹. This comparative advantage of women producers could include digitalization and modernization processes of the sector and capacity building on sustainable productive practices including climate perspective in these activities to generate resilience. In the case of young population, there are advantages since 60% of those between the ages of 25 and 29 have finished secondary school. Additionally, technical, and vocational education among young people has gained importance in the country: 14% of secondary education students are enrolled in technical or vocational schools,¹⁰⁰ including the Professional and Agricultural Technical Institutes.

⁹² Revista Novedades de Población vol.11 no.22 Havana July-Dec. 2015. Based on data from the 2010 National Population and Housing Census.

⁹³ OPS. Portal of basic indicators. Published on September 26, 2022. <https://opendata.paho.org/es/indicadores-basicos>.

⁹⁴ Ministry of Health. Directorate of Health. Sexual and Reproductive Health Section. *Maternal Death Situation Report 2021*. Panama.

⁹⁵ OPS. Portal of basic indicators. Published on September 26, 2022. <https://opendata.paho.org/es/indicadores-basicos>.

⁹⁶ WEF. *Global Gender Gap Report 2022*

⁹⁷ INEC. *Multidimensional Poverty Index 2018*

⁹⁸ Cited in MiAmbiente. *National Gender and Climate Change Plan*. Panama. 2021

⁹⁹ Calculated based on information from INE. *Agricultural Census 2010*. Volume VII. Gender Focus. Table 22.

¹⁰⁰ OECD/ECLAC/CAF (2016), *Latin American Economic Outlook 2017: Youth, Skills and Entrepreneurship*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/leo-2017-es>

Women's political participation. Elected women in decision-making positions remains low in Panama. In the 2019 national electoral process, elected women occupied 25% of the positions in the Central American Parliament (PARLACEN) and 22.5% of the deputies. This last percentage is slightly higher (18%) than that obtained in the 2014 elections¹⁰¹. At the municipal level, women represent only 14.8% of the mayoral positions (2021)¹⁰². These results are in contrast with those obtained from the National Survey conducted in 2021¹⁰³, where the opinion of 93% of the population is that women are sufficiently prepared to hold elected positions. This opinion, without significant differences between demographic variables, is shared by men and women, although the percentages are 95% women and 91% men.

Violence against women and girls. Panama is one of the eleven countries in Latin America that register a rate equal to or higher than one victim of femicide or feminicide per 100,000 women. The data provided by the Statistics Center of the Public Prosecutor's Office, refer that from January to December 2022, the rate was maintained, with the following figures: twenty-one (21) femicides, twenty (20) attempted femicides and twenty (20) violent deaths, which in contrast to the previous year shows a decrease of -4.5% (1) and -9.1% (-2) in femicides and violent deaths respectively, unlike the attempted femicide which increased by 33.3% (5). The province of Colon, together with Chiriqui and Panama, accounted for 66.7% (14) of the femicides perpetrated during that year¹⁰⁴.

Women and work. The Economically Active Population (EAP)¹⁰⁵ represents 59.8% of the population aged 15 and over, with the male population being much higher than the female population (72.6% vs. 48.3%). The unemployed population amounts to 14.5% and it is women who have the highest percentage (18% vs. 12% of men). According to age groups, young people are the most affected by unemployment, reaching 28.9%.

Time use. At a general level, women's work in paid productive activities is affected by the burden of other tasks assigned stereotypically and almost exclusively to women, such as domestic work and care for other family members. According to data from 2011 at the national level, although the difference in time dedicated to total work (paid and unpaid) is small (M = 64.9 h / week, H = 64.2 h / week), the distribution between paid and unpaid work is great. Indeed, while women have 29 hours of paid work, men have 50 and while women dedicate 36 hours to unpaid work, men only dedicate 14¹⁰⁶. In the case of women in rural areas, the deficits of support from the State in the care area, the market and the little or no participation of other adult family members in care tasks, lengthen the unpaid working hours of women. For example, having children under 5 years of age reduces the paid working day of women by approximately 6 hours.¹⁰⁷

Land tenure and farm size. 32.3% of the agricultural producers with direct access to the land are women and distributed in the different types of tenure, mainly with property title (69.3%). In the province of Colón, the percentage of female tenure is slightly higher (35.2%) and 70.6% have property title¹⁰⁸. Greater access to land by women and strengthening land tenure as owners with property title will result in better household income, better family nutrition, greater investment in the agricultural farm and in the education of children, among other aspects that improve living conditions of families. On the contrary, if they do not have a title, they are limited in their access to credit, technological innovations for the production and sustainable use of natural resources.

The highest percentage of male and female producers have farms smaller than 10ha (69% and 93%, respectively), but women are the ones with the smallest farms. At the national level, 65% of the women producers and 33% of the men producers have less than 0.5ha. Farms between 0.5 and 4.99 ha represent 15% of those owned by women producers and 21% of those owned by men. In the case of those between 5 and 9.99ha, they represent only 3% of those in the hands of women and 8% of those in the hands of

¹⁰¹ Association of Women Electoral Magistrates of the Americas. IIDH. UN Women. Participation and political representation of women in Panama. n.d.

¹⁰² ECLAC. *Gender Equality Observatory*. Data 2021. <https://oig.cepal.org/es/paises/18/profile>

¹⁰³ Foundation for the Development of Citizen Freedom. Diagnosis of Barriers and Opportunities on Women's Political Participation in Panama. Report of results of the national survey. December 2021

¹⁰⁴ Ministry of Public Security. Republic of Panama. *Informative Bulletin Violence against Women*. March 2023. No 3.

¹⁰⁵ INEC. Telephone Labor Market Survey, June 2021

¹⁰⁶ ECLAC. Care in Latin America. Selected texts 2007-2018. ECLAC Selected Pages. 2018

¹⁰⁷ ECLAC (2020) Fourteenth Regional Conference on Women in Latin America and the Caribbean, Santiago, January 27-31, 2020.

¹⁰⁸ INEC. *Agricultural Census 2010*. Volume VII. Gender Focus. Panama

men¹⁰⁹. The low availability of land combined with the lack of economic opportunities translates into poverty and has negative effects on environmental sustainability, such as soil degradation, deforestation, and the weakening of genetic resources.

Women in agriculture, aquaculture and fishing. According to World Bank estimates, by 2022 the rural population will represent 31% of Panama's total population¹¹⁰. In agricultural production, 32% are women. According to data from the Seventh National Agricultural Census 2010, about 79,131 women have a direct relationship with the land through different types of tenure. In Colón, this figure is 4,245 women producers, representing 35% of the total number of producers in the province. To a lesser extent than men, women producers are engaged in agricultural and aquaculture activities (21% and 45%, respectively). They find more employment opportunities in non-agricultural sectors, where most of them have their main occupation (79%), and in the case of the province of Colón this percentage is even higher (86%).

In smallholder or subsistence farming families, most members are involved in the different tasks on the farm. In general, it has been reported that men are in charge the toughest tasks during sowing time (e.g., cleaning the land, making hulls), while women are in charge of crops care, including irrigation in the summer and at harvesting. In the case of livestock, men and women are involved in feeding and maintaining small livestock, although in most cases it oversees women while with larger livestock the greater responsibility falls on men.¹¹¹ Domestic activities, as described below, occupy most of the time of women, who also work into services and other areas of the economy that offer better conditions for them. The little support and the almost zero incentives that women receive to stay in agricultural or livestock activities work against their performance in the sector. Despite being linked to the land through various forms of tenure, their access to production services such as technical assistance and credit is almost nil.¹¹²

Due to the extension and natural wealth of Panama's coastal areas, the analysis of the situation of women in this context is fundamental. Although fishing and aquaculture are activities that "are traditionally linked more to men, it is recognized that women are playing an increasingly active role in artisanal fishing (capture of resources themselves), administration, logistical support, production of by-product derivatives, partners in collection centers, boat owners, product sales, and in some cases, support in the repair of fishing gear"¹¹³. In relation to the mangroves, historically women have overseen collecting mollusks and there are projects in which they are also in charge of reforestation. The organized women of Paris, a township in the district of Parita, protect the mangrove swamp near the village and carry out environmental work to raise awareness in this rural community about the possibilities of overcoming poverty. The Asociación de la Mujer Rural y Amigas del Manglar, with technical support from the National Environmental Authority, established a nursery, whose tasks involve collecting seeds, planting them, and caring for the seedlings to reforest the mangrove.

Despite the growing participation of women in these tasks, there are still limitations that make them invisible and restrict their potential for human and economic growth, as well as their contribution to the conservation of natural resources and adaptation to climate change. There is a lack of statistics and records that provide a detailed account of women's participation in value chains and their contributions to the economy of coastal areas, little presence in producer organizations and associations, power relations that limit their leadership and participation in decision-making, lack of opportunities to access goods and services such as training, technical assistance, and credit¹¹⁴. On the other hand, there are socio-cultural factors (stereotypes, attitudes, and behaviors) that restrict opportunities for men and women to accelerate the transformation towards full equality between women and men.

¹⁰⁹ INEC. *Agricultural Census 2010*. Volume VII. Gender Focus. Panama

¹¹⁰ <https://datos.bancomundial.org/indicador/SP.RUR.TOTL.ZS?locations=PA>

¹¹¹ Martínez, A (2020). Social and Environmental Analysis, GEF Project "Sustainable land management and restoration of productive landscapes in hydrographic basins for the implementation of the national goals of Land Neutrality (LDN)".

¹¹² *ibidem*

¹¹³ MyEnvironment. UNDP. *Gender and Climate Change Plan*. 2021

¹¹⁴ *Ibid.*

1.2. CUBA

Demographics. By the year 2023, the Cuban population will have risen to 11,194,449, with a slight female majority (a ratio of 101.6 women for every 100 men¹¹⁵. The birth rate in Cuba has been dropping to 8.92%¹¹⁶ so that the older adult population has gained preponderance over the younger population, resulting in 103.4 older persons (65 years of age or older) for every 100 children under 15 years of age. Life expectancy at birth is 78.16 years, being that of women 4.78 years higher than that of men¹¹⁷. The maternal mortality ratio for 2020 was estimated at 39.3 per 100,000 live births, a reduction of 16.5% compared to the value estimated for 2000¹¹⁸. "In relation to fertility, it is estimated that, in 2023, women had on average 1.5 children throughout their reproductive life and in the specific case of adolescent fertility, a reduction of 0.5% is observed, if we compare the rate of 47.9 live births per 1000 women aged 15 to 19 in 2000 with the figure of 48.1 in 2023"¹¹⁹

Performance according to international gender equality index. In 2021, Cuba ranked seventh on the Gender Gap Index¹²⁰ among 26 Latin American countries and 39th in the world ranking among 156 countries. Its index is 0.746. Among the areas analyzed by the index, the largest gap occurs in Political Empowerment (0.38) and in second place in Economic Participation and Opportunity (0.63). In the areas of health and education there are no gaps between men and women¹²¹. However, the gaps in these two areas are smaller than those existing worldwide.

Educational level. By 2015, female enrollment in primary education was 48.7%, in secondary education 50.0% and in university education 59.6%. Women who graduate in technical and vocational education represent up to 33.5% and women who graduate in higher education represent 55.4% of the total number of graduates in that category. They represent 60% of the total number of higher graduates and 67.2% of technicians and professionals nationwide¹²². According to the above data, there are more women who graduate from higher education than from technical education. At a technical level, men are the majority and consequently have immediate insertion into the labor market and access to income. This could show a gap in terms of incorporation into employment, since men generally prefer to start working earlier, to obtain higher income, and women prefer to dedicate themselves to greater educational improvement before starting their employment (as paid work). However, although women achieve higher levels of education, they do not necessarily enter better-paid jobs or be linked to decision-making¹²³.

Women's political participation. Cuba has not adopted a quota law, but instead has implemented a series of mechanisms that have been guaranteeing women's political representation. As a result, women have reached parity with men in the organs of the People's Power, as well as in the Council of State. Statistical analysis of the gender composition of the main structures of political power in Cuba shows that in some of these bodies with decision-making and influential capacity, both State and the Party, where the number of members is more restricted, women are less represented¹²⁴. In 2019 the constitutional text is improved and updated the normative nomenclature of the principle of equality, by adding gender, sexual orientation, and gender identity as grounds for discrimination (Art. 42). After this reform, "since no elections were held for the organs of the People's Power, the representation of women in the Cuban Parliament remained at 53.22% and that of the Council of State, its representative body, dropped to 47.61%. In the 23 ministries (including the Central Bank) plus the three institutes (Hydraulic Resources; Cinema, Radio, and Television; and Sports, Physical Education and Recreation) that make up the Council of Ministers, only seven women are "at the head", including one vice prime minister out of six that may hold that position, for a little more

¹¹⁵ PAHO. Health in the Americas. *Country Profile. Cuba*. <https://hia.paho.org/es/paises-2022/perfil-cuba>

¹¹⁶ Datosmacro.com. *Cuba. Population Pyramid*. <https://datosmacro.expansion.com/demografia/estructura-poblacion/cuba#>

¹¹⁷ OPS. Portal of basic indicators. Published on September 26, 2022. <https://opendata.paho.org/es/indicadores-basicos>.

¹¹⁸ PAHO. Health in the Americas. *Country Profile. Cuba*. <https://hia.paho.org/es/paises-2022/perfil-cuba>

¹¹⁹ Ibid

¹²⁰ WEF Global Gender Gap Report 2021

¹²¹ World Economic Forum. 2021. *Global Gender Gap Report 2021*. https://www3.weforum.org/docs/WEF_GGGR_2021.pdf.

https://www3.weforum.org/docs/WEF_GGGR_2021.pdf

¹²² Ibid

¹²³ FAO (2020) Gender Analysis GCF -FP126: "Increased climate resilience of rural households and communities through the rehabilitation of production landscapes in selected localities of the Republic of Cuba (IRES)".

¹²⁴ Guzmán, T and Prieto A. Women in the Cuban Political Power Structures: Figures and Normative Context (1974-2021). Cuadernos Inter.c.a.mbio sobre Centroamérica y el Caribe, vol. 18, no. 2, pp. 1-35, 2021. University of Costa Rica. <https://www.redalyc.org/journal/4769/476966190017/html/>

than 25%. Regarding the structures with the greatest permanence in the PCC, 46 women make up the Plenary of the Central Committee (48.42 %), while only 3 make up the Political Bureau (21.42 %) of 14 members and none make up the Secretariat¹²⁵. In the Municipal Assemblies of People's Power, the representation of women is low. In 2018 it was 35.4%¹²⁶. Also noteworthy is the low participation in agricultural cooperatives where they represent only 18% of their members¹²⁷. Thus limiting their participation in the sector's decisions and access to services and benefits channeled through these instances.

