ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: REGIONAL FULL SIZE PROPOSAL

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: United Nations Food and Agriculture Organization (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: Ahmad Ghosn
Co-reviewer(s):
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 2,538,838). Component 2: Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities (USD 3,828,257) Component 3: Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience (USD 5,237,192). Requested financing overview: Project/Programme Execution Cost: USD 1,218,300. Total Project/Programme Cost: USD 12,822,587. Implementing Fee: USD 1,077,849. 1,177,413 Financing Requested: USD 14,000,000

	The initial technical review dated 24 January 2024 raised 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. The second technical review dated 30 August 2024 found that some of issues raised in the first technical review were not fully addressed, such as compliance with ESP, consultations and budget, as discussed in the number of Clarification Requests (CRs) and Corrective Action Request (CAR) raised in the review. The third technical review of 16 January 2025 found that most CRs and CARs of the second technical review were adequately addressed. However, few issues remained to be further addressed, such as detailed budget, execution costs and implementing fee breakdown, consultations, among others as was indicated in the review. The fourth technical review finds that two issues remain to be addressed including presenting the budget with notes at activity level, and filling AF core impact indicator tables with related data and moving them to Part IIIE. Also, another quick round of proofreading for the revised document is recommended.
Date	14 February 2025

Review Criteria	**Questions**	**Initial Technical Review January 24 2024**	**Second Technical Review August 30 2024**	**Third Technical Review 21 January 2025**	**Fourth Technical Review 14 February 2025**
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.	**-** **CAR1: Cleared.**	**-**	**-**
	3. Does the regional project / programme support concrete adaptation actions to assist the participating countries in addressing the adverse effects of climate change and	**Unclear.** The project supports Ecosystem-based Adaptation (EbA) in nine coastal communities to reduce risks to agricultural and fishing productivity and improve food resiliency.			-

	build in climate resilience, and do so providing added value through the regional approach, compared to implementing similar activities in each country individually?	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	**CR1: Cleared.** As per the proponent's response in the review sheet and the information provided in Annex 3, pages 138-139. **CR2: Partially.** The project proposal now includes details to be carried out by project outcome. However, there is a great difference between activities to be implemented in Cuba and Panama. While Panama includes loss and gain analysis, identification and selection of priority sites, consideration of equity in EbA measures, cost-effectiveness evaluations, among other	**CR2: Cleared.** See revisions made in Part IIA pp. 40-42 and pp. 48-50.	

		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 building. How will it be implemented? Will there be workshops? Online training? Peer-to-peer support?	things, Cuba does not seem to have the same activities which seem to be critical for the implementation of the project. Additionally, throughout the activities detailed in Component 2, consultations have been included in Panama, while not in Cuba. Again, the activities presented under Component 3 are widely different between Cuba and Panama, with the former lacking details Kindly revise and clarify.		

		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? **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	**CR3: Cleared.** As per the information provided by the proponent in the response sheet. **CR4: Cleared.** As per additional information provided on pages 39-46.		

		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).			
	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	**Yes, but further information is needed**. The proposal describes qualitatively the economic, social, and environmental benefits to the target population. 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	**CR5**: **Cleared.** As per information provided on page 25, which indicates that indigenous peoples are located in the project intervention areas of Panama. **CR6**: **Not cleared**. Benefits to women and indigenous peoples have been broadly outlined in section II.B. Based on the latest consultations with indigenous peoples, the	**CR6: Not cleared.** For full clearance, please provide in Part IIH on consultations (pp. 66-67) an overall summary table of the consultations (one page or less) and include event group/s consulted, place and date, participants with gender consideration,	**CR6: Cleared.** See Part IIH, Table 6, page 67-68.

	and Social Policy of the Fund?	coastal municipalities (5 in Cuba, and 4 in Panama). The project will support 15 cooperatives in Cuba, and 13 in Panama. A gender analysis and action plan have been provided (Annex 5). **CR5:** Kindly disaggregate the project beneficiaries further considering intersectionality, for example by age and indigenous identity if possible. **CR6**: Please outline the specific project benefits to indigenous people and women. **CR7**: Given the EbA approach, please provide quantifiable information on the ecosystems that will be rehabilitated/restored and their services,	project should reflect the lessons and information gathered. Please revise. **CR7: Cleared.** As per information provided on pages 56-57**.** **CR8: Cleared.** As per additional information provided on page 24-25.	topic discussed, and how related outcomes were considered in project design. The above will also be used to clear CR11 & CR13. **CR34 (NEW):** For the project calendar table, p.29, use AF template and add table number and heading. See below link for guidance https://www.adaptation-fund.org/document/regional-project-proposal-template-for-posting/ Note: make sure you revise table numbering sequence and list after addressing the comment and others.	**CR34 (NEW): Cleared.** See Table 2, p. 25.

		as well as the productive area that will be under climate-smart practices / technologies. **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?			
	5. Is the project / programme cost-effective and does the regional approach support cost-effectiveness?	**Not clear.** 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. **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	**CR9: Cleared.** As per additional information provided on pages 59-62.		

		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.			
	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	**Yes.** 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.	-	-	-

	action and other relevant instruments? If applicable, it is also possible to refer to regional plans and strategies where they exist.				
	7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	**Yes, but further information is needed.** 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. **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	**CR10**: **Cleared**. As per information provided in the response sheet.	-	-

		required and the project's future actions. For example, in both Panama and Cuba, the project may need to follow a national environmental impact assessment. Some proposed restoration activities could require special permits. Please provide further details.			
	8. Is there duplication of project / programme with other funding sources?	**No.** 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).	-	-	-
	9. Does the project / programme have a learning and knowledge management component to capture and	**Yes.** The project has a learning and knowledge component that is integrated	-	-	-

	feedback lessons?	throughout the project outcomes.			
	10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	**Yes, but further information is needed.** 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. **CR11:** It is unclear if the consultative process has shared the project objectives, scope, and approach with	**CR11**: **Partially.** Additional information has been provided on Annex 2, which details consultations with local communities and indigenous peoples in 2024. In addition to the survey findings, kindly include the date of the consultation meetings, their location, the topics discussed per meeting, and the main findings. This information should indicate whether the consultation process has shared key project information with the population in the project intervention areas and whether the project approach has been validated.	**CR11: Not cleared.** See comment under CR6 above.	**CR11: Cleared.** See Table 6, p. 67-68, and Annex 2.

		the local communities to 1) validate the approach taken, and 2) gather any concerns about the project. Please clarify. **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 sample in Cuba does not reflect population distributions (as only 26% of the sample were women). **CR13:** The project has identified indigenous people as part of the beneficiaries in Panama. It is stated that through consultations with indigenous	**CR12**: **Not cleared.** Please clearly indicate the gender-relevant results from the consultation process (in addition to the survey findings and the secondary data summarized in the situational analysis of the gender action plan). This can be provided in an additional table or bullet points that describe what was learned specifically when consulting the local population. **CR13**: **Partially.** In June 2024, indigenous peoples were consulted. However, further information is needed regarding the main issues raised in the consultation process and how they have shaped the proposal. Also,	**CR12: Not cleared.** The resubmission partially addresses the CR. Please reflect as applicable in the summary table requested under CR6 above or add under a new paragraph in Part II H. **CR13:** For clearance, see comment under CR6 above. **CR14: Cleared.** Based on the plan provided in Annex 2, pp. 121-126.	**CR12: Cleared.** See Part IIH, Table 6, pp. 67-68 and Annex 2. **CR13: Cleared.** See CR11 above.

		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. **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,	information is needed regarding how the project will benefit indigenous peoples. **CR14**: **Not cleared.** The proposal indicates that the project has a plan for implementing the Free, Prior and Informed Consent (FPIC). However, the information provided is too general and lacks nuance for its use in Panama. Please provide details about this plan. Further, it is unclear whether the indigenous participants provided free and informed consent. As per the AF ESP guidance, when indigenous peoples are present in the implementation area, then the IE needs to describe		

		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**.	the involvement of indigenous peoples in the design and the implementation of the project, provide detailed outcomes of the consultation process of the indigenous peoples, and provide documented evidence of the mutually accepted process between the project and the affected communities. Please revise the information provided under Principle 7 in the ESP guidance document: https://www.adaptation-fund.org/wp-content/uploads/2016/07/ESP-Guidance_Revised-in-June-2016_Guidance-document-for-Implementing-Entities-on-compliance-with-		

			the-Adaptation-Fund-Environmental-and-Social-Policy.pdf		
	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	**Yes.** 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.		-	-
	12. Is the project / program aligned with AF's results framework?	**Largely yes.** The proposal outlines its alignment with the Fund's Outcomes 2 and 3, as well as Outputs 2.1, 5, 6, and 8. **CR15:** Please consider including alignment with Outcome 5, which focuses on ecosystem resilience, and Outcome 6, which focuses on	**CR15: Cleared.**	**-**	**-**

		diversified and strengthened livelihoods. These outcomes are strongly aligned with the project.			
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	**Yes, but further information is needed**. The project invests in capacity building and strengthening local institutions and cooperatives that will ensure the project's sustainability after its completion. **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.	**CR16: Not cleared**. Kindly explain what the sustainability plans for cooperatives referred to in Component 3. Also, please explain further the activities or measures that will ensure that practices and technologies remain operational and used by beneficiaries when the grants are over. The document indicates that additional income will be used to maintain the required inputs (paragraph 224), how will this be ensured or arranged?	**CR16: Cleared.** See clarifications provided in paragraph 224, p. 71.	-

	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?	**Unclear**. 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. The proposal includes a gender assessment and action plan (Annex 5) which elaborates on the gender-specific local contexts. **CR17**: Given the USPs, please justify their use for this project, and provide provisions for ESP compliance.	**CR17**: **Partially.** The Environmental and Social Management Plan Matrix in Annex 3, does include a provision for ESP compliance of USPs, however, the mitigation measures provided in the review sheet are not included in the proposal document. Please revise.	**CR17: Cleared.** See paragraph 251, pp. 83-84.	**-**
	15. Does the project promote new and innovative solutions to climate change adaptation, such as new	**Yes.** The project innovates by implementing a loss and damage methodology for		-	-

	approaches, technologies and mechanisms?	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	**Largely Yes.** **CAR2:** The project document lacks the Project Components and Financing Table before Section II. Please include it.	**CAR2: Not cleared.** The Project Component and Financing Table (Section I) and the Budget - table 12 (Section II G) do not present the same figures. Additionally, the numbers do not sum up correctly in the Project Component and Financing Table. Kindly revise thoroughly.	**CAR2: Not Cleared.** For the project components and financing table, para 111, pp. 26-29: i) delete last column as it is a repetition; ii) add table number and heading; iii) add components subtotals; iv) only include overall total executing costs (EC) and total implementing fee (IF); v) the breakdown of EC and IF have to be	**CAR2: Cleared.** See Table 1, pp.26-27.

	10 per cent of the project/programme cost for the execution costs?			presented as part the detailed budget table in Part IIIG or as standalone tables after budget table. The “notes” on pp. 28-29 could be used as the breakdown of the EC and IF costs, as applicable. The breakdown of the EC should indicate for each of the executing entities. Addressing the above would also support the clearance of CR26 & CR27.	
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	**Yes.** Implementation arrangements clearly describe the roles and responsibilities for project implementation 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?	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**. Financial and management risks have been identified, and related mitigation measures have been indicated. **CR18**: Regarding the risk of potential loss of government support, please	**CR18**: **Cleared.** As per additional information provided on page 77.	-	-

		consider mechanisms that can be set up in advance with the national and local government to ensure continuity. **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.	**CR19**: **Cleared.** As per additional information provided on page 76-77.		
	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	**No**. The proposal includes an Environmental and Social Plan, which identifies mitigation measures, responsibilities, and means of verification. However, some issues remain: **CR20:** The proposal should include a description of each risk in detail, explaining the assumptions that	**CR20**: **Not cleared**. The request has not been addressed. **CR21**: **Not cleared.** The proposal indicates the risk of introducing invasive or exotic species due to lack of knowledge. Usually this can happen regardless of governmental restrictions. Thus, please include an	**CR20: Cleared** See Part IIK, pp. 74-76. **CR21: Cleared.** See Table 8 (Conservation of Biological Diversity), pp. 82-83.	**-**

	Entities on compliance with the Adaptation Fund Environmental and Social Policy, for details.	justify the risk level in the screening process (Section II.K). Please the ESIA in section III.B. **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. **CR22**: Please indicate the significance of each risk (in terms of probability and severity before and after the mitigation measures). **CR23**: Given the USPs of this project, the ESMP plan (annex III) should provide measures to ensure compliance with each project activity per site.	appropriate mitigation measure to manage this risk. **CR22**: **Cleared**. As per information provided on pages 76-78. **CR23**: **Cleared.** As per information provided on pages 138-139. **CR24**: **Cleared.** As per information provided on pages 140-147. **CR25: Partially.** Kindly include details about the EE's and IE's role in ensuring the implementation of the ESMP in section III.A. This can be a high-level summary of the details provided in Annex 3, 5 and 6.	**CR25: Cleared.** See paragraphs 232-236, pp. 77-78.	

		CR24: Please provide details on the budget provisions to cover the ESMP costs. **CR25**: Please provide details on the EE's and IE's role in ensuring the implementation of the ESMP.			
	4. Is a budget on the Implementing Entity Management Fee use included?	**No.** **CR26**: Please include a breakdown of the Implementing Entity Management Fee, with budget notes immediately under that table as necessary.	**CR26: Partially**. The implementing management fee has been disaggregated; however, further details should be included as budget notes have not been provided for this.	**CR26: Not cleared.** Addressing the comments under CAR2 above would also support the clearance of CR26.	**CR26: Cleared.** See bottom of Part IIIG, Table 16, pp. 95-99.
	5. Is an explanation and a breakdown of the execution costs included?	**No.** **CR27**: Please include a breakdown of the execution costs, with budget notes immediately under that table as necessary.	**CR27: Not cleared.** Budget notes are missing for the execution costs. Also, the budget note indicates some costs that should be considered under the execution	**CR27: Not cleared.** Addressing the comments under CAR2 above would also support the clearance of CR27.	**CR27: Cleared.** See Table 16, pp. 95-99.

			costs. Please review Table 1 in the AF implementation fees and execution costs document: https://www.adaptation-fund.org/wp-content/uploads/2023/10/AFB.PPRC_.32.22-Proposal-for-Harmonizing-Costs-and-Fees-in-Projects-and-Programmes-1.pdf		
	6. Is a detailed budget including budget notes included?	**No.** A budget has been presented without details and only at the output level. **CR28**: Please include a detailed budget for the activity level for each output (such as workshops, reports, consultations, travel, etc.), including clear budget notes.	**CR28: Partially.** Please move the detailed budget to the main document below the Table 12 (in section G).	**CR28: Not Cleared.** In Part IIIG (Budget), present budget at activity level with a related brief note indicating what the allocated amount covers. Indicate subtotals at output, outcome, and component levels. Also include EC and IF (see comment under CAR2 above) and the total requested financing (i.e. $14,000,000).	**CR28: Not Cleared.** Budged need to be allocated at activity level for each output (e.g.: Activity 1.1.1 "Development of a baseline DLA…", Activity 1.1.2 "Loss and damage analysis..", etc.) with notes on how allocated amount is spent. Also, the listed outputs do not align with those listed in Part IIA, and Table 1 "Project components outcomes & financing". Please revise the budget table as per the above. **IFAD:**

	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?	**Yes, but more information is needed.** An M&E plan plus budget is included, including a description of key M&E milestones. **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. **CR30**: Please specifically outline how gender considerations will be incorporated during M&E implementation.	**CR29**: **Partially.** Kindly indicate the source of funding for the M&E in Table 9. Please include this information in an additional column. **CR30**: **Cleared.** As per the proponent's response in the review sheet.	**CR29: Cleared.** See Table 9, pp. 86-87.	The budget has been modified and is now presented per activity, with a breakdown of costs for each activity. Please note that budgeting of activities varies significantly between Cuba and Panama. This is largely due to a difference in approach: Panama allocates a significant amount of its budget through contracts and consultancies while Cuba utilizes existing national capacities and allocates a larger amount to equipment and infrastructure. Part IIA and the Budget (IIIG) are presented per activity as requested. Table 1 is presented in Component, Outcome, and Output format, in which the wording of each Activity is presented in Output format. In practice, each Output is

					equivalent to a project Activity.
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	**No.** **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.	**CR31**: **Partially**. Implementing entities are requested to allocate one to five percent of the total project budget for evaluation purposes. This amount is to be included within the implementing entity fee. Please revise.	**CR31: Not Cleared.** Please provide justifications for requesting resources amount below the recommended range of 1-5% of the total project cost, this means the amount should be between $129,221- $646,107 or modify the amount.	**CR31**: **Cleared.** See Table 11, p. 88. IE allocated budget is now USD 155,200 (1.2% of project total cost).
	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?	**Yes, but more information is needed.** The project aligns with the AF's core outcomes 2 and 3 (please see CR 14). **CR32:** Table 10, under Component 1, only includes two of the three outputs. Please revise. **CR33:** Please include the number of indirect beneficiaries in the results framework (Table 9) – in addition to the direct ones.	**CR32**: **Cleared.** As per information provided on pages 85-87. **CR33**: **Cleared.** As per information provided on pages 82-84	**CAR3 (NEW):** Please include the **core impact indicator** at section E of the proposal. Please refer to the template and guidance below. Methodologies for reporting Adaptation Fund core impact indicators (78 kB, DOC) Methodologies for reporting Adaptation Fund core impact indicators (152 kB, PDF)	**CAR3 (NEW): Not Cleared.** Tables 14 and 15 need to be filled with relevant data and moved to Part IIIE. (Note: Adjust table numbering sequence after moving the tables and revise list of tables & table of contents accordingly). **IFAD:** Tables 14 and 15 have been filled with relevant data, moved to part IIIE and table numbering adjusted.