Violence against women and girls. In Cuba, the 2019 Constitution has enshrined in its Article 43 the obligation of the State to protect women from gender violence in any of its manifestations and spaces, and to create institutional and legal mechanisms for this purpose. Against this legal background, in addition to other political-institutional gestures on the matter, various citizen organizations are promoting the adoption of a Comprehensive Law Against Gender Violence (LICVG). According to the National Survey on Gender Equality (ENIG) conducted in the country in 2016, 26.6% of women had been victims of violence in their intimate partner relationships in the 12 months prior to the survey, and 39.6% had suffered violence at some other time in their lives. Based on official data, the organizations requesting a LICVG estimate that, in Cuba, in 2016, 50 women died victims of their partners or ex-partners; in 2013, 63 had been reported¹²⁸. Subsequent to that survey, there are no national figures or data available regarding this problem. "Faced with this vacuum, activists advocate the need for open data where the existence of the phenomenon is recognized as a starting point for the creation of public policies"¹²⁹.

Women and work. At country level, the total number of women employed in the economy remains around 37%, with differences between the State Sector (45.3%) and the Non-State Sector (17.4%). In both cases, these percentages are with respect to the total persons employed in each sector. According to different types of economic activities, there is a high female presence in sectors such as health and social assistance (68.5%) and education (66.3%). There is a lower presence in mining and quarrying (17.7%), agriculture, livestock, forestry (15.9% of the total persons employed, 820.9 thousand), fishing (14.4% of the total in this sector, 27.0 thousand) and construction (11.3%). A gender gap may be considered the smaller number of women employed in the above-mentioned sectors, since it may generally refer to the persistence of gender stereotypes and traditionally masculinized jobs¹³⁰.

Unemployment. According to data indicated in the 2016 Statistical Yearbook reported in the table to the left, there are more men employed than women; which may be the reason for several direct or indirect causes.

Division of labor between men and women. Overload of domestic roles limits the adequate insertion of women into the labor market, and their access to more recognized or better-paid positions. The predominance of "macho" attitudes at the labor, community, and family levels hinders women's insertion, participation, and permanence in the labor market in the agricultural sector. Most of the women do not receive remuneration for their work in support of food production and their participation in agricultural work is undervalued, as it is related to a part of the productive process determined in accordance with the sexual division of labor and qualified as less effort. Consequently, their work is perceived as a "help", thus determining limits on their participation, decision-making and income generation. Women are recognized as those who control inputs, buy food and collaborate in productive activities (raising backyard animals, cleaning milking utensils, making food for workers, in addition to domestic work). Sometimes they are in a subordinate relationship, which implies the situation referred to above as a gender gap.¹³¹

¹²⁵ Ibid

¹²⁶ Ibid

¹²⁷ Statistical Yearbook of Cuba 2019, Chapter 7: Employment and Wages (2020)
http://www.onei.gob.cu/sites/default/files/07_empleo_y_salario_2019_sitio_0.pdf

¹²⁸ Estudios del Desarrollo Social: Cuba y América Latina Estudios del Desarrollo Social vol.9 no.2 Havana May-Aug. 2021 Epub 01-Jul-2021

¹²⁹ Oliva, L. 2020. *Mi casa, mi tumba*. In *Violentadas en cuarentena*.

<https://violentadasencuarentena.distintaslatitudes.net/portfolio/cuba/#:~:text=Although%20the%2051.9%25%20of%20it,some%20moment%20of%20your%20life.>

¹³⁰ Data taken from the results of the 2016 National Survey on Gender Equality and Statistical Yearbook 2017.

¹³¹ FAO (2020) Gender Analysis GCF -FP126: "Increased climate resilience of rural households and communities through the rehabilitation of production landscapes in selected localities of the Republic of Cuba (IRES)".

The division of labor is considered a gender gap. The difference in the time invested in the average weekly work between men and women is two hours (56.02 and 58.07 hours respectively). This difference affects the length of women's working hours; but additionally, the distribution between paid and unpaid work represents a significant gender gap. While women work 14.21 hours more than men in unpaid activities, men work 12.17 hours more than women in paid activities.¹³²

The highest levels of participation in the unpaid activities of men and women are concentrated in the activities that integrate domestic work, which represents 63.21%¹³³. In second place, care for dependent persons with 19.02 % for the total number of persons interviewed. Employed women dedicate almost 10 hours to unpaid work, which means that even with an employment, they maintain a domestic burden, showing the double workload they face. Within unpaid work, the gap between men and women, is also wide, as expressed in hours. In caring activities of children, adults and sick people, women dedicate 8:29 h/week vs. their male peers, which dedicates 3:38 h/week to the same activity.¹³⁴

Land tenure. Although progress in the process of handing over land in usufruct and the Cuban rural organization (ANAP) include a Gender Strategy in 2005, women's land tenure in the sector has not exceeded 17.4 per cent. In addition, women represent 10.9% of the total number of applications granted to obtain land in usufruct. In the national statistics consulted, there is no breakdown by sex of this indicator.

Further, while agrarian laws declare the equal right to land for both genders, in practice many more men own land than women, as well as participate in cooperatives and hold managerial positions in local cooperatives.

Women in agriculture and rural areas. At sectoral level, the Ministry of Agriculture has a gender strategy, which is merely a management tool with a prioritization in forestry and tobacco sectors. According to the 2016 Statistical Yearbook of Cuba, of the total number of people employed in agricultural cooperatives, women represent 15.7%. They also account for 15.9 per cent of the total number of persons engaged in agricultural, livestock and forestry activities. In rural areas, women are the majority in services such as education and public health, which together account for more than half of the State's public employment. Between 2010 and 2013, more than 50,000 women lost their formal link with the state agricultural system in Cuba. In addition, in 30 years, more than 400,000 people are expected to emigrate from rural areas to the cities¹³⁵.

The largest percentage of emigration from the countryside is concentrated amongst men; and those who remain still concentrate representation in paid agricultural jobs. By 2030, more than half of all households in Cuba are projected to be headed by women, including households in rural areas. The Cuban context from a gender perspective, while showing some achievements, is confronted with countless gaps and inequities.

1.3. Women and Climate change.

It is recognized that climate change phenomena affect each gender according to their condition and age, among other characteristics such as cultural and socioeconomic aspects and the territories where they are located. Therefore, it is necessary to consider these differences to ensure that development is compatible with the environment and climate variations, and to propose adaptation and resilience strategies and actions for both men and women. Climate change has consequences for women and girls, who see their livelihood options and access to resources limited, making them more vulnerable to poverty, particularly in those areas where they are the main farmers and managers of fuelwood and water. Differences in roles and responsibilities between men and women have a significant influence on their ability to make decisions

¹³² National Survey on Gender Equality (2016) was conducted by the Women's Studies Centre from the Federation of Cuban Women and the Centre for Population and Development from the National Statistical and Information Office. <http://www.onei.gob.cu/node/14271>

¹³³ 52.37% declared by men and 74.07% declared by women according to data in the 2016 National Survey on Gender Equality.

¹³⁴ FAO (2020) Gender Analysis GCF -FP126: "Increased climate resilience of rural households and communities through the rehabilitation of production landscapes in selected localities of the Republic of Cuba (IRES)".

¹³⁵ FAO (2020) Gender Analysis GCF -FP126: "Increased climate resilience of rural households and communities through the rehabilitation of production landscapes in selected localities of the Republic of Cuba (IRES)".

and take measures to cope with climate variations and implement mitigation and adaptation actions and disaster risk reduction¹³⁶.

The most vulnerable populations are generally the most affected by climate change. Poverty and inequalities faced by women influence the fact that they are the ones who experience the negative consequences of climate change and natural disasters to a greater extent. Rural and indigenous women are the most affected due to the environment in which they live and their dependence on forests, agriculture, coasts and the sea as their main sources of work and food. The scarcity of natural resources generated by climatic events affects the supply of basic resources necessary for the execution of domestic and care tasks, such as water, energy and food, increasing the complexity of their performance, as well as the direct consequences on the health and nutrition of women and their families. On the other hand, the limited capacity in management and decision making due to existing gender gaps affects their possibilities to prepare for, withstand and recover from a natural disaster.

1.4. Policy and institutional framework

Cuban women are protected within the framework of laws and public policies, in which their rights are recognized. Some of them have specific articles in favor of women's rights, such as the National Constitution (2019, art. 49,205 and 207), the Family code (1975, art. 24 and 65), the Civil Status Registration Act and the Civil Code Act (Art. 517, 518) and general law of Housing, Labor code, and Worker's Maternity Law Decree, Paternity Law, Social Security Law. These legal frameworks recognize women rights and equality into the society.

More recently, the National Program and Action Plan for the Advancement of Women (PAM)¹³⁷, has been incorporated, whose general objective is to promote the advancement of women and equal rights, opportunities, and possibilities, endorsed in the Constitution of the Republic. By regulatory provision of Agreement 9231 of the Council of Ministers, the Comprehensive Strategy for prevention and attention to gender violence and violence in the family scenario¹³⁸ was approved. The Cuban Observatory for Gender Equality (OCIG) was also recently created in 2023.

In 2015, Cuba approved the Gender Strategy of the Agricultural System¹³⁹ with the objectives of generating a management culture for gender equality throughout the Agricultural System, articulating the work for gender equality of the organizations that make up the system. and enhance the leadership and economic empowerment of women in the agricultural, forestry and tobacco sectors. Since 2020, the Food Sovereignty and Nutrition Education Plan has been available. which includes gender and generational equity among its strategic approaches.

Cuba integrates a gender approach to policies, programs, and actions against climate change. It is also integrated into environmental actions and disaster risk reduction. There are alliances between State institutions and the Federation of Cuban Women (FMC) "to raise the perception of risk, increase the level of knowledge, incorporating new spaces for education and awareness" by having the Community Manual on Inclusive Management for Risk Reduction of Disasters, which is an educational tool "from the dimensions of gender, childhood and disability, with emphasis on families and school institutions, which incorporates prevention and response strategies in the face of different types of natural disasters"¹⁴⁰. The Strengthening the Hydrometeorological Early Warning System project develops training actions for women and their families on prevention and mitigation of the impacts of extreme phenomena. Also, the Environmental Bases for Local Food Sustainability project includes the initiative Opting for Gender Equality in Climate Change Adaptation, which involves women to play a transforming leadership role in the adaptation and mitigation processes.

¹³⁶ Ministry of Environment. Panama. *National Gender and Climate Change Plan of Panama*. September 2021

¹³⁷ Official Gazette of the Republic of Cuba. *Advancement of Women. National Program and Action Plan*. Presidential Decree 198/2021

¹³⁸ Official Gazette of the Republic of Cuba. *Comprehensive strategy for prevention and attention to gender violence and violence in the family scenario*. Agreement 9231/2021

¹³⁹ MAG. *Gender Strategy of the Cuban Agricultural System 2015-2020*. Havana 2016.

http://www.agroecologynetwork.org/uploads/4/9/2/9/49299363/estrategia_de_genero_agricultura_minag_2015.pdf

¹⁴⁰ Speech by Teresa Amarelle, Secretary General of the FMC at the UN. March 2022

In Panama, 83.3% of legal frameworks that promote, enforce and monitor gender equality under the SDG indicator, with a focus on violence against women, are in place.

The 2012 "Public Policy of Equal Opportunities for Women (PPIOM)", jointly with the National Institute for Women (INAMU) has per objective to end inequality and promote equal opportunities between men and women.¹⁴¹, jointly with the National Institute for Women (INAMU), has per objective to end inequality and promote equal opportunities between men and women. Environment is defined as a strategic guideline to "promote the participation of women in the culture of conservation, environmental protection, use and access to natural resources, and the benefits generated for sustainable development, in order to improve the quality of life of the population from a gender equality and equity perspective". This policy also promotes institutional mechanisms and human resources to guarantee gender equality and equity in policies, plans, programs and projects for the sustainability, management, and conservation of natural resources.

At the sectoral level, the Ministry of Environment (MiAmbiente), has since 2021 the National Gender and Climate Change Plan¹⁴². This plan proposes action strategies for ten sectors prioritized for being able to intensify an integral process of gender mainstreaming in the climate agenda. These sectors are: energy, forests, watersheds, marine-coastal, biodiversity, livestock, agriculture and aquaculture, resilient human settlements, public health, sustainable infrastructure and circular economy. For each of these, objectives, results, actions, and indicators were established to ensure the equal participation of men and women in mitigation and adaptation, and their consequent impact on emissions reduction. Among the Plan's objectives are:

- Promote equal access for women and men to consultation, training, and decision-making spaces in each of the sectors prioritized for the sustainable, low-emission economic reconstruction of the country.
- Incorporate differentiated actions focused on women and men to contribute to the reduction of emissions at the national level.
- Establish the generation, access, and use of differentiated information on the impacts of climate change on women and men; and their contributions to increase the effectiveness of national strategies for the country to maintain its carbon negative status by 2050.

The Climate Change Directorate of MiAmbiente will oversee updating and implementing this plan every five years.

Also, Panama's National Ocean Policy¹⁴³, contemplates gender equality transversally to achieve "progress towards equal opportunities and access for women to ocean resources and the benefits derived from their conservation and sustainable use". This is materialized through gender and youth-oriented actions within each of its thematic axes (Biodiversity and marine resources, Maritime governance and security, Blue economy and logistic development, Science, technology and innovation), as well as specific actions within a fifth strategic axis which include:

Strengthening women's political leadership and governance in ocean-related sectors.

The implementation of a business incubation and acceleration program with women as the main promoters of blue economy entrepreneurship, considering the creation of small and medium-sized enterprises and the commercialization of products and services focused on projects led by women.

Contribute to the reduction of the gender gap (participation and remuneration) in tasks and activities related to the sustainable use and exploitation of marine-coastal resources, as well as in marine-coastal education and research activities:

- Collect sex-disaggregated information to identify and recognize problems, differences and inequalities between women and men.

¹⁴¹ INAMU. 2012. *Public Policy on Equal Opportunities for Women*. Panama

¹⁴² MiAMBIENTE. National Gender and Climate Change Plan. Adopted by Executive Decree No. 11. of June 16, 2022. <https://www.undp.org/es/panama/publications/plan-nacional-de-género-y-cambio-climático>

¹⁴³ MiAMBIENTE, Min.Rel.Exteriores, UNDP. National Ocean Policy of Panama. Strategy and National Action Plan. 2022 <https://www.undp.org/sites/g/files/zskgke326/files/2023-03/UNDP-PA-Politica-Oceanos-Documento.pdf>

- To articulate specific policies and strategies aimed at correcting the gaps and balancing those aspects that are preventing the achievement of equal opportunities in ocean-related areas,
- Plan specific actions that have a direct impact on the effective leadership of women and their empowerment by ensuring equal participation of men and women, or by creating new actions for specific projects led by women, related to the sustainable use and exploitation of marine-coastal resources.
- Ensure that outreach and education activities promote the role of women in science and the opportunities that exist for women to participate in research in marine-coastal environments.

At the territorial level, the Integral Development Plan of the Province of Colon 2022¹⁴⁴ , is scarce in its references to gender equality and the situation of women. It begins by admitting ignorance of the cultural needs of the ethnic, age and gender sectors that coexist in the province and its territories, recognizes the lack of gender equity in employment and the absence of childcare centers, and proposes the development of a program to promote gender equality as a mechanism to strengthen governance and institutional leadership.

II. Gender Strategy

The Gender Strategy and the Gender Action Plan are formulated to guarantee the adoption of measures favorable to the participation and empowerment of women within the framework of the project "Strengthening the adaptive capacity of coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management and local food security".

The objective of the regional project is to reduce vulnerability and strengthen the adaptive capacities of nine coastal municipalities in Cuba and Panama to climate change impacts. In line with the policies of the Adaptation Fund (AF), the International Fund for Agricultural Development (IFAD) and the countries involved, this objective must be achieved with the participation and direct benefit of rural women, especially those in conditions of social and economic vulnerability.

The project has 3 components, and its expected results are the following:

Project Components	Expected Outcomes
Climate change adaptation planning and regional cooperation	1.1. Loss and damage of agricultural and fishing productivity methodology implemented in 9 target coastal municipalities in the face of slow onset climate impacts
	Loss and Damage Information Systems (DLIS) for slow onset climate hazards institutionalized at a sectoral and local level and shared binationally for monitoring and evaluation and adaptive planning.
	1.3. Best practices and lessons learned in assessing loss and damage methodologies for slow onset hazards systematized as a tool for adaptation planning and risk management to food security and agriculture- and fishing-based livelihoods and disseminated at regional level.
2. Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in 9 coastal municipalities.	Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their communities, livelihoods and local food security.

¹⁴⁴ Republic of Panama. *Integral Development Plan for the Province of Colon: The strategic route to a dignified life. 2022*

3. Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience.	3.1. Climate-smart agricultural and fishing productive solutions adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts
	3.2. Diversified and EbA-compatible livelihoods identified and supported for agricultural and fishing dependent households.

Within the framework of the gender transformative approach proposed by the AF and IFAD, the proposal is aimed at identifying the existing gaps between men and women, eliminating existing inequalities and their causes, and promoting the empowerment of men and women with transformational effects, under equal conditions.

The project considers the reality of rural and coastal marine areas in terms of greater participation of women in the rural population, their growing number as heads of household and their active and numerous participations as workers in the agricultural and fishing sectors. It also considers their conditions of poverty, their low presence among decision-makers, the difficulties in accessing services and the overload of domestic work, which are enhanced by the effects of climate change and increase women's vulnerability. All the above increases women's interest and receptiveness or climate-smart solutions that reduce the adverse consequences of climate change on their quality of life and that of their families. This process makes them active agents in the implementation of climate change adaptive initiatives, particularly in the coastal marine areas of a total of nine municipalities of Cuba and Panama, which are the focus of this project.

This gender strategy is mainstreamed in each of the projects components and reflected in the proposed products and expected results. The concrete measures and actions in the Gender Action Plan seek to:

- Give women the possibility to be active participants in the actions proposed by the project, and to fully benefit from their participation.
- Ensure that women can be involved in decision-making related to the project actions at the municipal level and in their organizations.
- Ensure that their needs, concerns, and aspirations are duly considered in the design of strategies, plans and activities related to climate change adaptation and resilience.
- To provide women with the necessary resources for their organization, capacity building and implementation of sustainable adaptation practices based on resilient ecosystems and value chains that improve their income and food security.
- Ensure the executing institutions have management capacity and that the technical teams are duly prepared to promote the participation of women in the activities and benefits offered by the project.

2.1. Mechanisms and activities identified to address gender gaps in the Project

To ensure women's participation and its benefits, mechanisms and activities have been defined so that the project as a whole and in all its components respond to the principle of mainstreaming gender equality and have transformative effects in favor of women's empowerment. These mechanisms include: (i) defining goals for women's participation in project activities in a participatory manner based on women's needs and opportunities identified by them, (ii) promoting spaces for participation in decision-making, considering women's time availability and adapting activity schedules, (iii) guaranteeing access to project information as well as information related to the climate variabilities, adaption and resilience (iv) valuing and taking advantage of their knowledge and experience, (v) developing their capacities including technical and soft skills, (vi) ensuring investments in creation/strengthening of their organizations, (vii) gender training for the project management, technical teams, service providers and communities, and (viii) adequate assigning of human resources specialized in gender and social inclusion as well as specific budget for gender activities.

2.1.1. Define participation quotas for women as part of the project's target population.

Quotas allow opening spaces for women despite the tendency caused by gender patterns and stereotypes that tend to make invisible their current and potential contribution to face the adversities that affect their families and communities. Gender quotas (minimum percentages of female participation) are an incentive to promote the inclusion of women and achieve equal opportunities between men and women. In both countries, the allocation of quotas is a practice in various fields. This allocation responds to the need to ensure that women are considered and that their interest in acting in favor of climate change adaptation is considered and taken advantage of. The diversity of roles that women play in production, domestic and community activities makes them agents of change that are key to achieving the objective of reducing vulnerability and strengthening adaptation and resilient capacities in the selected municipalities.

The participation of women as direct beneficiaries of the project is 50%. This percentage is distributed within the different components and activities promoted by the project, considering the coverage currently achieved by the executing institutions, the goals established in similar projects of the project in both countries, as well as the active participation and the of women during the consultation process implemented in the design of the project. Their motivation to get involved and contribute, their knowledge and experience, as well as their capacity to seek solutions to the climate problems that affect them, have all been considered. The project will use inclusive criteria and direct targeting methods for the different population groups of the municipalities with an intersectionality approach to ensure the identification and promotion of the participation of women, particularly those in conditions of poverty and vulnerability.

2.1.2. Incorporate the gender approach in the planning processes, prioritization of interventions and selection of training content in the Farmers Field Schools (FFS).

Dissemination of project opportunities among the target population in the nine selected municipalities will employ mechanisms (community meetings, radio programs, posters, etc.) that consider women's participation, using female role models and gender-inclusive language. The most appropriate times for carrying out project activities will be identified so that women will have the opportunity to participate, and through training for the population through the FFS, the support of the men in the families will be sought for carrying out domestic and caretaking tasks.

The gender perspective will be included in the Participatory Adaptation Plans (PAP) and Participatory Risk Management Plans (PRMP) to be developed in the nine municipalities covered by the project, to ensure the inclusion, contribution, benefit, and empowerment of women. Likewise, gender considerations and women's participation in coastal ecosystems will be incorporated into the prioritization processes of interventions to improve resilience and food security.

The contents on climate change adaptation measures will include a gender approach considering those that are carried out by women and others that are adapted to their conditions and possibilities of implementation. The definition of these contents will require detailed analyzes that will be carried out in each country.

The knowledge and practice of the gender approach must be part of the terms of reference of the technical and professional people executing the project, who will have their theoretical and practical knowledge on the subject reinforced through capacity building workshops oriented towards the relationship between gender and climate change.

2.1.3. Ensuring women's participation in climate change decision making

The participation of women in decision-making positions is low at the municipal level, both in Cuba and Panama. The project will promote spaces for women to assure their visibility and that they are considered key actors for decision-making in local development and wellbeing, giving relevance to their participation in decisions on environmental issues and climate change. On equal terms with men, they will participate in planning processes related to the preparation of PAPs and PRMPs. They will be involved in the identification of actions to improve productivity and resilience, as well as to reduce risks related to food productivity. They will participate in capacity development activities provided by FAO to operationalize the Loss and Damage Information Systems (DLIS). Project will promote their involvement in the selection of priority interventions in their municipalities related to ecosystem-based adaptation for increasing the resilience of their communities, livelihoods, and local food security. Female leadership will be promoted within local organizations, particularly in the organizations' governing bodies and the strengthening of their own organizations will be supported

2.1.4. Facilitate the availability of women's time to participate in project activities.

In both countries, women face longer working hours than men due to their domestic and caregiving roles. This reality affects their possibilities of broad participation in project activities despite their interest in acting

in favor of climate change adaptation. To facilitate their participation, we will seek to generate changes for a better balance in the distribution of household chores among family members, the importance of their involvement in project activities and community actions related to climate change. To this end, the FFS spaces will be used to develop gender training activities as part of the capacity building topics. Dissemination materials will also be developed to highlight the importance of addressing inequalities while recognizing the advantages of women's participation.

Consideration will be given to places and times suitable to the availability of women for the development of project activities, so that distances, safety, mobility, and schedules are adapted to their needs and possible alliances will be identified with institutions, agencies and organizations that provide some services (e.g., childcare, domestic technology, firewood, and water hauling), alleviating the domestic burden and the availability of women's time.

2.1.5 Ensure women's access to information on the project and on the climate situation.

The participation of women in decision-making bodies at the municipal level and their participation in the FFS will allow them to be close to and have access to information on the project and on progress towards resilience, and adaptation to climate change. In addition, the project will ensure the use of other mechanisms and means of dissemination that consider women's preferences and their possibilities for greater access to information. The development of communication messages will consider gender equality in images and content. The project will provide resources for the organization of community meetings, women's groups and mixed groups, radio programs, posters, digital communications, and other proposals for the dissemination of women-oriented information in the nine selected municipalities.

2.1.6. Value and take advantage of women's knowledge and experience.

Women will have the opportunity to participate in spaces for exchange, discussion, analysis, and collective construction of proposals on climate change adaptation. Their voice will be heard, and their opinions and proposals will be considered. The executing entities and their field teams will oversee monitoring and supporting women to express themselves in public spaces, at different levels, municipal, community, organizational and in the FFS.

The project will systematize women's experiences and practices that have been effective in protecting coastal ecosystems related to food production. It will create binational spaces for exchange among women through workshops and digital communication. Also, more broadly, it will share the systematized and published material with the population of the coastal marine zones of both countries. This material will be useful for training on gender and climate change oriented towards the project executing units and at the level of the institutions involved in its implementation.

2.1.7. To develop and strengthen women's capabilities and skills.

Women will participate in equal numbers with men in FAO's capacity building activities to operationalize the Loss and Damage Information Systems. Likewise, through their participation in the FFS, they will improve their capacities for the protection and management of ecosystems and the use of sustainable and resilient productive practices for food production, including marine products. As part of these schools, they will also receive gender training along with the other participating producers.

The mostly female associations that are created or strengthened in each municipality will also be able to train their members to improve their associative and productive capacities, including capacities for climate-smart production and adaptive ecosystem-based productive practices that are compatible with their livelihoods.

2.1.8. Investments available for women's productive initiatives that include climate change adaptation measures.

The project has resources that will be distributed equitably among male and female producers so that their productive initiatives are more resilient to climate change and adapt to the conditions imposed by climate variations. The project resources destined to directly serve the beneficiary population in each activity and specific component will be allocated in accordance with the estimated percentage distribution of participating producers, men, and women.

Due to the low participation of women in the existing traditional organizations in the municipalities, the project will provide options for the creation and/or strengthening of mostly female organizations so that women in the selected municipalities have additional options to become active participants in the project and its benefits.

2.1.9 To have technical capacity in the teams and institutions executing the project to develop a gender-transformative approach that empowers women.

The executing units in each country will have a gender specialist who will be responsible for ensuring the mainstreaming of the approach in all project actions and compliance with this Gender Action Plan. This specialist will have resources from the corresponding executing unit to visit the municipalities and support on-site efforts to ensure the participation of women and the incorporation of the gender perspective in the contents of the different activities, products and expected results of the project. Gender Focal points will be appointed on the local municipal level, to facilitate the coordination on the ground.

In addition, within the framework of the project, training on gender and climate change will be conducted for the technical staff of the project unit and the executing institutions in each country. These trainings will be developed in a participatory manner and will use examples of concrete cases that adequately illustrate the relationship between women and climate change, their vulnerabilities, and their potential to collaborate with the adaptation processes proposed by the project.

III. Gender action plan and results framework

Component 1. Climate change adaptation planning and regional cooperation					
Outcome 1.1. Loss and damage of agricultural and fishing productivity methodology implemented in 9 target coastal municipalities in the face of slow onset climate impacts					
Output 1.1.3: 9 Participatory Adaptation Plans (PAPs) prepared at the Municipal Level identifying priority adaptation actions for enhanced food productivity and resilience to be implemented under Components 2 and 3.					
Activities	indicators	targets	timeline	responsibilities	Costs (USD)
Prepare the PAPs with the participation of women leaders, women community members and representatives of rural organizations who contribute their skills and knowledge and intervene in decision-making	% Women of the total number of local participants	At least 50%		CITMA MiAMBIENTE	8,580
Include the gender perspective in the nine PAPs that are developed at the Municipal level, based on a rapid participatory diagnosis of the impact of climate change on women, as well as their knowledge and experiences of adaptation and resilience, to guarantee their inclusion, contribution, benefit and empowerment.	% of PAPs with a gender perspective	100%		CITMA MiAMBIENTE	
Output 1.1.4: 9 Participatory Risk Management Plans (PRMPs) prepared at the Municipal Level identifying priority actions to reduce projected risk to food productivity to be implemented under Components 2 and 3.					
Prepare the PRMP with the participation of women leaders, women community members and representatives of rural organizations who contribute their skills and knowledge and intervene in decision-making.	% Women of the total number of local participants	at least 50%		CITMA MiAMBIENTE	4,290
Include the gender perspective in the nine PMPRs that are developed at the Municipal level, based on a rapid participatory diagnosis of the impact of climate change on women, as well as their knowledge and experiences of adaptation and resilience, to guarantee their inclusion, contribution, benefit and empowerment.	% of PRMPs with a gender perspective	100%		CITMA MiAMBIENTE	
Outcome 1.2. Loss and Damage Information Systems (DLIS) for slow onset climate hazards institutionalized at a sectoral and local level and shared binationally for monitoring and evaluation and adaptive planning					
Output 1.1.6: Technical capacity and regional coordination strengthened for the effective operationalization of the DLIS and data processing.					
Ensure women's participation and gender equality among participants in capacity	% Women of the total number of people trained	At least 50%		CITMA MiAMBIENTE	21,600

development activities provided by FAO to operationalize the DLIS					
Outcome 1.3. Best practices and lessons learned in assessing loss and damage methodologies for slow onset hazards systematized as a tool for adaptation planning and risk management to food security and agriculture- and fishing-based livelihoods and disseminated at regional level					
Output 1.1.8: Establishment of a binational community at various scales (local, sectoral, productive, national and civil associations) through exchange missions, capacity building and FFS implementation in target sites.					
Identify and systematize experiences and practices carried out by women that are effective in protecting food-producing coastal ecosystems.	% of the total experiences and practices systematized by the project that are led by women	At least 30%		CITMA MiAMBIENTE	
Carry out binational virtual exchanges of experiences and practices carried out by women, which are effective in protecting food-producing coastal ecosystems.	# of exchanges executed	4		CITMA MiAMBIENTE	
Component 2. Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in 9 coastal municipalities.					
Outcome 2.1. Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their communities, livelihoods and local food security					
Output 2.1.1: Baseline studies on key coastal ecosystems for enhanced resilience and food security inform selection of priority interventions.					
Activities	Indicators	Targets	Timeline	Responsibilities	Costs
Participation of local women in consultations for the selection of priority interventions	% of people consulted are women	50%		CITMA MiAMBIENTE	59,040
Inclusion of the gender perspective and considerations on women's participation in prioritized interventions for their inclusion, contribution, benefit, and empowerment.	% of prioritized interventions that include a gender perspective	100%		CITMA MiAMBIENTE	
Output 2.1.2. Farmers Field Schools (FFS) support local training, gender equality, and the implementation of EbA including restoration and sustainable management of identified critical ecosystems.					
Improving the capacity of women for the protection and management of ecosystems, through their participation in FFS	% of women of the total FFS participants of FFS participants who are women	40%		CITMA MiAMBIENTE	
Train members of the FFS in gender equality and the participation of women,	% of FFS that receive gender training	100%		CITMA MiAMBIENTE	
	% of participants in the FFS receive training in gender equality	90%		CITMA MiAMBIENTE	
Output 2.1.3. Selected EbA interventions implemented with community participation and leadership based on good practices for enhanced coastal resilience.					
Implementation of EbA solutions assuring the participation of women (as prioritized in PAPs and PRMPs community adaptation and risk management plans) in 9 target sites.	% of women of the total participants	50%		CITMA MiAMBIENTE	3,510
Component 3. Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience					
Outcome 3.1. Climate-smart agricultural and fishing productive solutions adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts					
Output 3.1.1. Agricultural and fishing cooperatives have been created and/or strengthened cooperatives (favouring women and vulnerable populations) in their associative, productive capacities for climate smart production capacity.					