	10. Is a disbursement schedule with time-bound milestones included?	**Largely Yes.** Please see **CAR 2.**	**Yes.**	**CAR4 (NEW):** Revise disbursement schedule (table 14, P. 95) to align with AF format. See template at Disbursement Schedule Template (For fully-developed proposals) (18 kB, XLS).	**CAR4: Cleared.** See Table 17, pp. 99-100.

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:	Cuba and Panama
Thematic Focal Area[1]:	Food security
Type of Implementing Entity:	Multilateral Implementing Entity
Implementing Entity:	International Fund for Agricultural Development (IFAD)
Executing Entities:	**Regional:** United Nations 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) 13 December 2024

☐☐ 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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LIST OF ABBREVIATIONS

AEC	Association of Caribbean States
AMA	Environment Agency of Cuba
AMP	Panama Maritime Authority
ANAM	National Environmental Authority of Panama (*Autoridad Nacional del Ambiente de Panamá*)
ARAP	Panama Aquatic Resources Authority
B/C	Benefit/Cost
CARICOM	Caribbean Community
CC	climate change
CCCCC	Caribbean Community Climate Change Center
CCAD	Central American Commission on Environment and Development (*Comisión Centroamericana de Ambiente y Desarrollo*)
CCS	credit and service cooperatives
CELAC	Community of Latin American and Caribbean States
CITMA	Ministry of Science, Technology and Environment (*Ministerio de Ciencia, Tecnología y Medio Ambiente*)
COP	Conference of the Parties
CSC	Caribbean Sea Commission
DLA	Damage and Loss Assessment
DLIS	Disaster and Loss Information System
DRR	disaster risk reduction
EbA	Ecosystem based Adaptation
ECLAC	Economic Commission for Latin America and the Caribbean
EDM	Municipal Development Strategies (in Cuba)
EIRR	Economic internal rate of return
ESMP	Environmental and Social Management Plan
FAO	United Nations Food and Agriculture Organization
FFS	Farmer Field Schools
FPIC	Free, Prior and Informed Consent
GDP	gross domestic product
GHG	Greenhouse gas
GoC	Government of Cuba
IFAD	International Fund for Agricultural Development
INAMU	National Institute for Women of Cuba
INEC	National Institute of Statistics and Census of Panama
MiAMBIENTE	Ministry of Environment of Panama
MIDA	Ministry of Agricultural Development
NbS	Nature-Based Solutions
NDC	Nationally Determined Contributions
NPV	Net present value
ONEI	National Office of Statistics and Information of Cuba
PAPs	Participatory Adaptation Plans
PMU	Project Management Unit
PRMPs	Participatory Risk Management Plans
RCU	Regional Coordination Unit
RPSC	Regional Project Steering Committee
SDG	Sustainable Development Goals
SFDRR	Sendai Framework for Disaster Risk Reduction
SICA	Integration System for Central America (*Sistema de la Integración Centroamericana*)
SLR	sea level rise
TCU	Technical Coordination Unit
UEB	Basis Business Units
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

A. PROJECT 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 International Monetary Fund's 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 gross domestic product (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 Panama[3]. 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.

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

[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.

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 United Nations Development Programme (UNDP)'s Post Disaster Needs Assessment and FAO's Methodology for Damage and Loss Assessment (DLA) 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 livelihoods[4]. 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, 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 the 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

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

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, 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 people[5], of which approximately 57% of the population lives in coastal municipalities[6].

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 (UNDP, 2020).

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.

[5] UN Habitat Cuba, 2018.
[6] UNDP/GCF Project: Coastal Resilience to Climate Change in Cuba through Ecosystem Based Adaptation - "MI COSTA"

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 use[7]. 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 women[8]. 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, 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 cooperatives[10]. 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 home[11]. 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 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

[7] National Office of Statistics and Information (ONEI)
[8] *World Economic Forum. 2021. Global Gender Gap Report 2021.*
[9] National Office of Statistics and Information (ONEI). http://www.onei.gob.cu/
[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

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 hazard in Cuba[14] 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 the Economic Commission for Latin America and the Caribbean (ECLAC) with 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 pitches[16]. 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 km^2 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 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).

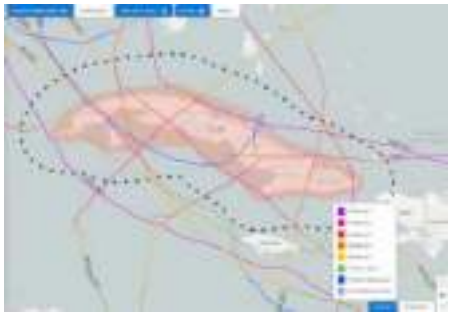

Figure 3. Hurricane categories 1 to 5 trajectories over Cuba 1990-2022.
Source: https://coast.noaa.gov/hurricanes

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[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

26. **Climate Change.** Like the rest of the Caribbean, Cuba experienced 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 warmer[19]. 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.

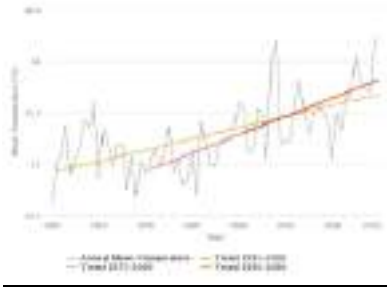

Figure 4. Mean temperature annual trends per decade for Cuba, 1950-2020.
Source: The World Bank.

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 2017[20], and over the period of 1996- 2016, 12 flood events occurred affecting 134,957 people[21]. Future climate projections indicate that mean SLR may reach up to 29 centimeters in 2050, and 95 centimeters in 2100[22] and 119 coastal settlements are projected to be at extreme risk from climate change by 2050 while 21 are predicted to disappear altogether by 2100[23]. 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

[18] The World Bank Group. Climate Change Knowledge Portal. Climate data. Projections. https://climateknowledgeportal.worldbank.org/country/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."
[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 - Universite 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. 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.

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.

Figure 5. Spatial distribution of the maximum significant wave height produced by hurricanes observed in the period 1955-2009.
Source: ECLAC & Universidad de Cantabria.

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 Cuba[26] 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 km^2 equivalent to 2.4% of the national territory. With the same tendency, this could reach, by 2100, to 6,371.05 km^2 (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 Caribbean[28]. 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]

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 m^3 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

[25] Idem.
[26] 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. *Nature Communications* 10, 205. https://doi.org/10.1038/s41467-018-08066-0.
[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

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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 Government of Cuba (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 EbA actions related to coastal resilience. Target municipalities prioritized through this project are located in coastal stretches V (Baracoa), X (La Sierpe) and XII (Consolación del Sur, San Cristobal and Batabanó) as shown in Figure 6.

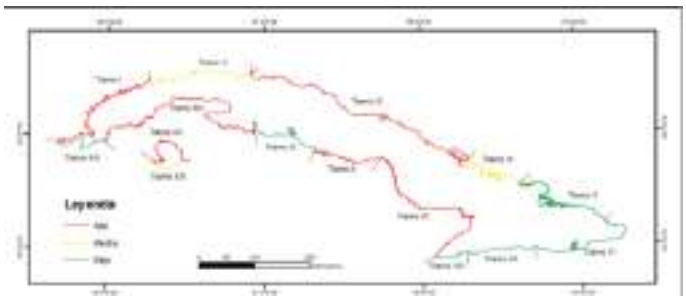

Figure 6. Coastal Vulnerability to SLR and Associated Events (Red High; Yellow Medium and Green Low)

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.

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

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

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

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 country[34]. 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 NbS.

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 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.

[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.

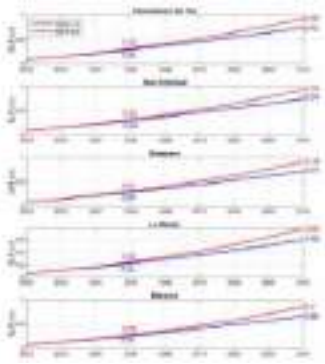

Figure 7. Projected SLR for Target Stretches in Cuba using SSP2-4.5 and SSP5-8.5 using IPCC, AR6, 2021.
Source: Report for the Preparation of the Project prepared by Iñigo J. Losada Rodríguez.

Climate change in Panama: observed trends and projected impacts

45. The Republic of Panama has an extension of 75,420 km^2 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

[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

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 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 Index[39], 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 purchasing power parity) for indigenous peoples in 2019 was 6.8 times higher than that of non-indigenous people[40]. 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.

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 women[41] . 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 ownership[46]. 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 poverty[47] Panama's Gender Inequality Index averages at 74.3 indicating a high level of gender inequality in the country[48], 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.

[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. (2022). Human Development Report 2022.
[40] Word Bank in Panamá. *Panama: general overview.*, last updated April 2023.
[41] INEC. (2022). Multipurpose Survey (*Encuesta de propósitos múltiples*). April 2022.
[42] FAO. (2021). Family Agriculture Review. http://www.fao.org/3/cb4184es/cb4184es.pdf
[43] SICA, 2021.
[44] Ministry of Environment. (2020). Nationally Determined Contributions (NDC). Government of Panama. p21.
[45] UN Women. (2021). Panama Data. https://data.unwomen.org/country/panama
[46] INEC. (2010). Agricultural Census 2010. Volume VII. Gender Focus. Panama.
[47] Ministry of Environment (2020). Nationally Determined Contributions (NDC). Government of Panama. p23.
[48] WEF. Global Gender Gap Report. 2022.
[49] Ibid p.23.
[50] INEC. (2021). Telephone Labor Market Survey. June 2021.

Field Code Changed

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).
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 Purisima 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. 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 Panama. Government of Panama. 232 p.

Figure 10. Spatial distribution of the flood level produced by hurricanes observed in the period 1955-2009
Source: ECLAC & Universidad de Cantabria.

58. *Precipitation Changes:* In the case of Panama, a relative reduction of accumulated precipitation is expected, particularly during the influence of El Niño[53]. 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, extreme precipitation events (greater than 40 mm per day) are expected to increase by as much as half under the A2 emissions scenario[54].

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 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/impresa/panorama/madre-lluvias_0_3538896143.html

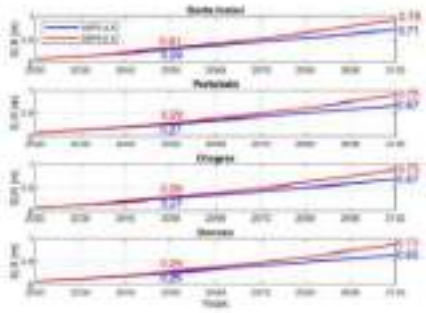

Figure 11. Projected changes in SLR in Target areas in Panama under SSP 2-4.5 and SSP5-8.5 Scenarios.
Source: Report for the Preparation of the Project prepared by Iñigo J. Losada Rodríguez.

63. The Human Development Index 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 activities[56]. Associative capacity in the region is low with only 13 cooperatives identified in the province[57] 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 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

[56] INEC. (2011). Seventh Agricultural Census https://www.inec.gob.pa/publicaciones/Default3.aspx?ID_PUBLICACION=443&ID_CATEGORIA=15&ID_SUBCATEGORIA=60

[57] INEC. (2011). Seventh Agricultural Census. https://www.inec.gob.pa/archivos/P4431Cuadro%2001.pdf

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

[59] Daw, T., N. Adger, K. Brown and M.-C. Badjeck. (2009). Climate change and capture fisheries: potential impacts, adaptation and mitigation. In: Climate change implications for fisheries and aquaculture: Overview of current scientific knowledge. Edited by K. Cocharene, C de Young, D. Soto, and T. Bahri. FAO Fisheries and Aquaculture Technical Paper No. 530. https://www.fao.org/fileadmin/user_upload/newsroom/docs/FTP530.pdf

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 diseases[60]. 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 Plan[62] 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 adaptative 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 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 Portobelo has maintained healthy mangrove forests, studies have indicated pressure to forest health because 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 sedimentation[64] that may be aggravated because 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 fishing[65].

Regional similarities and common climate change challenges

[60] Ranasinghe. (2019). 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. (2021). Climate Vulnerability index of Panama.

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

[65] Idem.

Field Code Changed

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 areas, see Figures 7 and 10), 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 because 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 2006-2016, agriculture (crops, livestock, fisheries, aquaculture, and forestry) absorbed 26 percent of all damage and loss caused by climate-related disasters[66].

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 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

[66] FAO. (2017). The impact of disasters and crises 2017 on agriculture and food security.

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 Conference of the Parties (COP) 27, 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 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 measures[67]. While Panama in its Updated NDC (December 2020)[68] 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.

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 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. The 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 Caribbean Community (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

[67] Prensa Latina News, November 17, 2022. Accessed on January 31, 2022.

[68] Government of Panama. (2020). Updated NDC Panama. December 2020.

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 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 AEC, 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 NbS 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 EbA, 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., SLM, 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 convincement 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 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 12a). 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 Colón as the target area. Colón 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 12b) which together have a population of 32,891 inhabitants, representing 11% of the total provincial population.

Figure 12a. Target areas in Cuba

Figure 12b. 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.

99. 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. The benefits of the Project will be focused especially on the most vulnerable households and people within the municipalities. Therefore, to select them, the following **targeting criteria** will be used:

a. Level of vulnerability: people with greater exposure or possibility of being impacted by the effects of climate change within the municipality, analyzing indicators such as: location of their homes, the age of their family members, presence of women or disabled people in their homes. homes, access to basic services, economic activities carried out, livelihoods, among others;
b. Level of socioeconomic situation of the individual and their family: households with low income and/or lack of resources; and

c. Long-term impact: the potential of activities to have a long-term sustainable impact on the livelihoods of beneficiaries is considered.

100. In relation to **gender**, specific targets will be adopted to promote the following benefits:

(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.
(iv) Activities strengthening the participation of women and their roles in decision-making in groups and cooperatives.

101. More specifically, Annex 5 (Gender Analysis and Action Plan) contains strategic guidelines and specific actions with indicators and goals to guarantee the participation and benefit of women in the project. (See Section 2.1 of the Annex and chapter III: Gender Action Plan and results framework). Budget allocations and the incorporation of indicators as part of the monitoring and evaluation system are also included. It is expected that with these measures, women will represent 50% of the beneficiaries, the identified gender gaps will be addressed, and there will be spaces for participation in decision-making in the Participatory Adaptation Plans (PAPs) and in the Participatory Risk Management Plans (PRMPs). These PAPs and PRMPs will be developed in a participatory way assuring the gender sensitive approach, Improving the technical capacity and skills of women for the protection and management of ecosystems, promoting their participation in Farmers Field Schools (FFS), strengthening the associational capacity of women, improving their social and economic empowerment.

102. Regarding **indigenous peoples** in Panama (Cuba does not identify any indigenous population in its territory), the project will respect the decisions of indigenous peoples and address their specific needs and demands once project implementation begins. The proposal has a plan for the implementation of the Free, Prior and Informed Consent (FPIC) when required. The provision of subsidies and extension services for the adoption of innovative sustainable practices in the field will prioritize women and indigenous associations as direct beneficiaries and will seek to strengthen their associations. Their product processing and transformation initiatives will also be supported. Alternative livelihoods are created across target sites ensuring their compatibility with EbA and made inclusive to women and indigenous populations.

103. The project will apply the principles of the **IFAD Targeting Policy**[69]. 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.

104. 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.

105. The estimated beneficiary population by country according to sex, youth and indigenous population is as follows:

	PANAMA			CUBA		Tot ben
		Youth	Indigenous		Youth	
Men	16,446	4,062	921	20,675	4,052	**74242**
Women	16,446	4,062	921	20,675	4,052	
Total	32,892	8,124*	1,842**	41,350	8,104**	

*Calculated using data from the 2023 Census[70] and based on the percentage of the rural population aged between 15 and 29 years (24.7%) according to the definition of youth in Panama.

[69] IFAD Targeting Policy 2023.

[70] https://www.inec.gob.pa/publicaciones/Default3.aspx?ID_PUBLICACION=1199&ID_CATEGORIA=19&ID_SUBCATEGORIA=71

** The estimate is based on the percentage of indigenous people relative to rural population in the Province of Colón, which is 5.6% of total population (2023 Census Data).
***Based on information from the Cuban Statistical Yearbook 2022 (2023 Edition). Information from 14 to 29 years old was used due to the grouping of the information and because Cuba considers people between 14 and 30 years old young. The young population is 19.6% of the total rural population.

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

106. **The first component** will support the implementation of the 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.

107. **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 NbS 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.

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

109. 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.

110. 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.

111. **Budget**. The requested budget is USD 14 million. The proposed budget for implementation of project outcomes, outputs and activities cost for all three project components is USD 11,604,287, distributed among Component 1 (USD 2,538,838, Component 2 (USD 3,828,257), and Component 3 (USD 5,237,192). Total project execution cost is estimated at USD 1,218,300 (9.5%) and is distributed among the three EAs. Total project cost is USD 12,822,587. IFAD's Implementing Entity Management Fee to cover for Operational and financial management, project development and implementation support, technical support and supervision and the Mid-term evaluation and Final Evaluation is USD 1,177,413 (9.2%).

Table 1: *Project components and financing*

Project/ Programme Components	Expected Outputs	Expected Outcomes	Amount (US$)
1. Climate change adaptation planning	1.1.1: Baseline data for loss and damage assessment collected.	1.1. Loss and damage of agricultural and fishing productivity	897,183

Project/ Programme Components	Expected Outputs	Expected Outcomes	Amount (US$)
and regional cooperation	1.1.2: Loss and damage analysis completed for nine municipalities.	methodology implemented in nine target coastal municipalities in the face of slow onset climate impacts.	159,805
	1.1.3: Nine (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.		220,417
	1.1.4: Nine (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.		179,119
	1.2.1: Damage and Loss Information System (DLIS) designed and operational.	1.2. Institutionalized Loss and Damage Information Systems (DLIS) at a sectoral and local level for enhanced adaptive capacity and management.	515,680
	1.2.2.: Technical capacity and regional coordination strengthened for the effective operationalization of the DLIS and data processing.		73,696
	1.2.3: Binational mechanisms established to facilitate continuous dialogue and coordination in the design and operationalization of the DLIS methodology.		96,427
	1.3.1: 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.	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.	311,995
	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.		84,516
Total component 1:			2,538,838
2. Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities.	2.1.1: Baseline studies on key coastal ecosystems for enhanced resilience and food security inform selection of priority interventions.	2.1. Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their communities, livelihoods and local food security.	478,591~~1,902,432~~
	2.1.2: Farmers Field Schools (FFS) support local training and the implementation of EbA including restoration and sustainable management of identified critical ecosystems.		725,150
	2.1.3: Selected EbA interventions implemented with community participation and leadership based on good practices for enhanced coastal resilience.		~~1,200,675~~2,624,516
Total component 2:			3,828,257

Project/ Programme Components	Expected Outputs	Expected Outcomes	Amount (US$)
3. Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience	3.1.1: Agricultural and fishing cooperatives have been created and/or strengthened cooperatives (favoring women and vulnerable populations) in their associative, productive capacities for climate smart production capacity.	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.	1,088,798
	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.		650,372
	3.1.3: Climate-smart agricultural and fishing productive technologies adopted by local producers across nine target municipalities through the FFS approach.		596,033
	3.2.1: Cooperatives have been created and/or strengthened cooperatives and/or to implement diversified EbA compatible livelihoods.	3.2. Diversified and EbA-compatible livelihood options for agricultural and fishing dependent households.	539,605 ~~1,553,241~~
	3.2.2: FFS support local training and use of sustainable and resilient productive practices for EbA compatible livelihoods across nine target municipalities.		652,681
	3.2.3: Diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities through the FFS approach.		~~696,067~~1,701,704
Total component 3:			5,237,192
4. Project Activities cost (A)			11,604,287
5. Project Execution cost (B)			1,218,300
6. Total Project Cost (A + B)			12,822,587
7. Implementing Entity (IFAD) Management Fee (C)			1,177,413
Amount of Financing Requested (A + B + C)			14,000,000

112. Projected Calendar: The following milestones and related expected dates are proposed for the regional project as follows:

Table 2: *Project calendar*

Milestones	Expected Dates
Start of Project/Programme Implementation	September 2025
Mid-term Review (if planned)	April 2028
Project/Programme Closing	September 2030
Terminal Evaluation	January 2031

PART II: PROJECT/PROGRAMME JUSTIFICATION

A. PROJECT/PROGRAMME COMPONENTS

113. The proposed project is comprised of the following three project components as follows:

- Component 1: Climate Change Adaptation Planning and Regional Cooperation
- Component 2: Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities.
- Component 3: Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience

Component 1: Climate Change Adaptation Planning and Regional Cooperation

114. Component 1 activities will focus on the implementation of the 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 DLA 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.

115. This outcome will support the collection of relevant baseline data for loss and damage assessments which is the first stepping-stone of the 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 in agriculture, livestock and fishing production, 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 DLAs). 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 droughts and 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.

116. 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.

117. Information derived from the damage and loss analysis will be socialized and disseminated to local stakeholders and will serve to inform the preparation of PAPs and 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.

118. 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. DLA Methodology Process: From Data to Indicators

119. Activity 1.1.1. Development of a baseline DLA to agricultural and food productivity affecting local economies and livelihoods in target coastal municipalities due to slow onset climate impacts. In Cuba, this activity consists of raising the baseline of the state of the physical and agricultural inventory in the 15 intervention sites (2 farms, 7 credit and service cooperatives (CCS), 1 refuge and conservation area for flora and fauna and 5 basis business units (UEB) of them, 4 agricultural and 1 fishing). In Panama, to raise the baseline necessary for the evaluation of losses and damages, the design of a virtual tool has been visualized within the National Climate Transparency Platform, thus facilitating the collection of information. This includes the following actions:

- Design of the virtual tool and are also responsible for collecting primary data in the field and historical data. The tool will be developed so that it is applicable with data from any municipality at the national level, however, they must load the base information of the four project municipalities.
- Collection of primary data through field surveys of local farmers and fishermen to obtain data on losses and damages in their productive activities in accordance with what is indicated by the FAO loss and damage methodology.
- Compilation of historical data on agricultural and fishing production, as well as on climatic events and their impact, for the establishment of a baseline of losses and damages.
- In Panama, establishment of a virtual module that will function as a database within the National Climate Transparency Platform to systematize the collection of data for the calculation of losses and damages in accordance with the FAO methodology.
- In Cuba, design the database template taking into account the requirements of the MPD and establishment of its update frequency reconciled with the National Office of Statistics and Information of Cuba (ONEI).

- In Cuba, implement three workshops given by FAO experts to train 20 members of the work team. The objectives of these workshops will be to adapt the methodology for the evaluation of damage and losses due to slow-onset disasters, to train the team in the collection, processing and analysis of databases and to standardize the procedures for the collection of information.
- Institutionalization of the loss and damage data collection process in annual surveys and uploading the information to the virtual database.
- Development of nine training sessions through in-person or virtual workshops on the use of the virtual data collection module and good practices in data management and analysis to guarantee the quality and consistency of the data collected.
- Exchange of experiences and lessons learned during the execution of these actions between the two countries.

120. Activity 1.1.2: Loss and damage analysis completed for nine municipalities. This activity foresees the 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. This activity will be developed through training of specialists by the FAO Consultant for the implementation of the MDP. It also includes the creation of capacities at the local level with technical assistance and support from FAO local offices in Cuba and Panama; for this, technical meetings will be held depending on the needs. Main activities include:

- Development of an assessment of tangible impacts on municipal socioeconomic indicators, such as loss of income and productivity, as well as effects on local livelihoods.
- Development of a baseline assessment of losses and damages to agricultural and food productivity affecting local economies and livelihoods in targeted coastal municipalities due to slow-onset climate impacts.
- Nine training workshops with the accompaniment of FAO advisors given to the key actors of the nine municipalities and the intervention sites with the objectives of familiarizing them and training them in the collection of information required to implement the methodology.
- National workshop to exchange experiences and lessons learned during the information collection phase.
- Annual workshops to monitor the methodology implementation activity and exchange of experiences.
- Create the database that is integrated into the Agricultural Damage and Loss Methodology in the event of slow-onset weather events.
- Exchange of experiences and lessons learned during the execution of these actions between the two countries.

121. Activity 1.1.3: Participatory Adaptation Plans (PAP) prepared at the municipal level that identify priority adaptation actions to improve productivity and resilience. This activity will support the development of nine PAPs with a gender perspective, prepared through stakeholder consultations at the municipal level that include identification of threats, vulnerability and climate risk as well as their related past, current and future impacts using change scenarios and identifying priority adaptation actions to improve productivity and resilience by focusing on food value chains that promote sustainable and resilient livelihoods, emphasizing the food and nutritional security of vulnerable communities in Cuba and Panama (informed by the projected loss/damage analysis) to be implemented under Components 2 and 3. Main activities to develop include:

- Analysis and identification of threats, vulnerability and climate risk and past, current and future impacts and identification of population groups most vulnerable to the effects and threats related to climate change for the nine municipalities, and generation of vulnerability maps and climate risk for the four municipalities.
- Prioritization of Adaptation Measures for the nine municipalities to improve productivity and resilience by focusing on food value chains that promote sustainable and resilient livelihoods.
- Identification of resources available for adaptation, including funding sources, local knowledge, community organizations and technical experts.
- Record of community consultations that includes detailed documentation of the workshops and consultation sessions with the community, including the opinions, concerns and recommendations of the participants.
- Development of the PAP with a gender perspective that includes the prioritized identified adaptation actions (at least 5 per municipality), with deadlines, responsible parties and assessment of implementation costs.
- Two awareness-raising and training workshops per municipality to present the best practices of EbA and the use of climate-smart technologies related to adaptation and resilience to climate change.
- Nine workshops (one for each municipality) to disseminate the approved products in the nine municipalities.
- Systematization of lessons learned
- Development of audiovisual material of the main results.
- Exchange of experiences and lessons learned during the execution of these actions between the two countries.

122. Activity 1.1.4: Development of 9 Participatory Risk Management Plans (PRMP) prepared at the municipal level that identify priority actions to reduce the projected risk for food productivity. The nine PRMPs with a gender perspective, will be 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. Main activities in each country include:

- Bibliographic review of successful adaptation plans and their national and international methodological guides.
- Identification of climate risks and generation of detailed maps that show the most affected areas and risk zones and their relationship with food production for each municipality.
- Identification of critical areas to intervene in the four municipalities.
- Identification and development of priority actions to reduce risk to improve food productivity and resilience by focusing on food value chains that promote sustainable and resilient livelihoods.
- Identification of resources available for risk management, including funding sources, local knowledge, community organizations and technical experts.
- Record of community consultations that includes detailed documentation of workshops and community consultation sessions, including the opinions, concerns and recommendations of participants
- Development of a PRMP at the municipal level for each municipality that includes the priority actions identified to reduce the risk, with deadlines, responsible parties and assessment of implementation costs.
- Incorporation of EbA and climate smart technologies in the updating of the Municipal PRMP.
- Workshops for dissemination of results (1 workshop for each municipality)
- Systematization of lessons learned
- Development of informative material (brochures and audiovisual) with main results.
- Exchange of experiences and lessons learned during the execution of these actions between the two countries.

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

123. This outcome will support the design, operationalization and institutionalization of the 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.

124. 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 DLA in national governments and help lay down standard operating procedures for regular disaster damage and loss data collection in agriculture.

125. Ultimately, the implementation of the methodology will help improve agriculture-related resilience monitoring by providing standardized methodology to provide a set of procedural and computational steps for consistent DLA across disasters and countries. It is grounded in and builds upon existing frameworks, tools and methods for disaster impact assessment, such as ECLAC's DLA methodology and the post disaster needs assessment 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.

126. 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 DLAs 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.

127. 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.

128. 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.

129. Moreover, as mentioned above, the project will also seek to establish collaboration and facilitate exchange of information through various regional platforms, including the AEC and CELAC, the CCCCC, the CSC, SICA and CCAD among others.

130. Activity 1.2.1: Damage and Loss Information System (DLIS) designed and operational. 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. Main activities include:

- Develop a 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.
- Identification of the institutions involved in the information flow process from source to processing and output with their roles.
- Identify and evaluate gaps in human and technological resource capabilities for the implementation of the system.
- Develop training workshops to eliminate human resource gaps that limit system implementation. Taught by FAO experts.
- Acquire the technological resources necessary to eliminate technological gaps that limit the implementation of the system.
- Incorporated the database template into the information system.
- Carry out training activities for the personnel who will participate in the implementation of the system.
- Exchange of experiences and lessons learned during the execution of these actions between the two countries.

131. Activity 1.2.2: Strengthened technical capacity and regional coordination for the effective operationalization of the DLIS (Danger, Loss Information System) and data processing. 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. Main activities include:

- Develop binational workshops aimed at training personnel in the operation of the Damage and Loss Information System associated with slow-onset climate impacts. Taught by a foreign consultant.
- Exchange of experiences and lessons learned in the operation of the DLIS with the Panamanian side.

132. Activity 1.2.3: Binational mechanisms established to facilitate ongoing dialogue and coordination in the design and operationalization of the DLIS methodology. This activity supports the establishment of binational cooperation to facilitate coordination in the design and uses of the damage and loss methodology and accounting. Main activity foreseen is:

- Design and establish a real-time communication mechanism that allows linkage with the regional platforms.

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.

133. 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.

134. 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.

135. 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.

136. 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.

137. 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 NbS 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.

138. Activity 1.3.1. Establishment of a binational community at various scales (human settlements, cooperatives, farms, Base Business Units), sectors of the economy (Fisheries and agriculture), through exchange missions, capacity development and implementation of FFS in target sites.

- Informative products will be generated on the best EbA and climate smart technologies practices applied in the intervention sites that will provide components 2 and 3.
- A binational network will be created at the level of information on damages and losses of the intervention sites.
- Regional exchange missions will be carried out for capacity development and implementation of FFS.

139. Activity 1.3.2. Development of guidelines and recommendations that compile lessons learned from the implementation of the FAO loss and damage methodology for its expansion in similar contexts.

- Analysis and evaluation of the implementation of the FAO loss and damage methodology for slow-onset hazards, including challenges to implementation,
- Create a module of best practices at the population settlement level on adaptation and the evaluation of adaptation measures developed to inform expansion and replication in other countries in the region.
- Develop and disseminate knowledge products at different levels (national, sectoral and regional) through brochures, audiovisuals, events, workshops.

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

140. 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.

141. *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.

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

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

Figure 14a. 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 14b. 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 15a. Potential for Mangrove restoration in Cuba (Project Preparation Study assessment)

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

143. Selected EbA actions will be implemented along the prioritized areas within the nine target municipalities using the FFS approach[72]. 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 EbA actions 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.

144. 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.

145. 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.

[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.

146. 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 abs refined during project implementation based on new findings from planned studies and consultations.

Table 3. 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 and Portobelo)	Mangrove restoration, reef restoration for enhanced coral health
Chagres and Donoso	Coastal vegetation restoration

147. Activity 2.1.1. Baseline studies on key coastal ecosystems for improving resilience and food security inform the selection of priority interventions. The activity will have a baseline analysis completed for the identification of key coastal ecosystems and selection of priority sites and EbA solutions for protection, conservation, and sustainable management to reduce projected damage and loss due to slow onset hazards as projected from initial flood modelling for each of the municipalities. Cuba shares the activities identified in the project for this component as sub-activities, expanding the way in which they are developed, through training workshops, training, field visits, with FAO experts, specialists from the municipalities of the intervention sites and other key actors for the project, systematizing in a general way the lessons learned. In Cuba, the activity consists of identifying 15 intervention sites (2 farms, 7 CCS, 1 refuge and conservation area for flora and fauna and 5 UEB of them, 4 agricultural and 1 fisheries) the most feasible EbA measures to apply for the protection, conservation and sustainable management of coastal ecosystems in the face of the dangers of slow-onset disasters projected by the FLIS studies used for the formulation of the Concept Note. For the selection of the measures, the Hazard Vulnerability and Risk studies identified for each municipality will be taken into account. To do this, the project will carry out the following activities:

Cuba

- Three workshops given by FAO experts to train 20 members of the work team. The objectives of these workshops will be to create skills for adapting EbA solutions to the specific conditions of each intervention site, to train the team on the processing and standardization of the information collected for subsequent analysis by reviewing successful EbA initiatives in the region to identify factors that determine success, limitations and obstacles, lessons learned and costs/benefits of different approaches
- Two meetings with specialists from each municipality to learn about Hazard Vulnerability and Risk plans.
- Three work meetings to select the specialized equipment to be used in the implementation of EbA measures.
- Five workshops taught by specialists for the implementation of the Environmental Management Model in the intervention sites, with the objective of training 20 people in the existing tools and methodologies.. The workshops will a) identify key coastal ecosystems and priority sites for the reduction of projected losses and damages for their protection, conservation, and sustainable management to reduce projected damages and losses due to slow onset hazards as projected from the initial hazard model, b) analyse local coastal ecosystems in the intervention areas using international methodologies to translate these services into productive services and livelihood indicators to be incorporated into governmental and productive analysis in the municipalities, c) implement loss/gain analysis in target areas of the vegetation of these coastal ecosystems with the support of geographic information tools to compare the historical evolution of vegetation cover and land use as an element to determine critical areas for conservation, rehabilitation and sustainable management based on their capacity to provide protective services to agricultural and

fisheries production areas and their potential to reduce productivity losses, d) select priority sites for the implementation of EbA measures validated by communities and key stakeholders based on the value of coastal ecosystems for population groups differentiated by gender, local culture and livelihoods, e) validate and final select through working groups with relevant stakeholders of priority EbA measures/interventions to improve resilience and food security to be implemented within the 5 municipalities (at least 5 EbA per municipality). f) Develop the validation and consultation workshops on EbA measures with communities and key stakeholders (at least 1 per municipality). Simultaneously, Panama teams will be trained in the tool, both in person and online

- Pre-design of identified EbA measures that consider equity and inclusion of vulnerable groups (e.g. mangrove and reef restoration to improve coral health, coastal vegetation restoration, among others) to define and acquire specialized equipment to develop and implement the EbA measures identified during the diagnosis in the initial visit to each intervention site.