Activities	Indicators	Targets	Timeline	Responsibilities	Costs
Develop selection criteria for cooperatives that prioritize those under female leadership or with a majority of women in their membership.	There are criteria to prioritize cooperatives under female leadership or with a majority of women in their membership.	Yes/No		CITMA MiAMBIENTE	
Creation and/or strengthening of women's associations in their associative and productive capacities for climate-smart production in each site	Number of women's associations created and/or strengthened	At least 9 (one in each site)		CITMA MiAMBIENTE	
	% of women in women associations created and/or strengthened	90%		CITMA MiAMBIENTE	
Output 3.1.2. FFS support local training and use of sustainable and resilient productive practices including coconut, plantain and rice harvesting and fishing related practices across 9 target municipalities.					
Training for women through the FFS on sustainable and resilient productive practices adjusted to their conditions and needs.	% Women of the total number of people in FFS	50%		CITMA MiAMBIENTE	16,770
Output 3.1.3. Climate-smart agricultural and fishing productive technologies adopted by local producers across 9 target municipalities through the FFS approach.					
Women producers adopt climate-smart agricultural and fishing productive technologies	% of women in FFS who adopt productive technologies	80%		CITMA MiAMBIENTE	
Outcome 3.2. Diversified and EbA-compatible livelihoods identified and supported for agricultural and fishing dependent households					
Output 3.2.1. Cooperatives have been created and/or strengthened cooperatives and/or to implement diversified EbA compatible livelihoods (artisanal oyster and mollusc cultivation in mangroves, commercialization and processing of coconut and banana-based products, nature-based tourism).					
Activities	Indicators	Targets	Timeline	Responsibilities	Costs
Develop selection criteria for cooperatives that prioritize those under female leadership or with a majority of women in their membership.	There are criteria to prioritize cooperatives under female leadership or with a majority of women in their membership.	Yes/No		CITMA MiAMBIENTE	
Creation and/or strengthening of associations aimed at young women to implement diversified livelihoods compatible with EbA	# of associations women oriented created and/or strengthened	9		CITMA MiAMBIENTE	

	% of women in women-oriented associations aimed at implementing diversified livelihoods compatible with EbA.	80%			
Output 3.2.2. FFS support local training in gender and use of sustainable and resilient productive practices for EbA compatible livelihoods across 9 target municipalities.					
Training for women through the FFS on productive practices for EbA Livelihoods compatible.	% Women of the total number of people in FFS	50%		CITMA MiAMBIENTE	10,530
Output 3.2.3. Diversified and EbA-compatible livelihoods supported based on good practices across 9 target municipalities through the FFS approach.					
Women are supported with good practices on diversified and EbA-compatible livelihoods through FFS.	% Women of the total number of people in FFS	50%		CITMA MiAMBIENTE	

PMU and development of institutional capacities on gender					
Organize mechanisms (community meetings, radio programs, posters, etc.) in the 9 selected areas for the dissemination of the opportunities provided by the project, considering women (for example, using female models and gender-inclusive language)	# mechanisms implemented with a gender perspective and oriented towards women	9		CITMA MiAMBIENTE	25,000
Training for institutional and project PMU on gender and climate change and the project GAP	# of training workshops developed	6 (3 in each country)		CITMA MiAMBIENTE	30,000
	# virtual Exchange spaces permanently installed and working (e.g. Whatsapp, facebook and others)			CITMA MiAMBIENTE	
Allocate human and financial resources in the PMU of each country to mainstream the gender perspective throughout the project and ensure the implementation of the Gender Action Plan	Gender specialist hired	2		CITMA MiAMBIENTE	138,000
	Operational resources			CITMA MiAMBIENTE	

Annex 6 - Stakeholder engagement, information disclosure and grievance redress

6.1 Stakeholder Participation Plan

Introduction

The Adaptation Fund (AF) considers, as part of the risk management process, promoting effective stakeholder participation that allows people who may be affected or will be affected during project implementation to have an open and transparent communication and interaction mechanism to express their complaints with the project, to follow up on the complaint resolution process and to implement the adaptive management approach, in order to introduce the required changes so that the event or occurrence that triggered the complaint does not happen again.

Stakeholder participation is important to raise awareness of the project, provide opportunities for various stakeholders to contribute their views, clarify the roles of key stakeholders in project formulation and implementation, and ensure ownership of the project. The Stakeholder Engagement Plan (SEP) was prepared in response to the requirement of the AF Policy to ensure that there are adequate opportunities for the informed participation of all stakeholders.

For this reason, the SEP should be proportionate to the nature and scale of the project and its potential risks and impacts, improve the environmental and social sustainability of the project, increase its acceptability and contribute to its success in the design phase and during project implementation.

Stakeholder engagement is an ongoing and iterative process by which the implementing institutions of the Governments of Cuba and Panama identify, communicate and facilitate a two-way dialogue with people affected or likely to be affected by the implementation of the project, as well as with other parties who have an interest in the implementation and effects caused by the decisions made by the project. This process takes into account the different access and communication needs of various groups and individuals, especially those who are vulnerable or disadvantaged, and considers communication and physical accessibility challenges. The process begins at the project design stage by identifying the parties affected or likely to be affected; establishing initial consultation processes early on to gather initial views and concerns to inform project design and implementation.

1. Purpose and scope of the stakeholder engagement plan

1.1 Conceptual definition of stakeholders

For the purposes of the project, "Stakeholder" refers to the persons individually or collectively that:

- 1) are affected or likely to be affected by the implementation of the project ("Project Affected Parties"),
and
- 2) May have an interest in the project ("Other Stakeholders").

"Project Affected Parties" refers to both individual and collective people who are likely to be negatively affected by the implementation of the project, which may increase their vulnerability (including risk) by generating adverse impacts on: (i) the environmental setting in which individuals develop; (ii) physical integrity, health, safety and well-being; (iii) modification of cultural practices; (iv) tangible and/or intangible cultural heritage; and (v) livelihoods. Collectively, this includes community groups, associations, producer cooperatives to local communities.

Other stakeholders" refers to any individual or collective group or organization (among other forms of association) that expresses a public interest in the project in relation to its location; the implementation mechanism (targeting criteria, profile of potential beneficiaries, selection criteria, evaluation processes and criteria, among others); the activities to be implemented; the possible positive or negative impacts;

accountability; among other characteristics of interest of the project. At the collective level, these may be, for example, representatives of public institutions or organized civil society; public officials; the private sector; the scientific community, academics, university centres or research centres/institutes; trade unions; non-governmental organizations; international cooperation agencies; among others.

1.2 General objective

Management of the social risks of people who individually or collectively may be affected by the implementation of the project through the implementation of the Stakeholder Engagement Plan, allowing for open, transparent and inclusive communication and interaction.

1.3 Specific objectives

1. Establish a systematic approach to Stakeholder engagement that will help the implementing entities of the governments of Cuba (AMA) and Panama (MiAmbiente) to identify and build and maintain a constructive relationship with Stakeholders, especially those affected by the project.
2. Establecer un proceso que permita a las Partes Interesadas, puedan emitir sus opiniones para que se tengan en cuenta la fase de diseño del proyecto para mejorar el desempeño ambiental y social.
3. Establish a process that allows Stakeholders to provide feedback to be taken into account in the design phase of the project to improve environmental and social performance.
4. Ensure that adequate information on environmental and social risks and impacts is disclosed to interested parties in a format and manner that is accessible, timely, understandable and appropriate.
5. Provide project-affected parties with accessible and inclusive means to raise issues and grievances, and enable the implementing entities of the governments of Cuba and Panama to respond to such grievances and handle them appropriately.

1.4 Scope of application

Executing Entities. Stakeholder participation applies to all projects supported by the Adaptation Fund through investment project funding. The interaction between the Executing Entities (AMA and MiAmbiente) and Stakeholders is an integral part of the environmental and social assessment of the project, its design and implementation.

Geographic. Stakeholder participation applies to the five targeted municipalities in Cuba (Consolación del Sur, San Cristóbal, Batabanó, La Sierpe and Baracoa) and four in Panama (Donoso, Chagres, Portobelo and Santa Isabel).

2. Stakeholder identification and analysis

2.1 Identification and classification of stakeholders

2.1.1 Stakeholders (project target groups)

1. Rural poor families engaged in subsistence activities.
2. Poor indigenous families engaged in subsistence activities.
3. Rural and indigenous families living or residing within protected natural areas.
4. Small (individual) producers in conditions of poverty engaged in subsistence or small-scale agriculture, fishing and/or livestock farming. Small producers are rural or indigenous.

5. Small producers organised under an association model for production, processing and/or marketing purposes, engaged in small-scale agriculture, fishing and/or livestock farming. Organised small producers are rural or indigenous.
6. Small producers organised under an association model to provide goods and/or services to other small producers individually or collectively, engaged in small-scale agriculture, fishing and/or livestock farming. Small producers are rural or indigenous.

2.1.2 Vulnerable groups

1. *Women in vulnerable conditions.* The project will particularly target women characterised by structural vulnerability, weak social integration and lack of socio-economic opportunities; characterised by a pronounced weakness or absence of productive capital (agricultural land and livestock) and lack of economic and employment opportunities.

2. *Rural and indigenous youth.* Includes young people residing within the project area who are in the age ranges defined by the governments of Cuba and Panama. It includes rural or indigenous young people, whether they are organised collectively or individually, engaged in study, work, small enterprises, engaged in agricultural, fishing or livestock activities, or unemployed and/or not studying.

3. *Indigenous population.* Considers any person belonging to an indigenous people determined in accordance with the uses and customs defined by these peoples.

4. *Rural and indigenous families in conditions of food insecurity.* This corresponds to the difficulty of the members of a family (totally or partially) to have permanent access to food, in adequate quantity and quality to satisfy the food needs of all its members during the year for an active and healthy life.

2.1.3 Other stakeholders

1. *Local government.* Corresponds to public officials and technical staff responsible for the implementation of public programmes and policies at the municipal level, as well as specific projects from private, national or international sources of funding.

3. Identification of project risks and potential impacts

The matrix of the Environmental and Social Management Plan (ESMP) identifies and describes the potential environmental and social impacts foreseen by the project, describing the risk level of each of these, as well as the corresponding mitigation measures. This information is essential for the Stakeholders to have the necessary information for their assessment and consideration in the decision-making process.

4. Procedures for implementing the Stakeholder Engagement Plan

To ensure Stakeholder participation, three procedures will be implemented: (1) consultation; (2) information disclosure; and (3) grievance mechanism.

4.1 Consultation

Different participatory approaches will be applied in the consultation processes, including face-to-face meetings, focus group meetings, dialogue platforms/workshops and electronic communications in the successive phases of the project development process. Different approaches will be used to:

- a. Information sharing for effective participation in the consultative and dialogue sessions of the project development process. This approach aims to ensure that stakeholders are prepared for participation and have the opportunity to participate and contribute knowledge and/or ideas.

- b. Analysis of issues through dialogue platforms (workshops, meetings) or by providing comments and contributions to various reports.
- c. Promoting multi-stakeholder dialogue between the two countries to agree on the course of action and implement the Project Strategy through consent platforms to ensure that these reflect stakeholder interests and consent.
- d. Stakeholder involvement will be an ongoing process with the necessary monitoring, continuous updating and regular evaluation of progress.

4.1.1 Consultations in the project design phase

In the conceptual design phase of the project, the Implementing Entity and the project's Executing Entities will identify potential "Stakeholders" that may be affected by the implementation of the project who, because of their particular circumstances, may be vulnerable or less advantaged. Based on this identification, it shall further identify individuals or groups who may have different interests and priorities with respect to project impacts, mitigation mechanisms and benefits, and who may require different or separate forms of participation.

Finally, consultations will be held with representatives of identified Stakeholders and with individuals who are well informed about the national, local and sectoral context. In some circumstances, media and social media searches may be useful to verify the list and to identify and contact any other project-affected parties or stakeholders. Particular attention should be paid to identifying vulnerable or disadvantaged groups.

The preparation of the design document through the development of the project document package was participatory and involved representatives of all major stakeholders, including at the national level the governmental bodies of Cuba and Panama.

In this context, Annexes 1 and 2 present the main results of the Stakeholders' views consulted during the Concept Note and Final Design Document development phase.

4.1.2 Consultations in the project implementation phase

AMA and MiAmbiente will continue to engage project-affected parties and other stakeholders and provide them with information throughout the project cycle in a manner appropriate to the nature of their interests and the potential environmental and social risks and impacts of the project.

As project circumstances and stakeholder concerns may change or new ones may arise, the stakeholder engagement process takes place throughout the project cycle, from the kick-off workshop to the completion date, so the SEP is likely to be updated and this allows for improvements to be incorporated into its implementation, based on stakeholder feedback, as well as addressing concerns in a proactive manner. For this purpose, it is necessary to consult the population directly and indirectly benefited in a common territory, derived from the implementation of the activities financed by the project. For this purpose, a selection of a sample of 10% of the total investments made by the project will be made annually, in which the Stakeholders will be consulted under the following minimum parameters (recording a Minutes)

- a) Date and place of each meeting, and a copy of the notification to the stakeholders.
- b) Purpose of the meeting (to obtain their views on whether there were any impacts from the implementation of the activities financed by the project).
- c) Modality of participation and consultation (e.g. face-to-face meetings, such as town hall meetings or workshops; focus groups, written or online consultations).
- d) Number and categories of participants.
- e) Providing relevant documentation to be disclosed to stakeholders.

- f) Summary of main issues and concerns raised by stakeholders.
- g) Recording and description of the type and degree of impact expressed by stakeholders.
- h) Summary of the response to stakeholder concerns and how these concerns were taken into account.
- i) Issues and activities requiring mitigation measures.

If there are significant changes to the project that generate additional risks and impacts, especially where these may fall on project-affected parties, AMA and MiAmbiente will provide information on these risks and impacts and consult with project-affected parties on how these risks and impacts will be mitigated.