Panama

- Analysis of local coastal ecosystems throughout the intervention areas using international methodologies to translate these services into productive services and livelihood indicators that will be incorporated into the governmental and productive analysis in the municipalities.
- Loss/gain analysis in target areas of the vegetation of these coastal ecosystems with the support of geographic information tools to compare the historical evolution of vegetation cover and land use as an element to determine critical areas for conservation, rehabilitation and sustainable management based on its ability to provide protective services to agricultural and fishery production areas and its potential to reduce productivity losses.
- Review of successful EbA initiatives in the region to identify factors that determine success, limitations and obstacles, lessons learned and costs/benefits of different approaches.
- Identification of key coastal ecosystems and priority sites for the reduction of projected loss and damage for protection, conservation and sustainable management to reduce projected damage and loss due to slow-onset hazards as projected from the initial hazard model. floods.
- Selection of priority sites for the implementation of EbA measures validated by communities and key actors based on the value of coastal ecosystems for population groups differentiated according to gender, local culture and livelihoods.
- Pre-design of identified EbA measures that consider equity and the inclusion of vulnerable groups (for example: Restoration of mangroves and reefs to improve the health of corals, Restoration of coastal vegetation, among others)
- Validation and final selection through working groups with relevant key actors of priority EbA measures/interventions to improve resilience and food security to be implemented within the 4 municipalities (at least 5 EbA for each municipality)
- Development of validation and consultation workshops on EbA measures with communities and key actors (at least 1 per municipality).
- Cost-effectiveness evaluation of the implementation of the EbA measures selected and validated in the 4 municipalities.
- Systematization of lessons learned.

148. Activity 2.1.2. Farmer Field Schools (FFS) support local training and EbA implementation, including the restoration and sustainable management of identified critical ecosystems. It is estimated that the Indigenous Peoples (IPs) in the project area, (as particularly expressed by Rio Palmilla), will benefit from this activity. The initiative will also build upon and incorporate their traditional knowledge. This activity will support the implementation of FFS across nine target municipalities including sharing best practice techniques across a bilateral setting through in field experimentation (mangrove restoration techniques, techniques for soil recovery, etc.), based on the results of output 2.1.1. For the development of the activity, a diagnosis will be carried out in the intervention sites to select the place with the ideal conditions to implement the FFS. Those sites where there is more experience in restoration and ecosystem management and there is commitment to the task will be considered a priority. The activities identified in each country are:

Cuba

- Formulation of the design and implementation plan for the Field Schools, within the framework of a capacity building process with at least 20 direct and indirect beneficiaries in each intervention site, taking into account gender and generational aspects.
- . Participatory design for the implementation of EbA measures with at least two workshops, trainings and online exchange courses with successful and related projects, sharing best agricultural experiences and practices, emphasizing EbA solutions and measures to reduce projected losses and protect livelihoods with the establishment of a participatory monitoring and evaluation system to assess the progress of participants and the impact of the EbA measures implemented.

- Meetings between countries and common identities through work agreements to share experiences in response to natural disasters that have an impact on fragile coastal systems.
- Dissemination of educational information related to the use of EbA measures, through local radio and television, reports, bulletins, brochures, brochures and web pages. It will include training and education of the population participating in FFS on the principles and benefits of implementing EbA measures, documenting systematizing results, lessons learned and best practices for the implementation of EbA measures through FFS and the development of informative material (brochures and audiovisuals) on the topic of FFS and main results.
- Define and acquire specialized equipment for agricultural and fishing practices to develop training actions, identified during the diagnosis in the initial visit to each field school for farmers.
  Exchange actions with Panama, through workshops and visits to selected intervention sites for the purpose of feedback and the transfer of best practices in each country. This will include a tour to exchange experiences, techniques and best practices Panama-Cuba (10 participants for 5 days) including in the implementation of EbA measures.
  Panama
- FFS implementation plan that includes methodology, schedule, themes, activities, facilitator profiles, logistics to be developed and the mapping and identification of the sites where the FFS will be carried out, and the selection and listing of key participants in each municipality.
- Participatory design of the methodology for implementing the EbA measures prioritized in output 2.1.1, through workshops and participatory meetings with the community and relevant key actors.
- Development of educational and didactic materials adapted to the language and needs of the participants and the themes of the EbA measures to be implemented (practical guides, brochures, among others)
- Training and education for the population participating in the FFSs on the principles and benefits of the implementation of EbA measures.
- Coordination and execution of the FFSs according to the implementation plan, actively involving participants and the population, encouraging participation in concrete actions.
- Establishment of a participatory monitoring and evaluation system to evaluate the progress of the participants and the impact of the EbA measures implemented. In addition to identifying areas for improvement and adjusting strategies if necessary.
- Development of exchange sessions/workshops where participants share experiences in the implementation of EbA measures.
- Development of workshops to present results (at least 1 per municipality)
- Document systematizing results, lessons learned and best practices for the implementation of EbA measures through FFSs.
- Development of informative material (brochures and audiovisual) in reference to the FFS theme and main results.
- Systematization of results and lessons learned from the FFSs.

149. Activity 2.1.3. Selected EbA interventions implemented with community participation and leadership based on good practices to improve coastal resilience. This activity will implement EbA measures in accordance with the prioritized measures identified and prioritized in the nine municipal level adaptation and risk management plans (Activities 1.1.3 and 1.1.4). As part of the project M&E, there will be an assessment of the EbA solutions implemented across the target sites and their incidence in reducing loss and damage projections from slow onset hazards. The activities identified in each country are:

Cuba

- Implement a technical meeting with Forestry Companies belonging to MINAG linked to the project work sites with the implementation of EbA measures in a differentiated manner..
- Identify EbA solutions that forestry companies will carry out the rehabilitation of the hydrology of coastal wetlands in each target site to ensure the ecological flow of freshwater towards mangrove ecosystems and promote the recovery and stability of coastal ecosystems.
- Carry out 5 training actions, through national and foreign consultants, using the capacities installed in the territories and the experiences of other international projects that have affected other regions with similar actions, developing local capacities once the project has concluded. achieve its sustainability and continue monitoring coastal ecosystems. Trainings will include consultation sessions with key stakeholders in the municipalities, strengthen the capacities of communities and key stakeholders for the implementation, management and maintenance of EbA measures to be implemented, develope educational and didactic materials adapted to the language and needs of the municipalities based on the themes of the EbA measures to be implemented, design sustainability strategy for the EbA measures implemented in the long term, and proposal of continuity plans for the EbA measures once the project is completed

and development of workshops to present the results of the implementation of EbA measures (1 workshop per municipality).

- Define and acquire specialized forestry equipment to develop restoration actions, identified during the diagnosis in the initial visit to each site, as well as the means of mobilization to enter difficult-to-access areas throughout the wetlands. This activity provides for the restoration of mangroves and vegetation in the coastal area, the enrichment with seedlings or cuttings produced from the black mangrove, Yana and Patabán nurseries, in the form of small forests, using assisted natural regeneration management.
- Monitor and evaluate ecosystem responses (including their health, connectivity and reduced pressures) to rehabilitated conditions as indicators of increased coastal resilience and, in turn, will provide evidence-based information and guidance for EBA approaches in areas where the measures are not viable. It will involve the coordination, execution, supervision, and monitoring of the implementation and progress of the EbA measures prioritized in each municipality according to the implementation plan. Additionally, it will include the establishment of a monitoring and evaluation system to assess the impact and effectiveness of the implemented EbA measures, as well as an evaluation to identify the results and impacts of these measures on adaptation, resilience improvement, and risk reduction in food production.
- Implement regional exchange with Panama, including three workshops and field visits to promote the exchange of experiences for the adoption of effective measures and best agricultural practices.

Panama

- Development of an Implementation Plan that describes the implementation strategy of EbA measures, based on the measures identified in the adaptation and risk plans. In addition, it must include a schedule, necessary resources, distribution of responsibilities and community participation strategies for identifying key actors.
- Consultation sessions with the key actors of the municipalities, which include opinions, contributions and decision-making.
- Strengthening the capacities of communities and key actors for the implementation, management and maintenance of the EbA measures that will be implemented.
- Development of educational and didactic materials adapted to the language and needs of the municipalities based on the themes of the EbA measures to be implemented (practical guides, brochures, among others).
- Coordination, execution, supervision and monitoring of the implementation and progress of the EbA measures prioritized in each municipality according to the implementation plan, actively involving participants and the population, encouraging participation in concrete actions.
- Implementation of a system for monitoring and evaluating the impact and effectiveness of the implemented EbA measures and evaluation that identifies the results and impact of the EbA measures on adaptation and improving resilience and risk reduction in food production.
- Design of a sustainability strategy for the EbA measures implemented in the long term, and proposal of continuity plans for the EbA measures once the project is completed.
- Development of workshops to present results of the implementation of EbA measures (1 workshop per municipality)
- Systematization of the activities carried out, results obtained, and lessons learned.

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

150. 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 associations[73] 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,IPs and minority populations. During the consultation with the IPs in Rio Palmilla, the community identified the necessity to access additional resources. The project will consider specific support for IPs that will generate production diversification and increase livelihoods while assuring the adaptation to climate change (as expressed by the community during the consultation). 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.

[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.

151. In the case of Panama, there is allocation of grant under Outcome 3.1 (USD 200,000, 1.4% of the total project budget) and Outcome 3.2 (USD 200,000, 1.4% of the total project budget). The size of the grants will vary between USD 20,000 and USD 50,000, depending on the needs and characteristics of each local cooperative or local productive association. The specific size of the grants will be determined according to the scale and scope of the activities proposed by the beneficiaries. Under those circumstances, the total number of grants will vary between 4 and 10 under each project Outcome, for a total of 8 to 20 grants totaling USD 400,000.

152. The selection of beneficiaries to receive grants will follow eligibility criteria that includes: i) Potential impact on the community and alignment of activities with the project objectives; ii) Technical and financial details to implement the proposed activities; iii) Cost benefit of the implementation of the proposed activities; iv) Inclusive participation, prioritizing women and indigenous groups; v) Experience in activities related to the project objective. The selection process will be carried out through an open and transparent call, followed by a technical and financial review of the proposals. The proposed activities will be evaluated by a committee of experts based on criteria such as: i) Technical and financial viability; ii) Sustainability of the proposed activities after completing the grant use; iii) Coherence with the project objectives; iv) Beneficiaries must also submit a detailed implementation plan and budget, including an operation and maintenance plan for equipment once grants use are over.

153. It is proposed that, upon granting the grant, a formal legal agreement be signed with the cooperative and the executing entity detailing the terms and conditions (purpose of the grant, expected results and required reports, and commitment to the continued use of the practices and /or technologies for a period established after completing the subsidy). The funds will be disbursed in tranches, conditional on the progress of activities and the presentation of periodic reports, in accordance with what is established by the implementing entity. Continuous monitoring will be carried out to ensure proper use of funds. Beneficiaries will need to submit periodic reports on the progress of funded activities and the use of grant funds. The information will be corroborated with field visits to verify the progress of the funded activities. Within the project terminal evaluation, a final evaluation will be conducted to determine the impact of the activities funded by the grants.

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.

154. 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.

155. Overall, the main project activities 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 adaption 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 with 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.

156. Activity 3.1.1. Agricultural and fishing cooperatives have been created and/or strengthened (favoring women and vulnerable populations) in their associative, productive capacities for a climate-smart production capacity. Support (technical capacity and extension support) and investments (grants in the case of Panama) provided to local productive cooperatives (prioritizing women and indigenous groups) for the implementation of climate-smart agricultural and fishing practices focused on food value chains that promote livelihoods sustainable and resilient lives, as identified in participatory adaptation and risk management plans. In addition to strengthening women's associations to facilitate their access to support and investments in projects and the development of their own initiatives compatible with EbA. To properly implement this output, the following activities have been identified in each country:

Cuba

- Carry out the specialized diagnosis in the selected municipalities for the six tasks of the component; carry out field visits; inform the actors of the territories in advance; establish the work program and visits to the intervention sites; raise the baseline and state of the ecosystems; Carry out actions with the Panamanian side in order to carry out exchanges regarding the use of good and best practices for the use of climate smart technologies and strengthen agricultural and fishing entities with capacity building and support of technological and specialized equipment for the use of climate smart technologies.
- Raise awareness and carry out training in municipalities on the use of Climate Smart Technologies according to the selected measures; establish the work program and site visits.
- Introduce the implementation of the agrometeorological Early Warning System, for this it will be necessary to carry out field visits; prepare the initial diagnosis at each site; establish preparation work programs; define the equipment necessary for monitoring agroclimatic variables at the sites; punctually evaluate the specialized agro-meteorological information adjusted for each site; Raise awareness and conduct training on climate smart technologies and the use of agrometeorological early warning system, emphasizing actors and women leaders.
- Identification and selection of NbS to be implemented in the selected key coastal ecosystems must be identified. Prepare the final list of NbS measures to implement at the sites and assign specialized equipment.
- Organize a National Workshop to verify the diagnosis of the Municipal Development Strategies (EDM) to discuss the status in each municipality and provide training on the guidelines to update the EDM.
- Update EDM intended to insert the adaptation approach to the CC by the municipal teams led by their Municipal Development Directorates and the National Advisory Council, as required. The EDM will be submitted for approval by each municipality, once completed.

Panama

- Identification of the main cooperatives and associations that could benefit from support, with priority given to those led by women and vulnerable groups. Evaluation of the specific needs of each cooperative in terms of capabilities, investment and necessary technical support.
- Development of an investment program that includes the definition of eligibility criteria to receive support and investments, establishment of a transparent and equitable process for the allocation of funds to the selected cooperatives.
- Provision of technical capacity to cooperatives and associations on climate-smart agricultural and fishing practices.
- Strengthening business skills: training in business skills, financial management and marketing to increase the capacity of cooperatives to manage investments effectively.

- Support cooperatives to develop detailed implementation plans for climate-smart agricultural and fishing practices, based on their needs and available resources.
- Provision of technical advice to cooperatives during the implementation of climate smart practices.
- Establishment of a monitoring system to evaluate how cooperatives are using investments and their impact on improving climate smart practices.
- Periodic evaluation to measure the impact of investments on the sustainability and resilience of cooperatives.
- Workshops for presentation and dissemination of lessons learned among cooperatives.
- Creation of dissemination materials with results.
- Development of sustainability plans for cooperatives that allow maintaining and expanding climate-smart practices in the long term.

157. Activity 3.1.2. Implementation of FFS in the use of sustainable and resilient production practices, including coconut, banana and rice harvesting, and fishing-related practices. The FFSs support local training and the use of sustainable and resilient productive practices, including coconut, banana and rice harvesting, and practices related to fishing and nature tourism in the nine target municipalities. The likely activities foreseen in each country are:

Cuba

- Implement a participatory diagnosis of climate risk for agriculture, fishing and nature tourism in the selected municipalities, including field visits.
- Prepare a proposal for climate-smart agriculture strategies for each site, based on the results of the diagnosis.
- Conduct workshops to raise awareness and train, in the municipalities, on climate-smart agriculture; carry out exchanges in coastal human settlements and direct training at the sites
- Visit, during the first year of implementation, each of the proposed sites in order to select the place with the ideal conditions to locate the Field Schools; create capacities through a process of practical learning on the use of climate smart technologies in the sustainability of agriculture, fishing and nature tourism, in the face of the adverse effects of CC
- Train direct and indirect beneficiaries, at the FFS site, through workshops and training by experienced international and national consultants, in the actions to be undertaken; Once the capacities are created, they will be transmitted by the producers and fishermen themselves
- Carry out the transfer, between both countries, of technologies and experiences in the coconut value chain, in one of the sites specifically selected for this activity, this will be carried out through workshops, field visits and consulting by experts. domestic and foreign
- Acquire and distribute equipment and furniture, to those sites where it is necessary to create FFS for the development of climate smart technologies.

Panama

- Identification and prioritization of climate-smart agricultural and fishing practices for local communities in the 4 municipalities, focusing on food value chains that promote sustainable and resilient livelihoods (coconut, banana, rice and fisheries, among others), such as identified in the participatory plans and based on climate projections.
- FFS implementation plan that includes methodology, schedule, themes, activities, facilitator profiles, logistics to be developed and the mapping and identification of the sites where the FFS will be carried out, and the selection and listing of key participants in each municipality.
- Participatory design of the methodology for implementing prioritized climate-smart agricultural and fishing practices, through workshops and participatory meetings with the community and relevant key actors.
- Development of educational and didactic materials adapted to the language and needs of the participants and the climate-smart agricultural and fishing practices to be implemented (practical guides, brochures, among others)
- Training and education for the population participating in the FFSs on the principles and benefits of climate-smart agricultural and fishing practices.
- Coordination and execution of the FFSs according to the implementation plan, actively involving participants and the population, encouraging participation in concrete actions.
- Establishment of a participatory monitoring and evaluation system to evaluate the progress of the participants and the impact of the implemented practices. In addition to identifying areas for improvement and adjusting strategies if necessary.
- Development of exchange sessions/workshops where participants share experiences in the implementation of implemented practices.
- Development of workshops to present results (at least 1 per municipality)

- Systematization of results, lessons learned and best practices from the implementation of FFSs.
- South-South exchange with Cuba between target sites for best practice cross-pollination. (10 people for five days)

158. Activity 3.1.3. Climate-smart agricultural and fishing productive technologies adopted by local producers through the FFS approach. Implementation of FFS for the adoption by local producers of climate-smart agricultural and fishing production technologies. The main activities for each country include:

Cuba

- Implement meetings with the actors involved to adopt a concept that suits each country or region in terms of climate smart technologies and select the most viable and necessary activities, according to the situation of each country or region
- Disseminate educational information related to climate smart technologies; prepare informative reports and brochures on the subject
- Carry out training actions, through national and foreign consultants, using the capacities installed in the territories and the experiences of other international projects that have affected other regions with similar actions, developing local capacities once the project has concluded, achieve its sustainability and continue with the use of climate smart technologies.
- Implement awareness-training of climate-smart agricultural technologies in the municipalities where the FFSs have been developed.
- Implement climate-smart techniques in the intervention sites depending on the diagnosis that will be carried out in the first year of implementation of the Project. This may include conservation agriculture techniques, sustainable intensification of agricultural production through crop diversification, good agricultural practices, efficient water management, soil management, conservation and improvement and other actions; apply agroforestry techniques, produce and use seeds of cultivars resistant to the effects of CC; promote good practices in fishing and aquaculture.
- Promote the development of nature tourism, as a diversification of livelihoods.
- Implement regional workshops with Panama to promote the exchange of experiences between countries to adopt the most effective measures and best practices.

Panama

- Identification and prioritization of climate-smart agricultural and fishery production technologies that can be adopted by local producers, focusing on food value chains that promote sustainable and resilient livelihoods, as identified in participatory plans and based on projections climatic.
- FFS implementation plan that includes methodology, schedule, themes, activities, facilitator profiles, logistics to be developed and the mapping and identification of the sites where the FFS will be carried out, and the selection and listing of key participants in each municipality.
- Participatory design of the implementation methodology for the adoption by local producers of climate-smart agricultural and fishing production technologies, through workshops and participatory meetings with the community and relevant key actors.
- Development of educational and didactic materials adapted to the language and needs of the participants on the adoption by local producers of climate-smart agricultural and fishing production technologies (practical guides, brochures, among others)
- Training and education for the population participating in the FFSs on the principles and benefits of the adoption of climate-smart agricultural and fishing production technologies.
- Coordination and execution of the FFSs according to the implementation plan, actively involving participants and the population, encouraging participation in concrete actions.
- Establishment of a participatory monitoring and evaluation system to evaluate the progress of the participants and the impact of the adoption of climate-smart agricultural and fishing productive technologies. In addition to identifying areas for improvement and adjusting strategies if necessary.
- Development of exchange sessions/workshops where participants share experiences in adopting climate-smart agricultural and fishing production technologies.
- Development of workshops to present results (at least 1 per municipality)
- Systematization of results, lessons learned and best practices from the implementation of FFSs.

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

159. 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.

160. 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.

161. Overall, the project activities under this Outcome 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.

162. Activity 3.2.1. Cooperatives have been created and/or strengthened to implement diversified livelihoods compatible with EbA. The support to cooperatives (artisanal cultivation of oysters and mollusks in mangroves, marketing and processing of coconut and banana-based products, nature tourism) with technical capacity and extension support and investments (grants in the case of Panama) provided to local productive cooperatives (prioritizing women and indigenous groups) for the implementation of diversified livelihoods compatible with EbA, in addition to the strengthening of women's associations to facilitate their access to support and investments in projects and the development of their own initiatives. Main activities include the following actions in each country:

Cuba

- Organize exchanged with farmers and fishermen to identify the products that will diversify the income of the families involved and define the needs to develop such initiatives. It will involve the identification of the main cooperatives and associations that could benefit from support, with priority given to those led by women and vulnerable groups. Evaluation of the specific needs of each cooperative in terms of capabilities, investment and necessary technical support.
- Conduct exchange workshops to raise awareness and apply diagnostic instruments to identify/update the livelihoods of the intervention sites.
- Conduct training workshops with the objective of evaluating the impact of the Project activities on the livelihoods of the intervention sites.
- Organize meetings to prepare management plans to diversify livelihoods compatible with EbA and mitigate and/or avoid negative externalities caused by project activities.

Panama

- Identification of the main cooperatives and associations that could benefit from support, with priority given to those led by women and vulnerable groups. Evaluation of the specific needs of each cooperative in terms of capabilities, investment and necessary technical support.
- Development of an investment program that includes definition of eligibility criteria to receive support and investments, establishment of a transparent and equitable process for the allocation of funds to the selected cooperatives.
- Provision of technical capacity to cooperatives and associations on diversified livelihoods compatible with EbA (artisanal cultivation of oysters and mollusks in mangroves, marketing and processing of coconut and banana-based products, nature tourism).
- Strengthening business skills, training in business skills, financial management and marketing to increase the capacity of cooperatives to manage investments effectively.

- Support cooperatives to develop detailed implementation plans for EbA-compatible diversified livelihoods, based on their needs and available resources.
- Provision of technical advice to cooperatives during the implementation of EbA-compatible diversified livelihoods.
- Establishment of a monitoring system to evaluate how cooperatives are using investments and their impact on livelihoods.
- Periodic evaluation to measure the impact of investments on the sustainability and resilience of cooperatives.
- Workshops for presentation and dissemination of lessons learned among cooperatives.
- Creation of dissemination materials with results.
- Development of sustainability plans for cooperatives that allow maintaining and expanding climate-smart practices in the long term.

163. Activity 3.2.2. FFSs support local training and the use of sustainable and resilient productive practices for EbA-compatible livelihoods in target municipalities. Implementation of FFS that includes local training and the use of sustainable and resilient productive practices for livelihoods compatible with EbA. The main activities identified in each country include:

Cuba

- Organize workshops in the FFSs with the objective of updating the local actors who will support the training and gathering information on training needs. These workshops will be touched base on the identification and prioritization of sustainable and resilient productive practices for livelihoods compatible with EbA in the 4 municipalities, (artisanal cultivation of oysters and mollusks in mangroves, marketing and processing of coconut and banana-based products, nature tourism) as identified in the participatory plans and based on climate projections.
  Carry out trainings on various topics (climate change, early warning systems, climate risk, climate smart technologies, NbS, AbE, EDM, good practices, lessons learned, etc Trainings and education for the population participating in the FFSs on the use of sustainable and resilient productive practices for livelihoods compatible with EbA, sessions where participants share experiences in the implementation of implemented practices.

Panama

- Identification and prioritization of sustainable and resilient productive practices for livelihoods compatible with EbA in the 4 municipalities, (artisanal cultivation of oysters and mollusks in mangroves, marketing and processing of coconut and banana-based products, nature tourism) as identified in the participatory plans and based on climate projections.
- Development of FFS implementation plan that includes a methodology, schedule, themes, activities, facilitator profiles, logistics to be developed and the mapping and identification of the sites where the FFS will be carried out, and the selection and listing of key participants in each municipality.
- Participatory design of the FFS implementation methodology for local training and the use of sustainable and resilient productive practices for livelihoods compatible with EbA, through workshops and participatory meetings with the community and relevant key actors.
- Development of educational and didactic materials adapted to the language and needs of the participants (practical guides, brochures, among others).
- Training and education for the population participating in the FFSs on the use of sustainable and resilient productive practices for livelihoods compatible with EbA.
- Coordination and execution of the FFSs according to the implementation plan, actively involving participants and the population, encouraging participation in concrete actions.
- Establishment of a participatory monitoring and evaluation system to evaluate the progress of the participants and the impact of the implemented practices. In addition to identifying areas for improvement and adjusting strategies if necessary.
- Development of exchange sessions/workshops where participants share experiences in the implementation of implemented practices.
- Development of workshops to present results.
- Document systematizing results, lessons learned and best practices in the implementation of FFSs.
- Document systematizing results and lessons learned from the consultancy.

164. Activity 3.2.3. Diversified and EbA-compatible livelihoods supported based on good practices in target municipalities through the FFS approach. This activity will support the implementation of FFS that includes local training and the use of sustainable and resilient productive practices for livelihoods compatible with EbA. Main activities in each country include:

Cuba

- Evaluation and identification of alternative livelihoods that are compatible with EbA and to take advantage of participatory plans and climate projections.
- Provide farmers access to climate information projections through agricultural and fisheries associations to enable them to understand the implications of CC.
- Support agricultural and fishing cooperatives by providing inputs, equipment and extension services to small-scale producer associations to diversify their income sources and livelihood options and make them more resilient to CC (alternative livelihoods). identified during project preparation and initial project consultations include the processing and transformation of key products such as coconut oil, banana chips and coconut fibers, artisanal cultivation of oysters and mollusks, regenerative aquaculture for small producers and nature tourism, like sport fishing).
- Identification of priority alternative livelihood solutions that are compatible with EbA for selected project sites, as identified in participatory plans and based on climate projections.
- Provide support (technical capacity and extension support) and investments to community associations (favoring women) to implement alternative and EbA-compatible livelihood solutions.
- Implement best practices through FFSs at all target sites and in a bilateral setting; assess alternative livelihoods in target sites and their impact on increased benefits to livelihoods, income and overall economic resilience in the face of slow-onset threats.
- Guarantee that women's associations have priority as beneficiaries; Conduct workshops with the objective of analyzing the potential of communities to diversify livelihoods from agriculture.
- Develop diagnostic reports on diversified livelihoods.
- Conduct workshops with the aim of exchanging lessons learned and good practices at target sites through the FFS; conduct South-South exchange in target sites for best practice cross-pollination.

Panama

- Evaluation and identification of alternative livelihoods that are compatible with EbA and to take advantage of participatory plans and climate projections.
- Provide farmers access to climate information projections through agricultural and fisheries associations to enable them to understand the implications of CC.
- Support agricultural and fishing cooperatives by providing inputs, equipment and extension services to small-scale producer associations to diversify their income sources and livelihood options and make them more resilient to CC (alternative livelihoods). identified during project preparation and initial project consultations include the processing and transformation of key products such as coconut oil, banana chips and coconut fibers, artisanal cultivation of oysters and mollusks, regenerative aquaculture for small producers and nature tourism, like sport fishing).
- Identification of priority alternative livelihood solutions that are compatible with EbA for selected project sites, as identified in participatory plans and based on climate projections.
- Provide support (technical capacity and extension support) and investments to community associations (favoring women) to implement alternative and EbA-compatible livelihood solutions.
- Implement best practices through FFSs at all target sites and in a bilateral setting; assess alternative livelihoods in target sites and their impact on increased benefits to livelihoods, income and overall economic resilience in the face of slow-onset threats.
- Guarantee that women's associations have priority as beneficiaries; Conduct workshops with the objective of analyzing the potential of communities to diversify livelihoods from agriculture.
- Develop diagnostic reports on diversified livelihoods.
- Conduct workshops with the aim of exchanging lessons learned and good practices at target sites through the FFS; conduct South-South exchange in target sites for best practice cross-pollination.

165. **New and innovative solutions to climate change adaptation.** 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.

166. 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 NDCs[74]:

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 cantered financial instruments; and call for enhanced international support, especially the provision of and access to finance.

167. The project also innovates by supporting the implementation of innovative NbS, 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".

168. 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

169. The project seeks to promote and build climate resilience in vulnerable rural communities in Cuba and Panama and vulnerable groups within those communities, including gender considerations, 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. The expected economic, social and environmental benefits that these groups will have, is described as follows:

170. **Economic Benefits:**

(i) Preventing damage to reduce possible economic losses. The implementation of EbA approaches (Component 2) in selected coastal habitats (2,024 hectares of coral reefs in Panama sustainably managed and 45 hectares of mangroves (30 in Cuba and 15 in Panama) sustainably managed, restored or rehabilitated) 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 km^2 of mangrove[75]. It should be noted that this analysis did not include information regarding protective services provided by mangroves in preventing the

[74] Extracted from World Wildlife Fund (2020) Anchoring Loss And Damage In Enhanced NDCs (Nationally Determined Contributions).
[75] CEPAL. (2018). Efectos del cambio climático en la costa de América Latina y el Caribe: Evaluación de los Sistemas de Protección de los Corales y Manglares en Cuba. Santiago Chile.

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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 in 219 hectares (122 in Cuba and 97 in Panama) 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) in 219 hectares (122 in Cuba and 97 in Panama), coastal communities will benefit from improved income and food security (see Cost-Effectiveness Analysis in Section C). A total of 28 agricultural and fishing-based cooperatives (15 in Cuba and 13 in Panama) will be strengthened as part of the project support. Recent experiences with intercropping in Sri Lanka have shown higher net returns of up to 117% to 180% than coconut monocropping under rainfed conditions[76]. Project consultations highlighted for instance this concern with producers stating production losses of up to two thirds compared to their previous harvests. The potential for sport-fishing in Panama was estimated at 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 million[77]. 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 DLAs 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. A total of nine PAPs and nine PRMPs will be prepared at the Municipal Level through a participatory gender-sensitive process. 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. A total of 35 people (18 women and 17 men) will be trained on the design and implementation of the DLIS for Agriculture and Fishing Production.

171. **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. A total of 219 hectares (122 in Cuba and 97 in Panama) will implement climate smart practices. In Cuba it has been estimated that SLR could result in accumulated losses of around 40,000 tons in harvests of fundamental crops (rice and sugar cane), which 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.

(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. A total of 100 people (50 women and 50 men) will be trained on EbA through an FFS approach, and a total of 1,200 people (800 in Cuba and 400 in Panama) will be trained through the FFS approach on climate smart agricultural technologies or for diversified livelihoods. Of those, an estimated 300 people (250 in Cuba and 50 in Panama) may adopt climate-smart agricultural and fishing productive technologies. An additional 300 people (250 in

[76] Shrawan Singh, D.R. Singh, A. Velmurugan, I. Jaisankar, & T.P. Swarnam. (2008). Chapter 23 - Coping with Climatic Uncertainties Through Improved Production Technologies in Tropical Island Conditions. In: Biodiversity and Climate Change Adaptation in Tropical Islands. Eds: C. Sivaperuman, A. Velmurugan, A. Kumar Singh, I. Jaisankar, C. Sivaperuman et al. Academic Press. p 623-666.

[77] Castrejón, M., & S. Bucaram. (2020). Diagnóstico integral del sector pesca y acuicultura de la República de Panamá. Banco Interamericano de Desarrollo (BID, Washington, DC.

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Cuba and 50 in Panama) is planned to benefit from diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities.

(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 DLA 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.

172. **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 Greenhouse Gas (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 CO_2 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].

C. COST-EFFECTIVENESS

173. **The proposed regional approach will support cost-effectiveness through the implementation of DLAs** 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.

[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

174. **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.

175. **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.

176. **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.

177. **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 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 Caribbean[81]. 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 NbS have as a least cost most benefit option for adaptation and disaster risk management[82].