4.2 Information disclosure

The project Executing Entities (AMA and MiAmbiente) will disclose information about the project to enable Stakeholders to understand the risks and negative impacts that may arise with the implementation of the project as well as the potential opportunities. It will also provide Stakeholders with access to the following information that is relevant to the different phases of the project:

- a) The purpose, nature and scale of the project;
- b) The duration of the proposed project activities;
- c) The potential risks and impacts of the project on local communities, and proposals to mitigate them, highlighting possible risks and impacts that may affect vulnerable and disadvantaged groups, and describing the differentiated measures taken to avoid and minimize them;
- d) The proposed stakeholder engagement process, highlighting the ways in which stakeholders can participate;
- e) The timing and location of public consultation meetings (design phase) and the process by which they will be notified, summarized and reported on;
- f) The process and means by which complaints and grievances are to be raised and addressed.

It is important to disseminate project-related information in a manner and language that is appropriate for each stakeholder group. Modalities for providing information may include hard copies of presentations, non-technical summaries, project brochures and pamphlets. Ideally, the material should contain maps of the project area and non-technical sketches. Documents used in stakeholder consultation should be made available to stakeholders, e.g. on community public notice boards and, where possible, on the AMA and MiAmbiente website.

Where literacy levels are low, other formats, such as sketches of the location, physical models and film projections, may be useful for communicating relevant information. AMA and MiAmbiente should help the public to understand technical documents, for example by publishing simplified summaries, background explanations in a non-technical way, or access to local experts.

Project performance reports, including the status of implementation of environmental and social measures, will be publicly disclosed. Any significant proposed changes to the project during implementation will be made available for effective and timely public consultation with Stakeholders.

Project beneficiaries, Stakeholders and Other Stakeholders will be informed and made aware of the project's available mechanism for submitting complaints or grievances during dissemination sessions or meetings, calls for proposals, public events, training events or follow-up actions in the implementation of project activities. The following section details the procedures, criteria and requirements on how complaints or grievances are submitted, addressed and resolved.

4.3 Grievance mechanisms

Stakeholders will have a mechanism to submit complaints or grievances if they are affected by the project. In the following section of this Annex, the procedure to be followed will be detailed.

4.4 Procedure for updating the Stakeholder Participation Plan

The procedures described in this mechanism can be updated at any time requested by the Executing Entities or the Implementing Entity. It is recommended that updating can take place at least at three key stages of the project: at the project start-up workshop; no later than 6 months after the date of the start-up workshop; and at the mid-term review. The review and approval of the changes to be introduced will be carried out by the RCU.

6.2 Project grievance mechanism

The Adaptation Fund (AF) states in its Environmental and Social Policy (ESP) that the project must have an accessible, transparent, impartial and effective process for receiving and addressing complaints or grievances about environmental or social harm caused by the project, which is accessible to employees and Stakeholders. The grievance mechanism is designed to receive and address complaints or grievances in a transparent manner and will be proportionate to the complexity of the risks.

Existing grievance mechanisms (CRMs) of the governments of Cuba (CITMA) and Panama (MiAmbiente); the Adaptation Fund (AF); the International Fund for Agricultural Development (IFAD); and the Food and Agriculture Organization of the United Nations (FAO) will be used and will be complemented by procedures developed according to the nature, scope and risks identified for the project. Guidelines for implementation are described below.

6.2.1 Scope of the grievance mechanism

Complaints and grievances will be resolved only at the extrajudicial level, i.e. to resolutions and measures accepted to the satisfaction of employees and stakeholders outside the framework and judicial system of the governments of Cuba and Panam.

In cases where the resolutions and measures implemented to address the complaints or grievances are not to the satisfaction of the employees and/or Stakeholders, it is entirely up to them to decide to file the respective complaints within the framework of the applicable judicial system of the country concerned, following the corresponding legal course, where the Adaptation Fund, IFAD, FAO, AMA and MiAmbiente do not have any legal precedent to address and resolve the complaints filed in the judicial system

Project staff at any level of organization; CITMA/AMA or MiAmbiente staff; and FAO staff directly linked to the project, are the only people authorized to receive complaints or claims from Stakeholder.

6.2.2 Procedures for addressing and resolving complaints or grievances arising from project implementation

The project will use the GM to receive, address and resolve complaints or grievances from individuals and groups of people who are considered to be negatively affected by the implementation of the project.

The scope of application includes the site where the complaint or grievance is filed, ranging from field operations (the population residing in a local community); local offices or departmental/provincial units of CITMA/AMA or MiAmbiente; to the central offices of AMA (Havana, Cuba) and MiAmbiente (Panama City, Panama).

The manner of submitting such complaints or grievance and their resolution will be differentiated by country, as follows:

Standard procedures applicable to Cuba and Panama

- A. Stakeholders residing within the territory of Cuba or Panama may file a complaint or grievance in three ways: (a) anonymously; (b) in writing with the option of being anonymous or identifying oneself; and (c)

verbally, where project or Executing Entities (CITMA/AMA and MiAmbiente) staff receive the complaint or grievance.

B. Complaints or grievances will be received through one of the following channels:

i. *By physical infrastructure*, it means that the local offices of the project, the provincial or central offices of CITMA/AMA (Cuba) and MiAmbiente (Panama) must have a grievance box, where the stakeholders can present a complaint or grievance in writing in free format, which can be declared anonymously or by identifying themselves (it is up to the stakeholders to decide).

ii. By electronic means, the stakeholders shall have two choices:

For Cuba:

a) Digital chat that is available at <https://www.citma.gob.cu> (the chat is automatically displayed once the web address is accessed), where CITMA staff will attend and register the complaint or claim, who will send the request to the Project Management Unit (PMU) for its attention and corresponding resolution. The complaint or grievance can be declared anonymously or by identifying oneself (it is up to the interested party to decide). A Minutes of Grievance will be drawn up for each case that is submitted by this means.

b) Through CITMA's e-mail address apoblacion@citma.gob.cu, where CITMA staff will attend to and register the complaint or claim, who will send the request to the PMU for its attention and corresponding resolution. The complaint or grievance may be declared anonymously or by identifying oneself (it is up to the interested party to decide). A Minutes of Grievance will be drawn up for each case that is submitted by this means.

For Panama:

a) a) Digital chat available at <https://www.miambiente.gob.pa> (the chat is automatically displayed once you enter the web address), where MiAmbiente staff will attend and register the complaint or claim, who will send the request to the UGP for its attention and corresponding resolution. The complaint or grievance can be declared anonymously or by identifying oneself (it is up to the interested party to decide). A Minute of Grievance will be drawn up for each case submitted by this means.

iii. *By telephone*, the stakeholder may verbally present its complaint or claim to the telephone numbers for Cuba (CITMA) are (+53) 78315588 and (+53) 78397549, which may be declared anonymously or by identifying oneself (it is up to the Interested Party to decide). CITMA/MiAmbiente personnel who receive the call will attend and register the complaint or grievance, who will forward the request to the UGP for its attention and corresponding resolution. A Minutes of Grievance will be drawn up for each case that is submitted by this means.

iv. *Verbal*, where the Interested Party can directly express their complaint or claim to personnel contracted by the project or personnel from CITMA (AMA) or MiAmbiente, who will register the complaint or grievance and send it to the PMU for its attention and corresponding resolution. A Minute of Grievance will be drawn up for each case that is submitted by this means.

C. CITMA/MiAmbiente staff receiving the complaint or grievance under any of the three aforementioned routes, shall inform the stakeholder that it will have a maximum period of 60 calendar days to resolve the controversy it is filing. CITMA/MiAmbiente staff must request contact information from the complaining stakeholder, which may be a telephone number, email or by appointment -physical presence- at one of the addresses of the CITMA/MiAmbiente offices decided by the stakeholder (the appointment may be scheduled by telephone call, by mutual agreement)

D. The structure and minimum requirements that the Minute of Grievance must contain are as follows (the format must be developed by the PMU, as well as provided to those responsible for the CITMA/MiAmbiente digital platform as well as to its telephone operators):

i. Unique and unrepeatable folio of the complaint or grievance (the PMU defines the key/format to be used).

ii. Date of receipt of the complaint or grievance.

- iii. Type of complaint or grievance (anonymous or self-identification).
- iv. Means of receipt of the complaint or grievance (physical facilities, electronic means or telephone),
- v. Name of the CITMA/MiAmbiente person receiving the complaint or grievance.
- vi. Name of the project to which the complaint or grievance pertains.
- vii. Name of the place where the affectation has taken place (community, municipality, province).
- viii. Reason for the complaint or grievance.
- ix. Description of the affectation and evidence.
- x. Indication of the person or event that is causing the affectation (at the option of the stakeholder).
- xi. Contact details of the stakeholder (in accordance with the requirements and technical specifications described in the previous numeral "B").
- xii. Attached documentation (in case the stakeholder provides documentary evidence).
- xiii. Signature of the CITMA/MiAmbiente person who received and dealt with the complaint or grievance.

In cases where the complaint or grievance is in written form, the corresponding Minute of Grievance shall be completed and attached as "Attached Documentation".

- E. In each of the countries, they will form a "Grievance Committee": for Cuba it will be composed of CITMA, AMA and the PMU of the project; for Panama it will be composed of MiAmbiente and the PMU.

The purpose of the Grievance Committee is to present the cases of complaints or grievance received; review and evaluate the non-conformity expressed by the stakeholder; define a collegiate resolution; define the precautionary or corrective measures to mitigate the impact caused by the project; instruct the project (PMU) to implement the precautionary or corrective measures, recording the corresponding evidence; follow up on the implementation of the mitigation measures; and carry out the Minute of Closing of the precautionary or corrective measures; instruct the project (PMU) to implement the precautionary or corrective measures, and record the corresponding evidence; follow up on the implementation of the mitigation measures; and perform the Minute of Closing of the implemented precautionary and/or corrective measures, which must clearly demonstrate whether or not the implemented measures satisfactorily resolved the complaint or grievance filed by the stakeholder. In order for these provisions to be fully complied with, the Grievance Committee shall have a maximum of 60 calendar days and shall notify the final outcome to the stakeholder verbally or in writing

The members of the Grievance Committee shall be composed of a representative of the Executing Entity (CITMA/MiAmbiente, as appropriate); a representative of the Regional Coordinating Unit (RCU); and the Manager of the PMU. Each of these will appoint an alternate to represent them in case of absence, with the right to speak and vote. They may meet in person or remotely through the various communication technologies available. The representative of the Executing Agency will act as the Chairperson of the Committee; and the Manager of the PMU will act as Secretary, who will be responsible for convening the corresponding meetings, presenting the case of the complaint or grievance and preparing the Minutes of the Grievance Committee Sessions, for its documentary record.

When precautionary and/or corrective measures that by their nature, scope, scale and magnitude require more than 60 days for their implementation, the Committee may exceptionally extend the period up to 182 days, specifying and justifying this situation in the corresponding Minute of Grievance.

When the precautionary and/or corrective measures implemented by the PMU are not to the satisfaction of the stakeholder, the Chairperson of the Grievance Committee will forward the Minute of Closing to FAO to receive, evaluate and issue a final resolution (which may or may not include corrective measures) through its grievance mechanism and notify the stakeholder. The resolution is final and concludes the process at this point. The UGP, in coordination with the RCU and CITMA/MiAmbiente,

will be responsible for implementing these resolutions and generating the corresponding minutes. These actions as a whole, is a mechanism available to the stakeholder called "Revision appeal".

For each meeting of the Grievance Committee, a Minute of the Grievance Committee Session shall be prepared. The Grievance Committee shall meet at least once every 12 months and shall issue the corresponding minutes, or when the PMU calls for Extraordinary Sessions when complaints or grievances arise, which may be individual (specific cases that due to their seriousness, impact or significance need urgent attention) or form a block that does not exceed 20 days between the first complaint received and the last one received

The RCU and PMU within the first 6 months after the start-up of the project, shall elaborate the Rules of Procedure of the Grievance Committee considering the provisions indicated in the present subsection, also considering the applicable national regulations on the matter (including the CITMA/MiAmbiente regulatory framework).

Members of the Grievance Committee shall be guided by the following code of ethics when performing their duties: safety and confidentiality; accessibility and context; predictability; impartiality; transparency; equality; transparency; transparency; honesty; respect for human rights; compliance with national standards, CITMA/MiAmbiente institutional standards; clauses and provisions of the Financing Agreement (Adaptation Fund with the Government of Cuba/Panama, respectively); and consistency with the project's social risk management

- F. The project PMU is responsible for implementing the resolution and precautionary and/or corrective measures that are resolved and ruled by the Grievance Committee. This implies that the project will allocate physical, human and financial resources to implement such measures, depending on the case and nature of the measures. To this end, the PMU will establish contact with the stakeholder that filed the complaint or claim, so that it participates in the implementation of such measures and, on a voluntary basis and without being subjected to coherence by the project, determines whether it is to the full satisfaction of the project

The stakeholder is free to decide whether it wishes to participate in the implementation of the precautionary or corrective measures, in terms of supervising and accompanying their implementation. This decision is recorded in the Minute of Closing.

At the end of the implementation of the precautionary or corrective measures, the PMU will draw up a Minute of Closing, recording the measures that were implemented and the stakeholder's assessment of whether they satisfactorily fulfilled their purpose; in case it considers that the implemented measures did not fulfil their purpose (mitigate or redress the impact), it must explain the reason and the evidence of its perception and assessment that they did not fulfil what was expected. The Minute of Closing should be sent to the Grievance Committee for review, follow-up and recording.

The PMU and the RCU will elaborate in the first 6 months after the start of the project, the format, structure and content of the Minute of Closing.

- G. The maximum timeframe for the Grievance Committee and the PMU to receive, review, resolve, implement and close complaints and grievances shall be in accordance with the following procedure (not to exceed 60 calendar days, except in exceptional cases):

Phase of the mechanism	Activity	Responsible	Deadline for the activity	Observation
Reception	Receive the complaint or grievance from the stakeholder	Executing Entities, PMUs	0 days	None
	Prepare the Minute of Grievance	Executing Entities, PMUs	1 day	None

Phase of the mechanism	Activity	Responsible	Deadline for the activity	Observation
	Sending the Minute of Grievance to the PMU	Executing Entities, PMUs	2 days	None
Review and resolution	PMU convenes the Grievance Committee	PMU	1 day	None
	Session of the Grievance Committee	Grievance Committee	1 day	None
Implementation	Implement the precautionary and/or corrective measures decided by the Committee.	PMU	48 day	Exceptionally it can be extended to 182 days
	Revision appeal by the stakeholder	Stakeholder	5 days	Applies when the measures implemented are not to the stakeholder's satisfaction
Closing	Prepare the Minute of Closing	PMU	1 day	None
	Notification and forwarding of the Minute of Closing to the Grievance Committee	PMU	1 day	None

6.2.3 IFAD's grievance procedures for non-compliance with project social, environmental and climate procedures

IFAD has a mechanism for stakeholders to submit complaints directly to IFAD if they believe that the project is in breach of the Social, Environmental and Climate Assessment Procedures (SECAP), or that the implementation of the Environmental and Social Management Plan (ESMP) is harming or affecting them. The procedure is described below:

- A. *E-mail*. The stakeholder should download a form which can be accessed at the following link: https://www.ifad.org/documents/38711624/40169860/ifad-complaints-submission-form_s.docx/e7cb6ec1-b930-4a97-ca9f-70ddaede8f78?t=1686744900847, which should be filled in with the required information. This form is an instrument for the submission of IFAD grievance.