178. **Cost-effectiveness analysis**. A cost-benefit analysis of project interventions was developed, where it identified a set of potential quantifiable benefits, mainly on ecosystem service valuation for Component 2, based on evidence on Manglar Vivo Project in Cuba[83] (UNDP, 2021) and FAO[84] (2023) in Panama, and on economic and financial assessments of FFS implementation in Panama for Component 3 (IDB, 2023). For outcome 2 interventions on EbA measures, main sources of benefits rely on the estimated value of ecosystem services provided such as i) climate regulation, ii) maintenance of lifecycles of migratory species (incl. nursery service), iii) habitat and gene pool protection, iv) erosion prevention, v) air quality regulation and vi) Regulation of water flows. And it involves seagrass, mangroves, coral reefs and coastal ecosystems. Estimated value per hectare per year goes up to US$ 10,102 for Cuba (152 hectares of EbA successfully implemented) and US$14,642 for Panama (112 hectares of EbA successfully implemented). For outcome 3, main benefits rely on i) the farmers' incremental benefits due to the increase in agricultural and livestock margins based on cost reduction

[79] http://www.fao.org/3/cb3141en/CB3141EN.pdf

[80] IFRC. (2019). Coastal Protection: A cost comparison between natural and artificial structures. International Federation of Red Cross and Red Crescent Societies (IFRC).

[81] Ibid.

[82] Aguilar González, B. (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.

[83] Vales y Aguilar. (2021). Revista Iberoamericana de Economía Ecológica Vol. 34, No. 1: 86-110

[84] Mazzoli, E. & F. Attorre. (2023). Cost benefit analysis of coastal nature-based solutions in SIDS (OSL & FAO CFI)

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for the weigh of synthetic chemical inputs costs on farms, increase in sales value and volume, increase in agricultural productivity, and ii) the incremental benefits of the added-value initiatives. Incremental added value per hectare per year is estimated at US$ 881 (219 hectares adopting climate smart practices) and US$ 14,400 per cooperative per year for initiatives involving associations (around 10).

179. The cost-benefit analysis was estimated after calculating the aggregated stream of benefits compared to outcome 2 and outcome 3 costs respectively. Overall, investments for outcome 2 are economically viable and shows that the project is economically viable, with economic internal rate of return (EIRR) at 23% and net present value (NPV) at US$ 21.6 million for a 25-year period at 4% discount rate for investments under Component 2. Investments for outcome 3, EIRR was estimated at 5% and NPV at US$ 0.3 million. The sensitivity analysis tested the robustness of outcome 2 profitability results in face of different adverse scenarios for costs and benefits due to the materialization of key risks identified such a reduction in ecosystem service values or number of hectares reached. These included decrease in ecosystem service value estimates (10%, 20% and 50%), and the additional/combined scenario of reduction in the number of hectares reached (10%, 20% and 50%). Additionally, results were tested with 10% and 14% discount rates. NPV remains positive under the different scenarios, except by a 50% reduction in ecosystem service values and 50% reduction in the number of hectares reached. Therefore, the project results seem to be robust. Table 2 below presents the main results of the sensitivity analysis, which shows that the project is most sensible to a delay in materialization of benefits.

Table 4A: Cost-effectiveness and alternatives to project

Component/ Subcomponent	Total costs (US$)	Beneficiaries	Benefits generated	Alternative to project
Component 1. Climate change adaptation planning and regional cooperation				
Outcome 1.1 Loss and damage of agricultural and fishing productivity methodology implemented in nine target coastal municipalities	1 456 523	**Nine coastal municipalities with baseline L&D analysis, PAPs and PRMPs** **28** agricultural and fishing-based cooperatives planning investments.	**9** municipalities ensure planning of positive cost-benefit climate adaptation and risk management measures to be taken. **121,909** hectares of natural assets to be protected and rehabilitated under positive cost-benefit investments planned.	Other loss & damage accounting methodologies lack of institutional validation, desk support and technical robustness (strong focus on a variety of data to elaborate the baseline- national statistics complemented with micro satellite, drone imagery, stressors, earth observations, etc.). It may result in under or overestimation of losses & damages and therefore misleading the cost and benefits of interventions. Other pre-investment alternatives, if less participatory, would lack of appropriation, resulting in reduced adoption rates, and therefore reduced benefits and sustainability. Different targeting strategies (micro or sector assessments & plans, other than municipalities) would lack of value for money, and they would present higher transactional costs.
Outcome 1.2 Institutionalized Loss and Damage Information Systems (DLIS) at a sectoral and local level	685 803	**Nine municipalities** with DLIs for Agriculture and Fishing production **35** persons trained on DLIs for Agriculture and Fishing production (including 50 percent of trained women)	**9** DLIs and capacity development at local and sectoral level lead to: a. evaluate the true cost of adaptation inaction and define adequate efforts to ensure return on investment of adaptation and prevention measures. b. integrate past records (retrofitting) and improve datasets, reducing marginal cost of updates (due to the scale) and avoiding higher costs approaches of overlapping / dispersed exercises, c. accelerated learning curve and therefore avoided delays on obtaining benefits as both countries would share knowledge and experiences. **10** knowledge products and knowledge sharing events	Other non-systematic approaches (on-demand studies, only sectoral or local exercises with no integration) would lack of value for money as they would involve duplications, overlapping and there would be no benefit of scale. Other alternatives to capacity development approach, as contractualization, service providers, consultancies, would lack of sustainability of benefits. Non standardized methodologies between the two countries would derive in higher delays (due to learning curves) and dismissed knowledge sharing improvements and opportunities.
Outcome 1.3. Enhanced knowledge on loss and damage practices	396 512			
Component 2. Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities.				
Outcome 2.1 Nine Municipalities manage critical ecosystems,	3 828 257	**264** hectares where selected EbA interventions have been successfully	• A cost-benefit analysis for 25 years at 4% discount	Recent evidence from Manglar Vivo Project demonstrates that *cost of hard or grey infrastructure in the intervention area would be USD 141/m. In contrast, the cost of EbA is just*

Component/ Subcomponent	Total costs (US$)	Beneficiaries	Benefits generated	Alternative to project
through EbA measures, increasing the resilience of their communities, livelihoods, and local food security		implemented	rate shows the following results: o **EIRR: 23%** o **NPV: US$ 21.6 million** o **Ratio B-C: 4.5** **For Panama/Cuba:** ● US$/ha 10 102 benefits derived from ecosystem services based on Manglar Vivo Project (UNDP, 2021) ● US$/ha 14 642 benefits derived from ecosystem services based on FAO references on coastal nature-based solutions in SIDS[85] ● **US$ 1.3 million** per year / aggregated benefits for Outcome 2 investments in Cuba ● **US$ 1.47 million** per year / aggregated benefits for Outcome 2 investments in Panama A sensitivity scenario shows that results are robust and positive even with discount rates at 10% (NPV US$ 7.6 million) and 14% (NPV US$ 3.6 million), and breakeven was found under a scenario of reduction in 50% of Ecosystem services values and another 50% reduction in realization of hectares with EbA implemented.	*over 62 USD/m, which is only 44% of the cost of a grey infrastructure approach. In total, the savings would be more than USD 6.5 m over 84 km of coastline* (Manglar Vivo Final Evaluation Report, 2020, UNDP, p41) Minimum cost of seawalls and levees goes up to USD19 million per linear kilometre in the Caribbean. Besides, the following list provides estimates comparing Eba solutions to other alternatives to project based on recent experiences and expanded evidence: **<u>Sea rise level/ Saltwater intrusion/Flooding:</u>** **Alternative to project**: Dikes, **US$48 million/mile** **EbA solution (a):** Wetland restoration, **US$25 million/mile** (Reguero, et al. others, 2018) **EbA solution (b):** Mangrove restoration, US$1000 ha (Narayan, et al. others, 2016) **EbA solution (c): Reforestation, US$ 1000 – 5000/ha.** **<u>Flood management:</u>** **Alternative to project**: Physical infrastructure (€112,000 per 100 meters) **EbA solution:** Wetland restoration, €62,000 per hectare (Salminen, et al. 2013) **<u>River overflow:</u>** **Alternative to project**: Physical infrastructure (€100,000 per 100 meters) **EbA solution:** Riparian canopy restoration (up to US$ 2,000/ha) (GeoCal, 2010) **<u>Coastal Protection:</u>** **Alternative to project**: Double and single concrete pile breakwaters (US$1,000/m to US$3,500/m every 25 years) **Eba solution:** Melaleuca fence (US$50/m to US$80/m every 5 years) (Bakker, 2017). **In summary, grey infrastructure investments** to manage saline intrusion, flooding and increase in sea levels with artificial structures for coastal protection are more expensive, less profitable and lack of sustainability and resilience (Galve., et al. 2016; Salminen, et al. 2013; Bakker, 2017). Instead, EbA solutions in coastal wetlands are valuable, self-sustaining "horizontal levees" for storm protection and provide a range of other ecosystem services that vertical levees do not, including carbon sequestration and groundwater recharge Hard constructions, such as longitudinal dikes, are not fully effective in these coastal areas due to their low and swampy nature. Longitudinal dikes implemented in the past in similar coastal areas in Cuba to protect certain areas from erosion or to reduce salt intrusion have caused coastal erosion elsewhere and further degradation of ecosystems. Besides, once ecosystems have reached the desired protective functionality derived from rehabilitation and strengthening specific ecological processes,

[85] **Ecosystem service value references: Cuba**: Vales y Aguilar, 2021. Manglar Vivo en Cuba. Costos y Beneficios de las acciones basadas en Ecosistemas. Análisis económico-ecológico en las provincias Sur Artemisa y Mayabeque Revista Iberoamericana de Economía Ecológica Vol. 34, No. 1: 86-110; **Panamá:** Mazzoli & Attorre, 2023. Cost benefit analysis of coastal nature-based solutions in SIDS (OSL & FAO CFI).

Component/ Subcomponent	Total costs (US$)	Beneficiaries	Benefits generated	Alternative to project
				ongoing maintenance costs are much lower compared to physical infrastructure
Component 3. Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience				
Outcome 3.1 Climate-smart agricultural and fishing productive solutions adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts	2 335 203	**219** hectares adopting CS practices (122 Cuba and 97 in Panama), **300** people adopting CSA and CS fishing productive technologies	• **219** hectares where CS practices have been successfully implemented generating the following benefits: Cost reduction for the weigh of synthetic chemical inputs costs on farms, increase in sales value and volume, increase in agricultural productivity. • Cost-benefit analysis for 25 years at 4% discount rate shows the following results: o **EIRR: 5%** o **NPV: US$ 0.3 million** o **Ratio B-C: 1.07** • **US$ 0.37 million** per year / aggregated additional benefits for Outcome 3 investments	There is a lack of access to finance for vulnerable smallholders and the current financial cost of micro-finance institutions does not allow the financial viability of productive models in Panama. There is a lack of goods and equipment in Cuba and the cost of accessing imported materials is not affordable for vulnerable smallholders' farmers. Not providing financial support would not generate the expected benefits described and this would derive in a full impact of climate change in their farming systems and livelihoods. Following a Fundación Natura Study for the *Programa de Adaptación al Cambio Climático a través de la gestión integral del recurso hídrico en Panama, estimated losses of climate change impact in terms of land value would be the following for rice, maize and beans under RCP 4.5 and 8.5 for 2030 and 2050:* **RCP 4.5 2030/2050:** Maize: US$ 898 MM /US$ 3.345 MM Rice: US$ 529 MM / US$ 2.805 MM Beans: US$ 15 MM /US$ 150.4 MM **RCP 8.5:** Maize: US$ 898 MM /US$ 3.345 MM Rice: US$ 529 MM / US$ 2.805 MM Beans: US$ 15 MM /US$ 150.4 MM
Outcome 3.2 Diversified and EbA-compatible livelihood options for agricultural and fishing dependent households	2 901 989	**300** people benefitting from diversified and EbA-compatible livelihoods supported		

Table 4B. Sensitivity Analysis for Outcome 2 (EIRR-%, NPV-US$)

		EIRR	NPV	Ratio B-C
Discount rate	Base	23%	21,634,955	4.52
	10%		7,649,374	2.51
	14%		3,647,640	1.89
Value-Ecosystem services	-10%	22%	18,694,792	3.41
	-20%	20%	15,754,629	3.03
	-50%	13%	6,934,140	1.89
Low value-Ecosystem Serv. + Reduction in Ha	-10%	12%	5,464,058	1.70
	-20%	10%	3,993,977	1.51
	-50%	3%	-416,268	0.95

180. **Sites for restoration activities will be selected based on the cost-effectiveness and high economic benefit to cost ratio (B/C)** (Figures 16a and 16b). 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.

181. 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 16a. B/C of mangrove restoration

Figure 16b. B/C of coral reef restoration

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)

182. The NPV of reefs and mangroves (Figures 17a and 17b) 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 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 250,000 USD/hectare.

Figure 17a. Present value per hectare of mangroves

Figure 17b. Present value of coral reefs (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)

183. In consideration of projected climate impacts to coastal municipalities a do-nothing scenario will result in the invaluable loss of agricultural land because 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 UNFCCC[86], 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.

[86] CITMA (2020)

D. ALIGNMENT WITH NATIONAL STRATEGIES

184. 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 UNFCCC to establish commitments to reduce GHG emissions through the mitigation, adaptation, and resilience of ecosystems to the effects of global warming.

185. 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.

186. The participating countries that are parties to the 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 eco-systems, 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 as a key sector, and notes that mitigation actions will require financial support in technology transfer and capacity building.

187. 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.

188. The project objectives also align with the recommendations of the recent subregional seminar[87] "Strengthening environment, climate change and disaster information in the Caribbean", organized in August 2022 by 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.

189. The project will also seek to establish coordination and collaboration with the CCCCC and the CSC to identify opportunities for collaboration and exchange.

190. **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.

191. 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.

[87] 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.

192. 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.

193. 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 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 NbS 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.

194. 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 SLM Program.

195. **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 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.

196. 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.

197. 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 was created; In 1998, the General Environmental Law was passed and the National Environmental Authority (ANAM) and the Panama Maritime Authority (AMP) were created; in 1999, the First National Environmental Strategy was approved; in 2006, the Panama Aquatic Resources Authority (ARAP) 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).

198. 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.

199. 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 Oceans[88] and the National Plan for Gender and Climate Change[89]. Both plans particular emphasis on the importance of gender for the conservation of the natural environment.

200. 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.

201. 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.

202. 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.

203. 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.

204. 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

[88] Política Nacional de Océanos de Panamá, 2022

[89] Plan Nacional de Género y Cambio Climático, 2021

Field Code Changed

Field Code Changed

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

205. 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. According to consultations carried out internally by the Ministry of the Environment (Panama) and CITMA (Cuba), they have indicated that no special permits or authorizations are required beyond of what is described in Table 3. With the endorsement and technical monitoring of the MiAMBIENTE (Panama) and CITMA (Cuba), the implementing entity in charge will be able to execute the project activities.

Table 5. 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 Nº114, 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 with 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 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. **Project alignment:** Project will be in line with sustainable fishing practices and standards stated by this law.
Decree-Law 77/2023, Coastal Zone Management (" De Costas")	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 **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.

Decree-Law 136 Forest heritage and wildlife and their contravention	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). **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.
Law 124 of 2017 on Terrestrial Waters	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. **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.
Decree-Law 50/2021 "On the conservation, improvement and sustainable management of soils and the use of fertilizers"	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. **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.
Decree-Law 200 System environmental violations	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. **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.
Resolution 139 of 2010 of the Ministry of Science, Technology and Environment	Establishes the application of environmental impact studies to activities related to: ● 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. **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.
Law 150/2022 "On the Natural Resources System and the Environment."	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. **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.
Law 148/2022 "Law on Food Sovereignty and Nutritional Food Security."	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. **Project alignment:** Applies to the fulfilment of the Project objectives set out in the three components.