Once the form is duly filled in, the stakeholder should send it to the following e-mail address: SECAPcomplaints@ifad.org.

- B. *Ordinary mail*. IFAD also makes available to the stakeholder to send the form by ordinary mail to the following address: IFAD. Grievance related to SECAP (PMD) Via Paolo di Dono, 4400142 Rome (Italy).

In your e-mail or regular mail, please provide the following information: (i) Name, postal address, telephone number and other contact details; (ii) Whether the complainants wish to keep their identity confidential and, if so, why; (iii) Name, location and nature of the IFAD project (if known); and (iv) How the stakeholders believe they have been or may be harmed by the project being implemented by IFAD

- C. IFAD will directly notify and inform the stakeholder of the resolution of the submitted grievance and the recommended actions. IFAD will notify and inform the Executing Entities and the PMU where the grievance was filed to implement the recommended actions and follow up accordingly.

6.2.4 Procedures for handling and resolving complaints for institutional staff and employees linked to the project.

Human rights are fundamental for the personnel related or linked directly or indirectly to the project, including service providers and local partners of the project. For this reason, the following procedure is described so that the above-mentioned personnel can file complaints that result in the possible violation of their rights in some of the following ways:

- a. *Workplace and sexual harassment.* Zero tolerance for harassment in all its forms, in particular any form of sexual harassment, sexual exploitation or abuse of authority committed by employees of the project, Executing Entities, FAO, IFAD, or any other staff of institutions or organisations involved in the implementation of the project, staff involved in project activities, and any person involved in the operation/administration of the project
- b. *Forced labour.* That the project or Executing Entities do not engage in practices that indicate that they involve forced or compulsory labour, including but not limited to physical or sexual violence; bonded labour; withholding of wages/including payment of employment fees and/or payment of a deposit to commence work; restriction of mobility/movement; withholding of passport and entity documents; and threats of denunciation to the authorities.
- c. Discrimination in employment or occupation based on ethnic, social, economic, racial and sexual orientation and gender identity. It includes unequal pay for performing the same functions, positions or responsibilities because of any of the conditions described above.

When institutional staff of the Executing Entities, project employees and any person involved in the implementation of the project consider that their human rights are being affected by labour and sexual harassment; forced labour; or discrimination (stakeholders), the project will take the following actions:

- A. Stakeholders may submit a complaint in two forms: (a) anonymously; or (b) in writing with the option to be anonymous or to identify themselves.
- B. To receive the complaints will be through one of the following channels (applies to Cuba and Panama):
 - i. Grievance box (physical) located in the local offices of the project, the provincial or central offices of CITMA/AMA (Cuba) and MiAmbiente (Panama), where the stakeholder can present a complaint in writing in free format, which can be declared anonymously or by identifying themselves (it is up to the stakeholder to decide).
 - ii. By electronic means and telephony through three alternatives (as applicable):
 - For Cuba:
 - a) Digital chat is available at <https://www.citma.gob.cu> (the chat display is automatic once the web address is accessed), where CITMA staff will register the complaint, and notify the PMU. The complaint can be made anonymously or by identifying oneself (it is up to the stakeholder to decide). A Minute of Complaint will be drawn up for each case that is submitted by this means.
 - b) By CITMA's email address apoblacion@citma.gob.cu, where CITMA staff will register the complaint and notify the PMU. The complaint may be submitted anonymously or by identifying oneself (it is up to the Interested stakeholder). A Minute of Complaint will be drawn up for each case that is submitted by this means.
 - c) By telephone, the Interested Party may verbally file a complaint to the CITMA telephone numbers [\(+53\) 78315588](tel:+5378315588) and [\(+53\) 78397549](tel:+5378397549), which may be declared anonymously or by identifying oneself (it is up to the Interested stakeholder). CITMA staff receiving the call will register the complaint and notify the PMU. A Minute of Complaint will be drawn up for each case that is submitted by this means.

For Panama:

- a) A digital complaint chat is available at <https://www.miambiente.gob.pa> (the complaint chat is automatically displayed once the web address is accessed), where MiAmbiente staff will register the report and notify the PMU. The complaint can be made anonymously or by identifying oneself (it is up to the Interested stakeholder). A Minute of Complaint will be drawn up for each case that is submitted by this means.
- b) By telephone, the stakeholder may verbally file a complaint to the CITMA telephone number (+507) 500-0855, which may be made anonymously or by identifying oneself (it is up to the Interested stakeholder). CITMA staff receiving the call will register the complaint and notify the PMU. A Minute of Complaint will be drawn up for each case that is submitted by this means.

For FAO:

- a) Through the e-mail of the FAO Representation Offices in Cuba FAO-CU@fao.org and FAO-SLM@fao.org, where FAO staff will register the complaint, and notify the Implementing Entity (CITMA/MiAmbiente, as appropriate) and the PMUs. The complaint can be made anonymously or by identifying oneself (it is up to the Interested Party to decide). A Minute of Complaint will be drawn up for each case that is submitted by this means and forwarded to the corresponding Executing Agency.
 - b) By telephone, the stakeholder may verbally present its complaint to the FAO in Cuba at (+53) 72086411 and (+53) 72086409; and to the FAO in Panama at (+507) 301-0326, which may be declared anonymously or by identifying oneself (it is up to the Interested Party to decide). FAO staff receiving the call will register the complaint and notify the corresponding Implementing Entity (CITMA/MiAmbiente). A Minute of Complaint will be drawn up for each case that is submitted by this means and forwarded to the corresponding Executing Agency.
- C. The Executing Entities (CITMA/MiAmbiente), as appropriate to the country where the complaint is lodged, are the bodies responsible for receiving, investigating, resolving and implementing preventive and/or corrective measures for the probable violation of the human rights of the stakeholders.

Each country (Implementing Entity) will define within the first 6 months after the official start date of the project, the protocol to be followed to address and resolve the complaints received ("Labour Complaints Protocol"), considering as a minimum, to carry out investigation actions by an investigation team composed of at least four people distributed in a balanced way in terms of gender, and who do not maintain a direct employment relationship with the stakeholder, and must sign a written statement stating that they are free of conflicts of interest. The team must be available for face-to-face or conference call consultations with the stakeholders who are filing the complaint.

The investigation team will be formed in each of the Executing Entities, and must prepare an investigation report (format to be defined by the said entities with the support of the RCU and FAO), which will be submitted to the authorities of each Executing Entity with decision-making power to resolve the complaint, using the instruments and procedures defined in the "Labour Complaints Protocol".

It is recalled that the resolution and implementation of preventive and/or corrective measures as a result of the complaint are of an extrajudicial nature. In the event that the measures implemented by the Executing Entity are not to the satisfaction of the stakeholder, it may request an "Review of appeal" to the FAO, which will use its procedures and mechanisms to review, evaluate and issue the final resolution (which may or may not include corrective measures), notifying the Interested Party. The determination is final and concludes the process at this point.

If the stakeholder remains dissatisfied with the FAO's resolution, the Executing Entity shall inform the stakeholder that it has the free and voluntary decision to submit its complaint to the appropriate judicial system of the country where the complaint was filed.

6.2.5 Procedures for dealing with and resolving complaints or allegations relating to Implementing Entities and Executing Entities in the administration of project funds and their operability

This abbreviated procedure is designed to enable stakeholders to file complaints or allegations regarding: (i) acts of corruption; (ii) abuse of authority; and (iii) acts of labour abuse and sexual harassment by staff of the Implementing Entities (CITMA, AMA, MiAmbiente and FAO) and Implementing Entities (IFAD).

- A. Stakeholders may submit complaints or allegations in two forms: (a) anonymously; or (b) in writing with the option to be anonymous or to identify themselves.
- B. Complaints may be lodged at some (or all) of the three key instances, following the procedures described in each of the three key instances:
 - i. *Adaptation Fund Board Secretariat*. Mailbox: MSN P-4-400 1818 H Street NW Washington DC 20433 USA. Tel: [001-202-478-7347](tel:001-202-478-7347). Email: afbsec@adaptation-fund.org. The Secretariat will respond promptly to all complaints. Where appropriate, the Secretariat will refer complainants to a grievance mechanism determined by the Implementing Entity (IFAD) as the primary location for handling complaints.
 - ii. *International Fund for Agricultural Development (IFAD)*. For complaints regarding sexual harassment, sexual exploitation and/or sexual abuse, Stakeholders shall notify the Ethics Office by submitting their complaint to any of the following means: email ethicsoffice@ifad.org; mobile phone number (with Whatsapp): [\(+39\) 338 738 0924](tel:+393387380924); and by direct telephone assistance: [\(+39\) 06 5459 2525](tel:+390654592525), including contact details in case further details or clarification is required.

A stakeholder may also submit a complaint anonymously. However, IFAD's ability to take action on an anonymous complaint will be more limited. If you choose to do so, you should ensure that you include as much detail and evidence as possible.

For this purpose (anonymous reporting), a form should be completed and sent to the email address above. You can access and download the form by scanning the following QR codes available in three different languages:



IFAD will notify and inform the stakeholder directly of the resolution of the complaint filed and the recommended actions. IFAD will notify and inform the Executing Entities and the PMU where the complaint was filed, for implementation of the recommended actions and follow-up.

For allegations relating to fraud or corruption, if the Stakeholder suspects that misconduct or wrongdoing has occurred, or wishes to file a complaint, it should contact the Investigations Section of the Office of Audit and Oversight of the Fund at [\(+39\) 06 5459 2888](tel:+390654592888) or email anticorruption@ifad.org. Both are secure and confidential channels managed by IFAD's Investigations Section.

It is important to provide as much information as possible on the "who", "what", "when", "where", "why" and "how" aspects of the situation. While anonymous reporting is possible, the stakeholder is encouraged to leave your contact details so that we can contact you if we need more information. Failure to provide adequate information may reduce the likelihood of the incident being investigated and the scope of the investigation. The information you provide will be treated in the strictest confidence.

IFAD will take steps to prevent retaliation against any stakeholder who in good faith reports possible fraud, corruption and misconduct, or who has otherwise cooperated with an investigation. It should be noted, however, that IFAD's ability to ensure the individual or professional security of non-staff is limited. The best protection is to be extremely discreet about the fact that an allegation has been made.

If the allegation is found to be malicious, IFAD can take appropriate action to prevent the reputation of victims of deliberately false allegations from being damaged.

The Audit and Fund Oversight Office (AUO) maintains the strictest confidentiality of the allegations it receives. This means that, upon request, only the staff of AUO's Investigations Section will know the identity of the Interested Party. This is the case even if the investigation subsequently establishes that the complainant was mistaken, as long as the person has made his or her complaint in good faith.

- iii. *Food and Agriculture Organization of the United Nations (FAO)*. Interested Parties may submit complaints or denunciations by email to the FAO representation offices in Cuba FAO-CU@fao.org and FAO-SLM@fao.org for Panama, where FAO staff will register the complaints and use its complaints mechanism for the reception, review, investigation and resolution of complaints, to formulate recommendations to the Executing Entities and the Implementing Entity.

Depending on the nature and complexity of the complaint, the FAO representation offices in Cuba and Panama may exceed their capacity to investigate or analyse the situation in order to formulate preventive or corrective recommendations, and may request the intervention of the FAO [Office of the Inspector General \(Investigations\)](#) (OIGI), which has the procedures to deal with and resolve the case. The means of contact with the OIGI are as follows:

- By e-mail: inspector-general-office@fao.org.
- By conventional mail to the following address: Office of the Inspector General; Food and Agriculture Organization of the United Nations; Viale delle Terme di Caracalla; 00153 Rome, Italy.
- The complaint can also be submitted using a form available online at the following link: <https://secure.ethicspoint.eu/domain/media/eseu/gui/109199/index.html>, which is administered by an independent service provider on behalf of FAO to protect confidentiality, worldwide and free of charge.

The Stakeholder may report anonymously or by identifying itself (if it so chooses) to OIGI any allegations of misconduct involving FAO staff and third parties (project staff, Implementing Entities, Implementing Entities), such as: fraud and other corrupt practices; abuse of privileges and immunities; sexual exploitation and abuse; sexual harassment; workplace harassment and abuse of authority; or any other conduct that is not in accordance with the Standards of Conduct for the International Civil Service.

FAO takes all reports of alleged misconduct seriously. Anyone with information about misconduct involving FAO staff and third parties is strongly encouraged to report this information to the OIG. Reporting misconduct to OIGI is confidential.

When reporting to OIGI, the Stakeholder is encouraged to be as specific as possible, including basic details of who, what, where, when and how any such allegations occurred. Specific information will enable OIGI to properly investigate the alleged misconduct.

The resolution and implementation of the preventive and/or corrective measures taken as a result of the complaint are of an extrajudicial nature. In the event that the measures implemented by the Executing Entity are not to the satisfaction of the stakeholder, it may request a "Recourse for Review" to the FAO, which will use its procedures and mechanisms to review, evaluate and issue a final resolution (which may or may not include corrective measures), and notify the stakeholder. The determination is final and concludes the process at this point.

If the stakeholder remains dissatisfied with the FAO's resolution, the Executing Entity shall inform the stakeholder that it has the free and voluntary decision to submit its complaint to the appropriate judicial system of the country where the complaint was filed.

6.2.6 Recording and safeguarding of information

The PMU in each country will maintain an annual register of all complaints, grievance or allegations received, which will be submitted to FAO Supervision Missions or at the request of IFAD. In the first 6 months after the project start-up date, it will develop the corresponding format, in coordination with the RCU.

All documentation generated in the grievance mechanism must be documented and kept in the physical or digital archives of the PMUs and Executing Entities for a minimum period of 5 years, depending on the corresponding instance according to their responsibilities as indicated in this grievance procedure.

6.2.7 Procedure for updating the complaints mechanism

The procedures described in this mechanism can be updated at any time requested by the Executing Entities or the Implementing Entity. It is recommended that updating can take place at least at three key stages of the project: at the project start-up workshop; no later than 6 months after the date of the start-up workshop; and at the mid-term review. The review and approval of the changes to be introduced will be carried out by the RCU.

Annex 7 – Projected flooding in target project municipalities

The maps below prepared with Climate Central show flooding extent based on different water level scenarios above the high tide line of 0.5 m, 1 m, 2 m, 3 m and 4 m through combinations of SLR, tides and storm surge. In all the maps, the flood patch is superimposed on a map of the territory in which elements of the territory can be seen, such as urban and rural settlements, beaches, infrastructures, or various landmarks that may be affected. It should be noted that for those values of the flood elevation below 0.8 m, the flood would be permanent for the worst-case scenario at the end of the century, although the same map could be obtained for an extreme flood event from which the system would later recover. Above 1m, it can be considered in practically all cases that the maps would correspond to the result of an extreme event in a future scenario.

(i) Baracoa

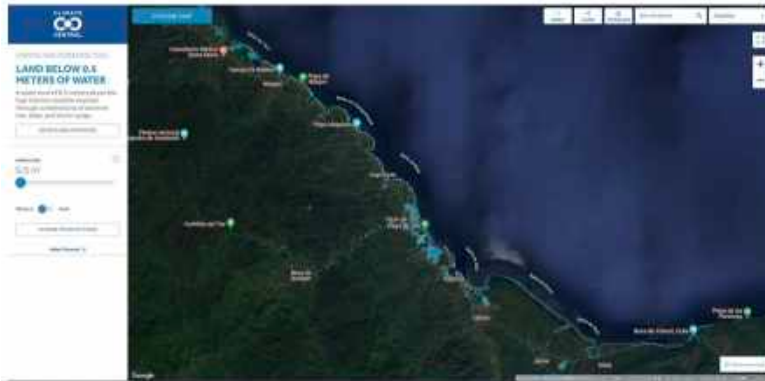


Figure 1. Baracoa flooding map under 0.5m scenario



Figure 2. Baracoa flooding map under 1m scenario



Figure 3. Baracoa flooding map under 2m scenario



Figure 4 Baracoa flooding map under 3m scenario



Figure 5 Baracoa flooding map under 4m scenario

(ii) La Sierpe



Figure 6 La Sierpe flooding map under 0.5m scenario



Figure 7 La Sierpe flooding map under 1m scenario



Figure 8 La Sierpe flooding map under 2m scenario



Figure 9 La Sierpe flooding map under 3m scenario



Figure 10 La Sierpe flooding map under 4m scenario

(iii) Batabano



Figure 11. Batabano flooding map under 0.5m scenario



Figure 12. Batabano flooding map under 1m scenario



Figure 13. Batabano flooding map under 2m scenario



Figure 14. Batabano flooding map under 3m scenario



Figure 15. Batabano flooding under 4m scenario

(iv) San Cristobal



Figure 16. San Cristobal flooding under 0.5m scenario



Figure 17. San Cristobal flooding under 1m scenario



Figure 18 San Cristobal flooding under 2m scenario



Figure 19 San Cristobal flooding under 3m scenario



Figure 20 San Cristobal flooding under 4m scenario

(v) **Consolación del Sur**



Figure 21 Consolación del Sur flooding under 0.5m scenario



Figure 22, Consolación del Sur flooding under 1m scenario



Figure 23 Consolación del Sur flooding under 2m scenario



Figure 24 Consolación del Sur flooding under 3m scenario



Figure 25 Consolación del Sur flooding under 4m scenario

PANAMA

(vi) Donoso



Figure 26. Donoso flooding under 0.5m scenario

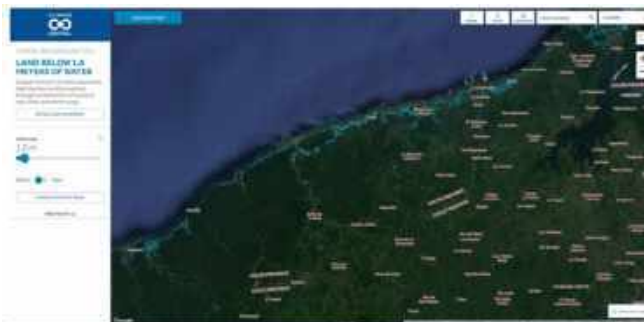


Figure 27. Donoso flooding under 1m scenario



Figure 28. Donoso flooding under 2m scenario

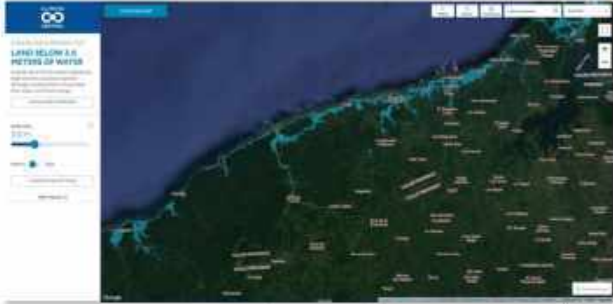


Figure 29. Donoso flooding under 3m scenario

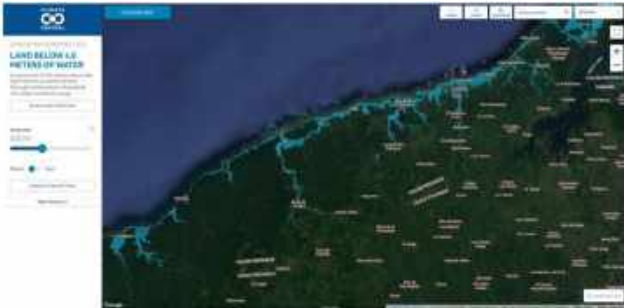


Figure 30. Donoso flooding under 4m scenario

(vii) Portobelo

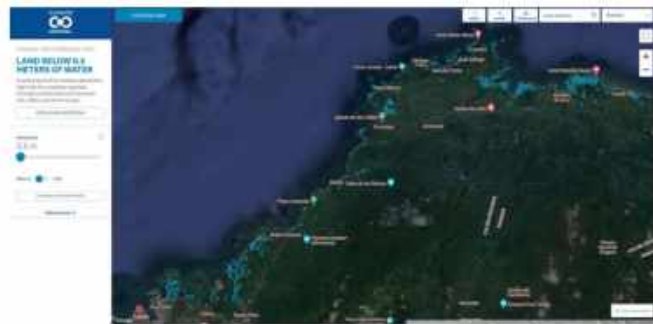


Figure 25. Portobelo flooding under 0.5m scenario



Figure 36. Portobelo flooding under 1m scenario



Figure 38. Portobelo flooding under 2m scenario

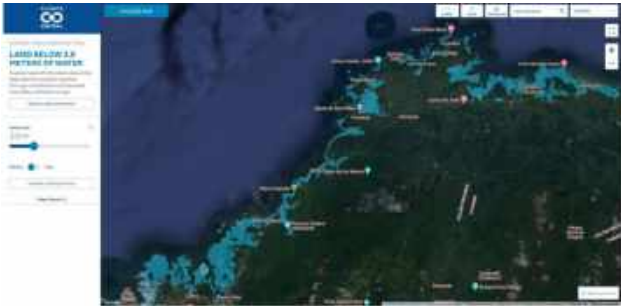


Figure 39. Portobelo flooding under 3m scenario

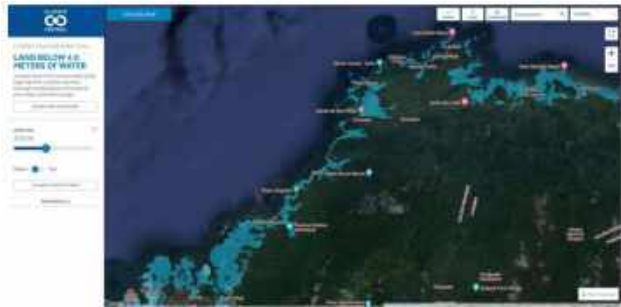


Figure 30. Portobelo flooding under 4m scenario

Annex 8 – List of stakeholders consulted

I. CUBA

Municipal actors and institutions that participated in the consultations, in addition to the 216 respondents who corresponded to housewives, agricultural producers, fishermen, workers in protected areas and decision makers.

Ministry of Science, Technology and Environment (CITMA)

- Environment Agency (AMA)
- Institute of Tropical Geography (IGT)
- Sancti Spíritus Environmental Services Center (CSASS)
- "Alejandro de Humboldt" Environmental Services Unit (UPSA)
- Municipal delegations and provincial directorates of CITMA and

Ministry of Agriculture (MINAG)

- Agricultural Research Institute (IAGRIC)
- Provincial and municipal delegations of MINAG

Ministry of Higher Education (MES)

- National Institute of Agricultural Sciences (INCA)
- Latin American Faculty of Social Sciences (FLACSO)

Ministry of the Food Industry (MINAL)

- Fisheries Research Center (CIP)

National Statistics Office of Cuba (ONEI)

- Center For Management Of Economic, Social And Environmental Information.

Institution and participants	Ministry
Institute of Tropical Geography (IGT) <ul style="list-style-type: none"> ➤ Dr. C. Orlando Enrique Sánchez León. IGT, Director ➤ Lic. Francisco Cutie Rizo, Scientific Vice Director ➤ MSc. Zaraith Pérez Pérez, Specialist ➤ MSc. Wendy Arredondo Agudín, Specialist 	Ministry of Science, Technology and Environment
Environment Agency (AMA) <ul style="list-style-type: none"> ➤ Dr. C. Maritza García García , President ➤ MSc. Edelsy Carmona Lescay , J. Environment Department 	Ministry of Science, Technology and Environment
Humbolt Environmental Services Unit (UPSA Guantánamo) <ul style="list-style-type: none"> ➤ Dr. C. Yamilka Jourbert Martínez, Director 	Ministry of Science, Technology and Environment
<ul style="list-style-type: none"> ➤ Lic. Pedro Julio Ruiz Hernández. Especialista Principal de la Dirección de relaciones internacionales CITMA. ➤ Dr. Rudy Montero Mata. Director del Instituto de Geofísica y Astronomía. Agencia de Medio Ambiente. CITMA. Coordinador de los Estudios de Peligro, Vulnerabilidad y Riesgos. ➤ Dr. Celso Pazos Alberdi. Director General del Instituto de Meteorología de la AMA. CITMA. 	Ministry of Science, Technology and Environment

<ul style="list-style-type: none"> ➤ Dra. Gloria Gómez País. Directora de la Dirección de Recursos Naturales, Biodiversidad y Cambio Climático, de la DGMA. CITMA. 	
<p>Spiritus Environmental Services Center (CSASS)</p> <ul style="list-style-type: none"> ➤ Msc. Leonardo Cruz Quiñones, Director ➤ Dr. Rosabel Pérez Gutiérrez 	Ministry of Science, Technology and Environment
<p>CITMA Consolación del Sur Delegation</p> <ul style="list-style-type: none"> ➤ Roberto Rodriguez 	Ministry of Science, Technology and Environment
<p>Delegation of the CITMA municipality of San Cristóbal</p> <ul style="list-style-type: none"> ➤ Engineer Miracles of Charity Ben Flores, Specialist 	Ministry of Science, Technology and Environment
<p>Agricultural Research Institute (Iagric)</p> <ul style="list-style-type: none"> ➤ Dr. C. Carmen Duarte Díaz., Researcher ➤ Dr. C. Enrique Cisneros Zayas. J. Irrigation and Drainage Department ➤ Eng. Luís Hirán Riverol, Researcher ➤ MSc. Sarilena Ramos Díaz, Specialist, J. Gpo . of Extensionism ➤ MSc. Oravides Almagro Peñalver. Investigator 	Ministry of Agriculture
<p>INCA National</p> <ul style="list-style-type: none"> ➤ Dr. C Alexander Miranda Caballero, Director ➤ Dr. C. Elein Terri Alonso, Researcher 	Ministry of Agriculture
<p>Minag Science and Technology Directorate</p> <ul style="list-style-type: none"> ➤ MSc. Yamile Lamothe. Minag, Subd . of Science, Innovation and Environment 	Ministry of Agriculture
<p>Department of Planning and Statistics</p> <ul style="list-style-type: none"> ➤ Lic. Caridad Moraima Salgueiro de la Torre. ➤ Técnico Medio Leticia de la Caridad Lobaina Mackenzi. ➤ Ing. Amauri Labañino Medina. 	Ministry of Agriculture
<p>Agriculture Delegation of the La Sierpe municipality</p> <ul style="list-style-type: none"> ➤ Lic Geysler Osvaldo Gómez Alonso., Delegate 	Ministry of Agriculture
<p>Provincial Delegation of Agriculture Guantanamo</p> <ul style="list-style-type: none"> ➤ Ing. Malvis Betancourt Betancourt , J. Dept. of Science 	Ministry of Agriculture
<p>INCA Los Palacios</p> <ul style="list-style-type: none"> ➤ Dr. C. Lázaro Maqueira, Researcher 	Ministry of Agriculture
<p>Fisheries Research Center (CIP)</p> <ul style="list-style-type: none"> ➤ MSc. Mercedes Isla Molleda, Science Director of the Fisheries Research Center ➤ Dr. C. Abel Betanzos Vega, Specialist 	Ministry of Food Industry
<p>Latin American Faculty of Social Sciences (FLACSO)</p> <ul style="list-style-type: none"> ➤ Dr. C. José Alfredo Carballo Concepción, Researcher 	Ministry of Higher Education, University of Havana
<p>CITMA Batabanó</p> <ul style="list-style-type: none"> ➤ Lic. Elaines Quiñones Echeverría, Head of the section 	Municipal Administration Council
<p>Center for Management of economic, social and environmental information.</p> <ul style="list-style-type: none"> ➤ Lic. Guillermo Legañoa Martinez. ➤ Tec.M. Greter Vidal Medina. Disaster Specialist 	National Statistics Office of Cuba

II. PANAMA

Database Workshops damage and losses

INSTITUTION	NAME AND SURNAME		DEPARTMENT/ADIRECTION/UNIT	MAIL
BDA	ENG. CARLOS	VARGAS L.	Technical Executive Manager / Agricultural Technical Executive Management	cvargas@bda.gob.pa / carlosv22pa@yahoo.com
	ING. RAPHAEL	CEDEÑO	Executive Credit Manager	rcedeno@bda.gob.pa
IMA	ING. MOSCOSO	FRAMES		mmoscoso@ima.gob.pa
	ING. MORAN	RENÉ		rmoran@ima.gob.pa
MEASURE	Ing. Rodrigo	Luke	agro-environmental unit and climate change	duque@mida.gob.pa / rodrigo.luque16@hotmail.com
	ING. SOUZA	CARMEN	Sector Planning	csouza@mida.gob.pa
	Ing. Virgilio	Salazar	Region 6, Colon	vsalazar@mida.gob.pa
	Eng. FARIDES	VARGAS L.	SIREC CEPAL	fvargas@mida.gob.pa
	Ing Garibaldi		Region 6, Colon	67541181
	ING. HIGHLANDER	EDGAR	Dir. Nal. Agribusiness (DINAGRON)	edserrano@mida.gob.pa
Agricultural Innovation Institute	ENG. JULIO	LARA MARTEZ		l.a.lara20@yahoo.com.mx
	DR. JULY	SANTA MARIA		luliosguerra@gmail.com
Aquatic Rec Authority	TUÑÓN	HAMED	Deputy Administrator	htuñon@arap.gob.pa
	CARLOS	CASTRO		ccastro@arap.gob.pa
Agricultural Insurance Institute	ING. MORALES	DARIO		dmoralen@isa.gob.pa
Faculty of Agricultural Sciences	ING. BARNES	ELDIS	University of Panama Faculty of Agricultural Sciences (UP-FCA) (Research information)	feencias.agrope@up.ac.pa
CEPIA-UTP	Dr. Wedley	Weaver	Technological University of Panama, Agroindustrial Production and Research Center (UTPCEPIA)	
IPACOOOP	Eng. Roberto	Jimenez Solis	Executive Management Advisor	rjimenez@ipacoop.gob.pa / rjs34224@gmail.com
INEC	Dr. Rosario	Quintero	Head of intelligence and management department	rosquintero@contraforia.gob.pa
MIN ENVIRONMENT	Ing. Yuriza	Warrior		yurizaquerro@gmail.com

Consultations in Municipalities:

Portobelo



Lista de asistencia para realización del Consentimiento Libre, Previo e informado (CLPI)
 "Fortalecimiento de la capacidad de adaptación de las comunidades costeras de Cuba y Panamá al cambio climático a través del intercambio binacional de mejores prácticas para la gestión climática y la seguridad alimentaria local".