F. PROJECT COMPLEMENTARITY WITH OTHER FUNDING SOURCES

206. 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 4. Complementary Projects in Cuba and Panama

Cuba		
Project and dates of implementation	Characteristics	Entry Points for Coordination and Project Additionality
Coastal Resilience to Climate Change in Cuba through Ecosystem Based Adaptation - "MI COSTA" (GCF/UNDP/AMA) (2021-2029)	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	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. **Synergies and no duplication actions:** -Opportunities for coordination learning with the Ministry of Science, Technology and Environment (CITMA), the main actor for both projects, enhance it adaptation to CC

	interventions in Batabanó and San Cristobal.	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
Coastal recovery in communities in Cuba and the Dominican Republic (Caribbean Biodiversity Fund)	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.	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.
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)	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.	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.
Mainstreaming biodiversity into mountain agricultural and pastoral landscapes of relevant ecosystems in Eastern Cuba (Global Environmental Facility FAO/MINAG) (2022-2026)	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.	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.
Environmental Foundations for Local Food Sustainability (BASAL) (EU/COSUDE/ CITMA/MINAG) (2013-2021)	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 (Jimaguayu focused on livestock).	Project implemented in specific municipalities identified through key crops. The focus, while inter-sectoral (both CITMA and Ministry of Agriculture (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. -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 EbA in the South of Artemisa and Mayabeque Provinces (Adaptation Fund/ UNDP/AMA)	The project is focused on the restoration of 84km of mangrove lined coastline implementing an EbA approach for coastal resilience. It also implemented a	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

(2014-2021)	community-based approach of ecosystem awareness.	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 implications in landscapes. ECOVALOR. UNDP-AMA	Financed by the Global Environment Facility, it seeks to generate environmental benefits, with the identification 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.	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 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 3rd 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 mangroves and protected areas of Panama (IKI, Ministry of Environment, Wetlands international, International Conservation, UNDP) (2014-2017- 3.2M USD)	Demonstrates the contribution that mangrove ecosystems 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 nationals and reports to international conventions.	Project ended in May 2018. Main results include a) 13,000 hectares of delimited and demarcated 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.
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)	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.	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
Ecosystem-based adaptation to increase resilience to climate change in the Central American dry corridor and arid zones of the	Targeted into Centro American dry corridor, include 2 basins of Panama located in the pacific coast (rather than the Caribbean).	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**

Dominican Rep. (UNEP/CABEI) (CN approval stage- 263M USD - 7 countries – 7 years of expected implementation Investment for Panama: 750k per year)	Include Ecosystem based adaptation in rural communities and technologies of efficient use of water in rural communities of targeted municipalities.	- Climate smart practices, such as agroforestry systems to relevant crops in targeted municipalities form 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
Strengthening Climate Resilience in Livelihoods and Coastal Ecosystems of the Central Pacific of Panama (Implemented by Fundación Natura) – Adaptation Fund Grant Amount: USD 9,998,420,	Specifically, the Programme will be addressing the following objectives: a) improve local and 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.	This project just started and there are important synergies between both projects but no duplication. **Synergies and actions without duplication:** 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. **Synergies and no duplication actions** - 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.
Regional Initiatives		
Caribbean Biodiversity Fund	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.	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. **no duplication actions** the initiative does not include Cuba nor Panama within its scope of action.
CIDC: Alliances for Coconut Industry Development for the Caribbean (EU/International Trade Center/Caribbean Agricultural Research and Development Institute (CARDI)	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.	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. **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.
Climate Change Impact Assessment on the sandy coasts of the Caribbean: alternatives for control and resilience (Association of Caribbean States)	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 rehabilitation, observation and conservation.	**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.

G. LEARNING AND KNOWLEDGE MANAGEMENT

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

207. 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.

208. 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.

209. 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.

210. 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.

211. 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.

Table 6: summary consultation

Cuba	Overview of the consultation process	Points discussed	Gender gaps and benefits by the project – relevant examples
2022: Batabanó (11M,8W) San Cristóbal (13M,14W) Baracoa (10M,10W) Consolación del Sur (12M,13W) La Sierpe (17M,13W) Tot> 63M,58W= 121 **2022**: Batabanó (32M,5W) San Cristóbal (11M,10W) Baracoa (61M,1W) Consolación del Sur (34M,4W) La Sierpe (39M,41W) Tot> 177M,61W= 238 **2024**: Batabanó (18M,19W) San Cristóbal (35M,36W) Baracoa (21M,22W) Consolación del Sur (31M,32W) La Sierpe (20M,22W) National Institutions : (30M,33W) Municipal Institutions (5M,14W) Tot> 160M,178W= 338 Tot 2021+2022+2024= 400M,297W **697**	From the extensive process of national and local consultation conducted between 2021, 2022, and 2024, a total of 564 people participated of whom 52.7% were women. The consultation is integrated into the territorial governance structures, local authorities, focus groups enabling an increase in the participation of local actors in all project planning and implementation activities with the premise that each project activity must be carried out considering the number of people benefiting from it, including a gender perspective. In 2022 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. In 2024 the consultation process continued the efforts of the previous years. This also allowed for the definition of potential roles for local actors and various population groups. Consultation involved 338 participants (52.66% women, 47.34% men).	The consultation process discussed: 1)Contexts and concepts such as conservation, climate change, nature-based solutions, EbA (Ecosystem-based Adaptation), environmental protection and environmental education activities 2) Presentation of the project's objectives, approach, components, and scope 3) Access to information and knowledge about Climate Change Adaptation 4) gender equality, women empowerment and economic opportunities within climate adaptation and environmental protection context. 5)Gender roles in sustainable agriculture production In 2024 the consultation strengthens the linkage with AF- IFAD gender/environmental policies Key findings: The surveys revealed many participants identified: -lack of knowledge, tools, and access to information on climate adaptation and EbA. -Limited training opportunities for agricultural sustainable practices -Differencies in the percepetion of benefits that womenVSmen receive from agriculture production. -Limited access to resources, especially for women Integration into Proposal: - The project will support climate-smart agricultural and fishing production solutions adapted to climate change, as well as local training on sustainable and resilient production practices for Ecosystem-	Lack of knowledge on adaptation, environmental protection education. The gender action plan aligned with the project components proposes specific activities to train women in productive practices for EbA and creates and/or strengthens of associations aimed at young women to implement diversified livelihoods compatible with EbA (**outcome 3.2**) 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. **(outcome 1.1**) The gender action plan aligned with the project components propose: 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. **(outcome 1.1**) Ensure women's participation and gender equality among participants in capacity development activities. All the technical capacity building activities will include soft skills and gender roles (**outcome 1.2**) Carry out binational virtual exchanges of experiences and practices carried out by women, which are effective in protecting food-producing coastal ecosystems.

		based Adaptation (EbA) compatible livelihoods across target municipalities. (**component 3**) - The project aligned with the Gender Plan will 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. **(outcome 1.1**) and Ensure women's participation and gender equality among participants in capacity development activities. All the technical capacity building activities will include soft skills and gender roles (**outcome 1.2**) - Among the most vulnerable groups identified for adapting to climate change, the highest priority is given to residents in coastal settlements, rural areas, children and women. - The third component will support the adoption of sustainable agricultural and fishing productive practices and the development of diversified and climate-resilient livelihoods for coastal communities in targeted municipalities.	The gender action plan aligned with the project components propose: Intention of inclusion of the gender perspective in (EbA) activities and considerations on women's participation in prioritized interventions for their inclusion, contribution, benefit, and empowerment. (**outcome 2.1**) Ensure women's participation and gender equality among participants in capacity development activities to operationalize the DLIS Women producers adopt climate-smart agricultural and fishing productive technologies **(outcome 3.1)**

212. 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.

213. 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 where 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.

214. 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.

215. 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.

216. 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 and 2. A gender strategy will be prepared at the incipient stages of the project.

217. 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

218. 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 5.

Table 7. 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	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.

	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 investments are hence not necessarily linked to increased resilience. 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.	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 Caribbean. Lessons learned provide valuable insights to enhance methodologies. 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.
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	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. 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.	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. 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. 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. Coastal communities are made aware of existing best practices and have access to extension support through interlinked FFS and South-South cooperation.
2. Ecosystem based adaptation (EbA) measures implemented in key ecosystems to protect local food production and promote resilience and food security		

2.1 Nine Municipalities manage critical ecosystems, through EbA measures, increasing the resilience of their communities, livelihoods and local food security	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. Ecosystem degradation is continued at existing rates due to unsustainable practices, exposing local livelihoods to recurrent and exponential climate impacts. Loss of provision of important ecosystem services, such as protection against storms, water regulation and reduced impacts from rising sea levels.	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. 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. Critical ecosystems are protected through EbA measures. EbA solutions are implemented and maintained by local communities with an 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

219. 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.

220. ***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).

221. 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 FSS 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.

222. ***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 NbS. 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.

223. 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 NbS 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.

224. . The sustainability plans for cooperatives referred to in Component 3 focus on developing detailed implementation plans that allow cooperatives to maintain and expand climate-smart practices in the long term. This includes the provision of technical capacity to cooperatives on climate-smart agricultural and fishing practices, as well as strengthening their business skills through training in financial management and marketing. Additionally, the project aims to establish a monitoring system to evaluate how cooperatives are using investments and their impact on improving climate-smart practices. To ensure that practices and technologies remain operational and are used by beneficiaries after the grants are over, the project emphasizes the importance of creating a sense of ownership among community members. By working through community productive associations, the project aims to provide the organizational structure required to continue offering extension support through Farmers Field Schools (FFS). Furthermore, revenue generated from additional productive incomes through alternative livelihoods will provide the necessary income to maintain inputs beyond the project's lifetime. The arrangement for ensuring that additional income is used to maintain the required inputs involves strengthening the productive and managerial capacity of the cooperatives. This will be

achieved through initial project actions that address existing capacity gaps within these organizations, enabling them to sustain the benefits and practices introduced during the project.

225. ***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 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.

226. 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.

227. 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 the Annex 3 (environmental and social risk management).

228. 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.

229. 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 have been analysed during the screening process (see Annex 3). 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 (SECAP 2021 Edition), the equivalent category is "Moderate".

230. 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, which are detailed in Annex 3. The level of risks identified for each environmental and social principle of the project are described in section "3. Screening of environmental and social risks of the project" in Annex 3.

Table 8. Checklist of environmental and social principles

Checklist of environmental and social principles	Do you require any further assessment for compliance with the principle?	Potential impacts and risks – further assessment and management required for compliance
Compliance with the law	No	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. Level risk: low
Access and equity	No	Considering the large number of rural families residing in the project area, some may be excluded from participating and benefiting. There is, therefore, a moderate risk that certain community members may benefit more than others. Level risk: moderate
Marginalized and vulnerable groups	No	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. Level risk: moderate
Human rights	No	The project activities will not involve any activity that may result in the violation of human rights of any person during its implementation. Level risk: low
Gender equity and women's empowerment	No	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. Level risk: low
Core labour rights	No	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. Level risk: low
Indigenous peoples	FPIC	There are no indigenous communities or populations 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. Level risk: moderate
Involuntary resettlement	No	The project does not include activities that cause involuntary resettlement. Level risk: low
Protection of natural habitats	No	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.

		Level risk: moderate
Conservation of biological diversity	No	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. Level risk: moderate
Climate change	No	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. Level risk: moderate
Pollution prevention and resource efficiency	No	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. Level risk: moderate
Public health	No	There is risk under the COVID19 context. Level risk: moderate
Physical and cultural heritage	No	No risk identified to physical and cultural heritage. Level risk: moderate
Lands and soil conservation	No	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. Level risk: moderate

The following is a detailed description of each of the risks identified above (for each principle), explaining the assumptions that justify the level of risk in the selection process.

ESP 1. Compliance with the law. The Project will be implemented in areas where the environmental and social legal framework is fully defined, with laws, regulations and strategies to ensure the implementation of actions for the protection, conservation and restoration of natural resources, food security and rural development. Cuba and Panama have ministries and public institutions with the mandate to implement environmental and social laws, policies, norms, strategies and plans. Considering the above, the risk level is “Low”.

ESP 2. Access and equity. In the project area there are several factors that promote or limit the target population's access to resources and assets to improve their livelihoods and reduce equity gaps. The factors are multidimensional, but the following gaps have been identified: gender, belonging to indigenous peoples, land tenure and access, age, rurality and income. Governments have social and economic policies to promote access and reduce equity gaps, but economic resources are insufficient to eliminate existing gaps. Considering the above, the risk level is “Moderate”.

ESP 3. Marginalized and vulnerable groups. The following vulnerable and marginalized groups exist in the project area: i) Indigenous peoples affected by loss of land and limited access to basic services; ii) Afro-descendant communities, because they face discrimination, resulting in limited opportunities; ii) Rural women: have less access to land ownership, financing and training, in addition to assuming an unpaid workload; iii) rural children and youth because they have poor access to quality education and job opportunities, leading to school dropout and migration; iv) agricultural workers who face job insecurity and low income, operating in a subsistence economy that makes them vulnerable to climatic and economic changes; and v) population in extreme poverty, which includes individuals and families with very limited access to essential basic services such as health, education and quality housing. Considering the above, the risk level is “Moderate”.

ESP 4. Human rights. Human rights gaps in the project area are mainly associated with vulnerable and marginalized groups, where problems persist such as the scarcity of goods and services in some areas of the project area; limited access to communication; and fewer opportunities for the development of women and youth. There are public policies and programs to increase the coverage of free and compulsory education up to secondary school; food programs; laws against gender violence and awareness campaigns, promoting women's labor participation; laws and programs to protect their rights and combat child labor; legal recognition of indigenous communities and programs for development and access to basic services; among other existing public policies and programs. Considering the above, the risk level is “Low”.

ESP 5. Gender equity and women's empowerment. In the Project area, traditional gender roles persist in the rural sector, where women are assigned domestic responsibilities, which limits their participation in paid work and in leadership positions; governments

promote through different policies and programs to encourage gender equality; there is a part of the population of women who still face discrimination in the workplace, including occupational segregation and wage differences compared to their male colleagues; and although efforts have been made to empower women, effective participation and decision-making power need to be strengthened. Government efforts to reduce these limitations and gaps have focused on the implementation of various public policies and programs: both countries have ministries and institutions focused and specialized in women, which are responsible for setting the regulatory framework on gender: there are different laws and ordinances enacted to guarantee equal rights in employment, education and to prevent and punish violence against women; financing, training and counseling programs for women entrepreneurs are offered; access to reproductive health services, family planning and sex education, as well as specific programs for HIV/AIDS care; gender equality in maternity and paternity that guarantees equal opportunities and remuneration, prohibiting gender discrimination; among other public programs. Considering the above, the risk level is “Low”.

ESP 6. Core labor rights. The countries have been members of the International Labor Organization (ILO) since 1919 and have ratified more than 90 labor-related conventions, including the ILO core conventions. The main policies and actions implemented include, among others: The main policies and actions implemented include the following, among others: the protection of workers' rights and obligations, with the objective of protecting agricultural workers and guaranteeing a fair working environment; regulations on occupational health and safety to ensure that work is performed in a safe and healthy environment; training and education programs for rural workers on occupational health and safety, safe handling of machinery and agrochemicals; rural workers may join agricultural unions and cooperatives; ongoing training for rural workers is promoted through workshops, courses and agricultural extension programs, ensuring that they are updated on best agricultural practices, among others. Considering the above, the risk level is “Low”.

ESP 7. Indigenous peoples. There are no indigenous peoples in Cuba. Panama has signed a wide range of international treaties on indigenous peoples and has various policies and legal norms to guarantee the rights of indigenous peoples, which are described below: (i the United Nations Declaration on the Rights of Indigenous Peoples; right to information and informed consent, so that indigenous peoples receive transparent information as well as are effectively consulted on any intervention or policy that affects them, and have the right to the implementation of the free, prior and informed consent (FPIC) mechanism; (iii) right to autonomy and self-government in the comarcas; (iv) rights to collective ownership of their traditional lands and territories, including protection against eviction or expropriation without their consent. They also have the right to manage and use their natural resources in accordance with their own practices and traditions, and to benefit economically from them. Considering that the regulatory framework exists to promote the wellbeing of indigenous peoples and that the activities defined in the project components contemplate the participation and benefit of the indigenous population by implementing the FPIC mechanism, the risk is determined to be “Moderate”.

ESP 8. Involuntary resettlement. The regulatory framework to prevent, regulate and compensate the damages caused by involuntary resettlement is solid in both countries, but the provisions defined at the level of political constitution, laws and decrees stand out, highlighting: the right to private property and its use for the benefit of the community; expropriation can only be carried out for public utility or social interest and with prior compensation; there are procedures and procedures for expropriation and compensation: the right to private property and its use for the benefit of the community; expropriation can only be carried out for public utility or social interest and prior compensation; there are procedures and requirements that public projects must follow, including consideration of social impacts and the need to minimize involuntary displacement; conduct an Environmental Impact Assessment (EIA) for projects that may affect the environment and local communities; the right to FPIC for indigenous peoples, procedures for its exercise, and other pre-project provisions to ensure, among other situations, that involuntary displacement without community consent is avoided; regulations to regulate land use, minimizing the need for involuntary resettlement. Considering that the activities of the project components do not contemplate investments involving involuntary resettlement and that there is a defined regulatory framework to prevent and regulate it, the risk is determined to be “Low”.