Corregimiento: Portobelo

Hora de inicio: 11:00 am Hora de finalización: 1:00 pm

Fecha: 29/4/2022

	Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
64145361	Édith Rodríguez R.	8-526731	Portobelo Estero	ama de casa	Édith
65482921	Yolanda E. Alonso	9-94-2059	Portobelo Estero	ama de casa	
	Yolanda Rodríguez	3-719-1928	Portobelo Estero	ama de casa	
69371381	Cecilia Rodríguez	3-727-1650	Portobelo Estero	ama de casa	
	Yolanda Rodríguez Alonso	3-701-1735	Portobelo Estero	ama de casa	Yolanda Alonso
	Yolanda Rodríguez	8-993-144	Portobelo Estero	ama de casa	
	Yolanda Rodríguez	3-713-2112	Portobelo Estero	ama de casa	
	Yolanda Rodríguez	3-706-2071	Portobelo Estero	ama de casa	Yolanda
	Yolanda Rodríguez	3-701-1977	Portobelo Estero	ama de casa	
63-99-1532	Yolanda Rodríguez	3-713-1172	Portobelo Estero	ama de casa	Yolanda
	Yolanda Rodríguez	5-23-886	Portobelo	ama de casa	
65300346	Yolanda Rodríguez	8-871-125	Portobelo	ama de casa	Yolanda
66606924	Yolanda Rodríguez	3-732-1816	Portobelo Estero	ama de casa	Yolanda
65413026	Yolanda Rodríguez	5-77-710	Portobelo Estero	ama de casa	
64341361	Yolanda Rodríguez	3-952-1099	Portobelo Estero	ama de casa	Yolanda
692692	Yolanda Rodríguez	3-906-953	Portobelo Estero	ama de casa	
62202761	Yolanda Rodríguez	5-713-1591	Portobelo Estero	ama de casa	Yolanda Rodríguez
68824522	Yolanda Rodríguez	3-748-1059	Portobelo Estero	ama de casa	Yolanda
	Yolanda Rodríguez	5-1217-82	Portobelo	ama de casa	Yolanda



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Corregimiento: Portobelo

Hora de inicio: 11:00 am Hora de finalización: 1:00 pm

Fecha: 29/4/22

	Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
64856531	Yolanda Rodríguez	3-756-1036	Portobelo		
68531864	Yolanda Rodríguez	5-736-1981	Portobelo		Yolanda
	Yolanda Rodríguez	8-936-2270	Portobelo		
66933581	Yolanda Rodríguez	3-724-2064	Portobelo		Yolanda
	Yolanda Rodríguez	8-1036-312	Portobelo		
68040451	Yolanda Rodríguez	5-713-1241	Portobelo	ama de casa	Yolanda Rodríguez
65102541	Yolanda Rodríguez	3-74-2398	Portobelo	ama de casa	Yolanda Rodríguez

Santa Isabel (Palenque)



Lista de asistencia para realización del Consentimiento Libre, Previo e Informado (CLPI)
 "Fortalecimiento de la capacidad de adaptación de las comunidades costeras de Cuba y Panamá al cambio climático a través del intercambio binacional de mejores prácticas para la gestión climática y la seguridad alimentaria local".

Corregimiento: Palenque
 Fecha: 30/4/22

Hora de inicio: 10:00am Hora de finalización: 1:10pm

	Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
	Doniel Vergosa D	7-94-1190	Palenque	agricultor	Doniel Vergosa D
6244-6071	Emmeline de la Cruz G	2-91-1245	Playa Dignita	trabajadora municipal	Emmeline de la Cruz G
60844755	Eduardo Castro Domínguez	3-726-2145	Nuevo Tesoro	agricultor	Eduardo Castro Domínguez
	Eduardo Castro de Cosío	6-89-479	Nuevo Tesoro	agricultor	Eduardo Castro de Cosío
	Humberto Castro	7-91-2790	San Sebastián	agricultor	Humberto Castro
	Cherubino Egard R	7-113-196	San Sebastián	agricultor	Cherubino Egard R
	Doniel Vergosa	7-796-7659	Palenque	agricultor y ganadero	Doniel Vergosa
684130115	Humberto Vergosa	9-125-423	Palenque	agricultor	Humberto Vergosa
6292-1903	Dalys García	3-717-1972	Alvarado	ama de casa	Dalys García
69425686	Leila Lidia Domínguez	4-825-2111	San Antonio	ama de casa	Leila Lidia Domínguez
67256793	Ernesto Hernández	6-82-611	SAN ANTONIO	agricultor	Ernesto Hernández
602150	Albino Salazar	3-66-1189	Palenque	agricultor	Albino Salazar
	Baudilio R. Román	7-18176	Palenque	H. R. Román	Baudilio R. Román
67090667	José Luis Vergosa	7-82-1891	Palenque	Productor ganadero	José Luis Vergosa
	Pita Domínguez	7-92-733	Palenque	Productor	Pita Domínguez
	Francesca Borrero	7-96-547	Palenque	Productora	Francesca Borrero
	Doctor Camacho	7-700-700	Palenque	Productor	Doctor Camacho
	Marisol H. de Cerrada	6-41-605	Unión Antena	ganadera	Marisol H. de Cerrada



Lista de asistencia para realización del Consentimiento Libre, Previo e Informado (CLPI)
 "Fortalecimiento de la capacidad de adaptación de las comunidades costeras de Cuba y Panamá al cambio climático a través del intercambio binacional de mejores prácticas para la gestión climática y la seguridad alimentaria local".

Corregimiento: Palenque
 Fecha: 30/4/22

Hora de inicio: 10:00am Hora de finalización: 1:10pm

	Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
6514926	Emilio Fariás D	7-702-1801	La Loma	agricultor	Emilio Fariás D
	Humberto Alder Gillet	7-702-1842	La Unión San Juan	ganadero	Humberto Alder Gillet
	Enzo Sábido el del R	1-520-3200	La Unión San Juan	Productor	Enzo Sábido el del R
	Luis D. Domínguez C	7-707-2411	Unión San Juan	Productor	Luis D. Domínguez C

Miguel de la Borda



Lista de asistencia para realización del Consentimiento Libre, Previo e informado (CLPI)
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Corregimiento: Gobeia

Hora de inicio: 9:00 am Hora de finalización: 11:00 am

Fecha: 10 / 4 / 2022

	Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
6918-715	Adrián Zambrano R.	3-108-543	Gobeia	AGRICULTURA	Adrián Zambrano R.
4381-3257	Marta Mardalanda	8-361-134	Gobeia	Area de casa	Marta Mardalanda
6859-0680	Carolina Mardalanda	3-707-722	Gobeia	Carolina Mardalanda	Carolina Mardalanda
	Selva Jaramillo	3-709-1012	Gobeia	Agricultor	Selva Jaramillo
65964161	Mamilega Cedeno	3-704-2423	Gobeia	secretaria	Mamilega Cedeno
	Espinal Rodriguez	3-733-403	Gobeia	pequeño	Espinal R.G.
6417-0111	Antonia Bergu	3-720-542	Gobeia	Area de casa	Antonia Bergu
6943630	Ana Andaraí	3-58-605	Gobeia	ana Andaraí	Ana Andaraí
63634314	Margarita de Jesús	5-127-1644	Gobeia	area de casa	Margarita de Jesús
68756609	Elisa Rivera	3-84-1836	Gobeia	Albañil	Elisa Rivera
	Diagino Rojas	3-244-1509	Gobeia	area de casa	Diagino Rojas
65975156	Enlery Parera	3-743-1405	Gobeia	Area de casa	Enlery Parera
60301563	Kelly Parera	3-353-254	Gobeia	Estudiante	Kelly Parera
6605614	Cristobal Acosta	3-705-1632	Gobeia	Area de Casa	Cristobal Acosta
686669	Juan Acosta	6694207	Gobeia	area de casa	Juan Acosta
686669	Estefanía Acosta	3-747-1264	Gobeia	Area de Casa	Estefanía Acosta
	I DA M.F. R.	3-127-1	Gobeia	area de casa	I DA M.F. R.
66198843	Shula Mardalanda	3-721-1423	Gobeia	secretaria	Shula M.



Lista de asistencia para realización del Consentimiento Libre, Previo e informado (CLPI)
 "Fortalecimiento de la capacidad de adaptación de las comunidades costeras de Cuba y Panamá al cambio climático a través del intercambio binacional de mejores prácticas para la gestión climática y la seguridad alimentaria local".

Corregimiento: Gobeia

Hora de inicio: 9:00 am Hora de finalización: 11:00 am

Fecha: 10 / 4 / 2022

	Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
66602704	Enlery Parera	3-744-739	Gobeia	Area de casa	Enlery Parera
64017769	Ana Parera	1-723-691	Gobeia	Area de casa	Ana Parera
605-20-589	Yolanda Parera	3-715-824	Gobeia	Area de casa	Yolanda Parera
66533609	Yolanda Parera	3-68-301	Gobeia	agricultor	Yolanda Parera
67101207	Horacio Acosta	9-177-511	Gobeia	agricultor	Horacio Acosta

Chagres (Palmas Bellas)



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Corregimiento: Palmas Bellos (La Loma)
 Fecha: 07/04/2022

Hora de inicio: 10:00 am Hora de finalización: 1:15 pm

Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
Aida R. Sánchez	3-100-558	La Loma	polvoreta para la casa	Aida R. Sánchez
Mafara Valdés	3-711-1405	La Loma	Palmas Bellos	Mafara Valdés
Esneidera Hernández N	3-118-531	La Loma	Cuidado ambiental	Esneidera Hernández
Aura Santos	9-220-201	CaCaCa	ama de casa	Aura Santos
Yanisset Morán	3-722-15	Paraiso	ama de casa	Yanisset Morán
Eduardo Hernández	3-123-595	La Loma	Agricultura	Eduardo Hernández
José Santos	3-728-406	La Loma	agricultor	José Santos
Juan Santo	7-732-708	La Loma	agricultor	Juan Santo
Pascual Hernández	2-748-1932	La Loma	agricultor	Pascual
Substiana Acosta	4-280-841	La Loma	Amada de casa	Substiana Acosta
Yolanda Ojeda	8-1006-1622	La Loma	agricultor	Yolanda Ojeda
Yolanda Ojeda	3-726-2732	La Loma	Amada de casa	Yolanda Ojeda
Yanisset Morán	3-730-833	La Loma	ama de casa	Yanisset Morán
Yanisset Morán	2-91716	La Loma	agricultor	Yanisset Morán
José Valdés	3-752-15	La Loma	ama de casa	José Valdés
Yanisset Morán	3-121-50	Palmas Bellos	Amada de casa	Yanisset Morán
Rafaela Tuncón	3-58-862	Palmas Bellos	Amada de casa	Rafaela Tuncón
Yanisset Morán	7-709-2449	La Loma	ama de casa	Yanisset Morán



Lista de asistencia para realización del Consentimiento Libre, Previo e Informado (CLPI)
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Corregimiento: Palmas Bellos (La Loma)
 Fecha: 07/04/2022

Hora de inicio: 10:00 am Hora de finalización: 1:15 pm

Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
Yanisset Morán	3-702-812	Palmas Bellos	Amada de casa	Yanisset Morán
Yanisset Morán	3-121-101	Palmas Bellos	ama de casa	Yanisset Morán
Yanisset Morán	3-119-453	Palmas Bellos	Agricultor	Yanisset Morán
Yanisset Morán	3-117-63	Palmas Bellos	ama de casa	Yanisset Morán

Chagres (Salud-Gondona)



Lista de asistencia para realización del Consentimiento Libre, Previo e informado (CLPI)
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Corregimiento: Salud (Gordona)

Hora de inicio: 1:30 pm Hora de finalización: 4:00 pm

Fecha: 10 / 4 / 2022

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Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
Luis Mari	6-202-1468	Gordona	Farmacéutico Público	[Firma]
Eligio Sanchez	3-741-1022	Gordona	Amo de casa	
Yapulia martinez	2-747-2366	Gordona		
Luisa Masera	3-744-1254	Gordona	Amo de casa	
Yurea Rojas R.	3-115-524	Gordona		
Beatriz Masera	3-721-253	Gordona	Amo de casa	
Mariol Sanchez	3-711-57	Gordona	Amo de casa	[Firma]
Andrés Rojas	8-523-892	Gordona		[Firma]
Edelis Ledesma	5-127-956	Gordona	agricultor	[Firma]
Wepel Ledesma	3-714-539	Gordona	Amo de casa	[Firma]
Yanet Ledesma	3-714-1983	Gordona	agricultora	[Firma]
Marta Masera	784-1002	Gordona	agricultora	[Firma]
Marta Masera	3-76-787	Gordona	agricultora	[Firma]
[Firma]	3-72-354	Amo de casa	Agricultura	[Firma]
Andrés Martínez	3-72-1330	Gordona		[Firma]
Angelica Martínez	3-101-341	Gordona	productora	[Firma]
Milva Merán	3-737-501	Gordona	productora	[Firma]
Maria del Carmen Merán	3-101-777	Gordona	Amo de casa	[Firma]



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Corregimiento: Salud

Hora de inicio: 1:30 pm Hora de finalización: 4:00 pm

Fecha: 10 / 4 / 2022

Nombre	Cédula	Comunidad	Actividad que desempeña	Firma
Eida Chini	3-747-1638	Caño Claro	Amo de casa	[Firma]
Paula Chini	3-747-1638	Caño Claro	Amo de casa	[Firma]
Marta Martínez	3-117-997	Caño Claro	Amo de casa	[Firma]

Annex 9 – Type of activities implemented by the project under AbE and climate-smart agricultural and fishing productive solutions.

The type activities and investments under AbE and climate-smart agricultural and fishing productive solutions covered by the grants include:

- Establishment of agroforestry systems
- Establishment of silvopastoral systems
- Protection, conservation and restoration of water recharge areas and reforested water sources with the establishment of green cordons.
- Installation of water harvesting systems for agricultural and livestock production.
- Restoration of mangrove areas through the establishment of pilot plots.
- Restoration of coral cover.
- Use of intercropping for coconut harvesting
- Introduction of drought-tolerant rice varieties
- Implementation of fertilization and mulch cultivation techniques with organic waste from composting, manure, cold ash and domestic waste
- Implementation of crop rotation techniques
- Biological pest control raised and staggered growing beds.
- Implementation of water-efficient irrigation systems
- Production of charcoal from coconut shell waste with a circular approach.
- Regenerative aquaculture for small producers for the artisanal cultivation of oysters and molluscs.
- Sustainable fish aquaculture in cages.
- Agrotourism.
- Strengthening capacities in good practices for sustainable fishing