ESP 9. Protection of natural habitats. There are natural protected areas in the Project area and the activities defined in the three components will be implemented if they are compatible or permitted in their management plans authorized by the corresponding governments. According to environmental regulations in both countries, it is prohibited to use exotic or invasive species for any use or purpose. The regulatory framework for the administration of natural protected areas is broad and solid among the countries, including, among others: the recognition and provisions established in the political constitutions to ensure environmental protection, conserve biodiversity and natural resources; ratification of the Conventions on Biological Diversity and Ramsar on Wetlands; laws that empower decrees to establish natural protected areas (and their management plans); designation of public institutions responsible for the administration of natural protected areas; creation of national systems; among others. Considering that there is a solid regulatory framework for the administration of natural protected areas; that most of the activities defined in the project components are focused outside of the natural protected areas and that some of these activities are aimed at conservation, protection and restoration under the EbA approach, the risk level is determined to be “Low”.

ESP 10. Conservation of biological diversity. The legal framework for conserving biological diversity in both countries is broad: general laws have been enacted to protect the environment and natural heritage; regulations and strategies for biodiversity conservation; regulations for conducting Environmental Impact Assessments; and ratification of international conventions on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Biological Diversity and Ramsar on Wetlands. Considering that most of the activities defined in the project components are aimed at conservation, protection and restoration under the EbA approach, as well as sustainable agriculture and fishing in compliance with national regulations, the risk level is determined to be “Moderate”.

ESP 11. Climate change. According to the National Greenhouse Gas (GHG) Inventory, Panama emitted approximately 4.5 million tons of carbon dioxide equivalent (CO2e) in 2018, representing about 0.03% of total global emissions. Cuba, has a relatively low contribution

to global GHG emissions. According to the most recent data from the National Greenhouse Gas Inventory, Cuba emitted approximately 11.5 million tons of CO2e in 2019. The sectors that contribute most to national emissions are (i) energy due to the generation of electricity from fossil fuels; (ii) the transportation sector accounts for a significant portion of emissions, driven by the increasing use of vehicles and maintenance of transportation infrastructure; and (iii) and agriculture and livestock: contributing to methane and nitrogen oxides emissions from the use of livestock and fertilizers. It is important to note that in both countries, despite their low contribution to global emissions, they have committed to reduce their emissions and have submitted their Nationally Determined Contribution (NDC) under the Paris Agreement, which sets targets to mitigate climate change in the coming years. Considering that the activities defined in the project components to promote the sustainable development of agriculture and fisheries are based on the implementation of good agroecological practices and are complemented by activities aimed at conservation, protection and restoration under the EbA approach, low emissions are expected during implementation, so the risk level is determined to be “Moderate”.

ESP 12. Pollution prevention and resource efficiency. The activities defined in the project components to promote the sustainable development of agriculture and fisheries are based on the implementation of good agroecological practices and are complemented by activities aimed at conservation, protection and restoration under the AbE approach in critical habitats, which is expected to generate little waste or residues and promote greater efficiency in the use and exploitation of natural resources. On the other hand, both countries promote the implementation of technologies that reduce energy consumption and establish long-term goals for energy efficiency; investment funds and public incentive programs and regulations that facilitate the implementation of renewable energy projects, such as solar, wind and biomass; measures to reduce the use of material resources related to energy production and distribution and the adoption of technologies that require fewer resources for their operation and minimize waste; the promotion of practices that seek to maximize the use of resources throughout their life cycle, reducing waste and using recycled materials in production; and the promotion of projects to transform waste into new products, thus avoiding the need to extract additional natural resources. Considering the above, the risk level is determined to be “Moderate”.

ESP 13. Public health. Based on the project's activities broken down into its three components, it is expected that the effects and/or waste generated will not cause public health problems, considering that most of these activities are focused on: i) quantifying damages or losses caused by climate events; ii) activities aimed at conservation, protection and restoration under the AbE approach; iii) agriculture and fisheries are based on the AbE approach: (i) quantifying damages or losses caused by climate events; (ii) activities aimed at conservation, protection and restoration under the AbE approach; (iii) agriculture and fisheries are based on the implementation of good agroecological practices, which in turn contribute to reducing GHG emissions as a reduction in the use of agrochemicals; among others. There are also national programs such as: (i) offering universal health coverage to the population; (ii) implementing specific programs to combat chronic, infectious, maternal and child diseases, and to improve nutrition; and (ii) social security coverage. Considering the above, the risk level is determined to be “Moderate”.

ESP 14. Physical and cultural heritage. The main cultural values existing in the project area are tangible and intangible. Tangible values include handicrafts, colonial architectural infrastructures, productive rural tobacco landscapes, and protected natural areas, among others. Intangible values include indigenous languages and dialects, local knowledge for the development of handicrafts and music, religious festivities, and the value of coffee and cacao as a tradition in local development. Both countries have a regulatory framework to ensure the protection, conservation, restoration and promotion of tangible and intangible cultural heritage. In the areas where colonial architectural infrastructures are located, they are excluded by national regulations from being altered or modified, and in natural protected areas, investments may be made as long as they are permitted according to the management plans; it is not foreseen to make use of the knowledge in traditions for the development of crafts or music; in addition, aspects of translation from Spanish to indigenous languages or dialects will be facilitated in those cases that are required. Considering the above, the risk level is determined to be “Moderate”.

ESP 15. Lands and Soil conservation. Part of the areas where the project will operate are coastal areas and agricultural lands near these areas, which are exposed to flooding caused by heavy rains from tropical depressions. For this reason, the activities defined in components 2 and 3 of the project focus on the implementation of good agricultural, livestock and fishing practices under the ecosystem approach (EbA) and agroecology, which is expected to generate positive impacts for land and soil conservation (including the improvement of ecosystem services) and increase the climate resilience of soils, mangroves and primary production systems. These project activities complement existing national programs for soil and water conservation, as well as research for the development of soil conservation technologies in production areas and forests. For this reason, the risk level is expected to be “Moderate”.

PART III: IMPLEMENTATION ARRANGEMENTS

A. PROJECT MANAGEMENT

231. Figure 18 illustrates the planned implementation arrangements which are further described in this section.

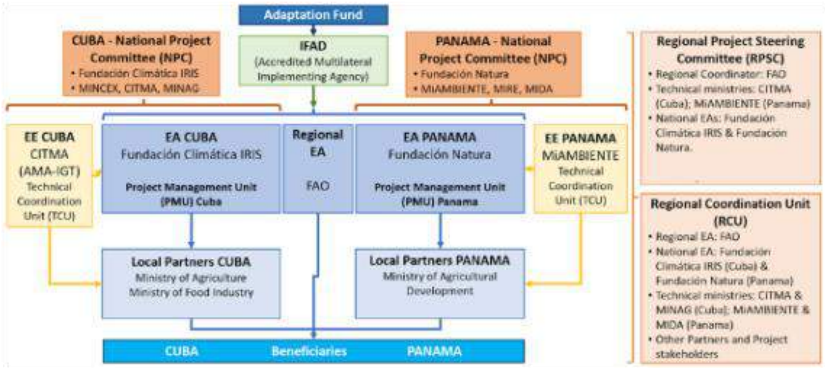

Figure 18. Project Implementation arrangements.

232. **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. IFAD will ensure that AF policies regarding ESMP, Gender, Indigenous Peoples and Stakeholder Engagement are followed. In particular, the IFAD shall review and ensure that the ESMP matrix is incorporated in the Project Operations Manual as well as in the Monitoring and Evaluation (M&E) system to oversee the implementation process during the life of the project.[90]

233. **Executing Agencies (EAs)**. To strengthen local capacity, ensuring sustainability and reducing dependency by equipping countries with the skills and resources needed to address their own challenges, and to enhance resilience, promote cost-effectiveness, and ensure culturally relevant and innovative solutions, the execution of the project activities will be split between three executing agencies (EAs)The execution of the project activities will be split between three Executing Agencies (EA) which will be responsible for overall project coordination and management, budget execution, as well as the monitoring and supervision during the implementation of the project by the executing entities. The three EAs are: **Fundación Climática IRIS (Cuba)**, **Fundación Natura (Panama)** (an AF accredited National Implementing Entity, NIE), and **FAO (regional)**. Each of the national EAs will oversee the execution of project activities in each country, while FAO will oversee the execution of project activities related to Loss and Damage (Component 1) and the regional coordination between Cuba and Panama. The three EAs will receive funding from the AF through IFAD under an agreement between IFAD and each agency. Through these agreements, any specific requirement from AF, will be transferred to the EAs. The three EAs will provide technical, financial and management support at all stages of project implementation and will be reporting to IFAD on the overall management and performance of the Project. The EAs will carry out all the procurement processes and preparation of disbursement and payment requests in accordance with their/IFAD procurement procedures and the annual budgets and procurement plans prepared by the executing entities. IFAD conducted a procurement due diligence, and the results indicate that it is recommended for Fundación Natura to use their own procedures (with some minor adjustments) while for Fundación IRIS they should adopt the IFAD procurement procedures and systems. The EAs will ensure the implementation of the ESMP, Gender Action Plan and Stakeholder Engagement Plan. In particular, the EAs must incorporate the ESMP matrix in the Project Operations Manual, in the Monitoring and Evaluation (M&E) system and in the Annual Operating Plans and must report the progress of its implementation in the Memory Aids as well as in the semiannual or annual reports that are prepared.

234. The three EAs 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 EAs will release project funds against benchmarks and deliverables throughout the life of the

[90] Some refinements may be made to the financing agreement to facilitate a more consistent and harmonized implementation.

project. A financial system will be established by the EAs to monitor and control disbursement and expenditure of the project. The EAs will remain cautious of this and monitor the quantity and quality of procurements. The EAs will encourage the preparation of quarterly cash flows showing benchmarks for amount stipulated in the project.

235. A **Project Management Unit (PMU)** will be established in each country within the respective national EAs to oversee the daily management of the project. The PMUs will be composed of a national project 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 Project 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 IFAD'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 (including the implementation of ESMP). In addition, the PMU will be responsible for preparing and submitting reports, communications and monitoring and evaluation of the project.

236. **Executing Entities (EE).** The EEs will be: in Cuba, the Ministry of Science, Technology and Environment (CITMA – *Ministerio de Ciencia, Tecnología y Medio Ambiente*); in Panama, the Ministry of Environment (MiAmbiente). In Cuba, CITMA's Environment Agency (AMA – *Agencia de Medio Ambiente*) will implement the project through the Institute of Tropical Geography (IGT – *Instituto de Geografia Tropical*). CITMA and MiAmbiente, both national focal points to the AF, will ensure the oversight, monitoring and control of all project activities through a Technical Coordination Unit (TCU), including the implementation of the ESMP (Annex 3), Gender Action Plan, and Stakeholder Engagement Plan (Annex 6) ensuring that these instruments are incorporated in the Project Operations Manual as well as in the monitoring and evaluation system in order to supervise the process of their implementation during the life of the project. The EEs, through their TCUs will coordinate and facilitate the internal monitoring meetings with the EAs. The EAs, 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 EEs 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. The EAs will ultimately be responsible for the timely delivery of inputs and outputs and for coordination of all other responsible parties including line ministries, relevant agencies, and local government authorities. Both EEs will accompany and monitor the mid-term and final evaluation of the project.

237. **National Steering Committee (NSC)**. Each country will establish a NSC which provides general guidance and quality assurance for the project, ensures compliance with project guidelines and compliance with IFAD and AF policies and procedures. The NSC is responsible for making, by majority , management decisions when the guidance of the National Coordinator of the PMU is required. NSC decisions are made in accordance with standards that guarantee management for development results, the best quality/price ratio, equity, integrity, transparency, and effective international competition. This responsibility only extends to the execution of approved activities and project budget resources. The NSC meets at least twice a year and is made up of executive representatives of the relevant countries in each country. In Cuba, the NSC will be composed by relevant ministries such as the Ministry of Foreign Trade and Foreign Investment (MINCEX), CITMA; Fundación Climática IRIS); Environment Agency and the UCT (Institute of Tropical Geography and MINAG) as representatives of the beneficiaries. In Panama, the NSC will be composed of relevant ministries such as Ministry of environment (MinAmbiente), Ministry of Foreign Affairs (MIRE), Ministry of Agriculture Development (MIDA) and Fundación Natura.

238. **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 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 project status communicated by the fiduciary management teams in the countries.

To support these activities, the RCU will be led by a Regional Project Coordinator who in addition to ensuring delivery of the units' functions will also oversee disseminating lessons learned from program activities throughout the region. The RCU will be established in the regional office of FAO in Panama.

239. **A Regional Project Steering Committee (RPSC)** will be set up and include a representative of FAO (Regional project coordinator), each PMU (project coordinators) 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. The 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.

240. 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.

241. 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.

242. **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 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, MINAG, Ministry of Food Industry (MINAL) , and in Panama will be composed by relevant ministries such as Ministry of environment (MinAmbiente), Ministry of Foreign Affairs (MIRE), Ministry of Agriculture Development (MIDA). 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 be 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.

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

244. 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.

245. 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.

246. Figure 19 below illustrates the flow of funds from the Adaptation Fund to IFAD and from IFAD to the EAs. For reporting, all annual reports to the AF will be prepared by each AE and unified by FAO to provide a single annual project

report to IFAD. Financial reporting will be provided by each EA to IFAD in line with the financial report. IFAD will provide the AF with both technical and financial reports. Figure 19 provides further details on the flow of funds and reporting.

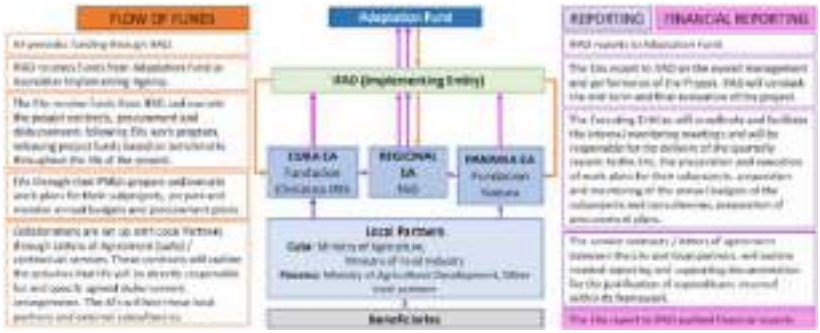

Figure 19. Flow of Funds and Reporting.

B. FINANCIAL AND PROJECT RISK MANAGEMENT

247. The identified risks and proposed mitigation measures for financial and project risk management are presented in Table 7:

Table 9. 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, including from national and local organizations and institutions	Risk: M Probability: M Impact: M	- Recruitment of experts with specific experiences in development project management and financial management procedures, with experience in working at the national or local level. - Once the project interventions are presented at the local level, local organizations and institutions will sign collaboration agreements for project implementation.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	Risk: L Probability: L Impact: M

		contracts based on a performance evaluation. - IFAD/FAO will participate as an observer in all stages of the recruitment process.	
Project implementation and financial management procedures do not guarantee sufficient transparency and accountability	Risk: M Probability: M Impact: H	- 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.	Risk: L Probability: L Impact: M
The project financial procedures do not allow for proper and regular monitoring	Risk: M Probability: M Impact: M	Financial monitoring based on: 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	Risk: L Probability: L Impact: M
Loss of government support may result in lack of prioritisation of AF project activities.	Risk: L Probability: L Impact: M	- Communication and coordination channels will be established and maintained with key actors in government institutions. - -Fundacion IRIS (Cuba) and Fundacion Natura (Panama) will set up institutional focal points (technical level) at the national and local level to ensure continuity. - Regular stakeholder consultation and involvement will be undertaken to ensure that government maintains its	Risk: L Probability: L Impact: M

		commitment and considers the AF project as a priority project	
Climate change and seasonal variability and/or hazard events result in poor restoration results and/or affect the production cycle reducing agricultural yields	Risk: M Probability: M Impact: 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	Risk: M Probability: M Impact: M

C. ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

248. 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 considered in the context of the AF principles.

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

Table 10. Risks and related Mitigation measures

Checklist of environmental and social principles	Possible measures to avoid, minimize, or mitigate environmental and social risks
Compliance with the Law	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.
Access and Equity	● 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.
Marginalized and Vulnerable Groups	● Establish targeting criteria for the target population based on the type of activities defined in the project components.
Human Rights	The project activities will not engage in any activity that may result in the infringement on the human rights of any person during implementation.
Gender Equity and Women's Empowerment	● 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.
Core Labour Rights	● 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,

Checklist of environmental and social principles	Possible measures to avoid, minimize, or mitigate environmental and social risks
	children, adolescents and young people, in accordance with the restrictions and/or reservations indicated by national laws and international treaties signed on the matter.
Indigenous Peoples	*Note: mitigation measures are only applicable for Panama* ● 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. ● 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.
Involuntary Resettlement	The project does not have activity that will lead to involuntary resettlement
Protection of Natural Habitats	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.
Conservation of Biological Diversity	● 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 nor is it an exotic or invasive species (listed by the government).. ● The vegetative material to be used in restoration activities must not be reported in the national environmental framework as an exotic, invasive species or from genetically modified organisms. In case of exceptions, the service provider must have the endorsement of the national environmental authority (ANAM). This requirement must be in the Terms of Reference as well as in the contract for the provision of services. ● In the formulation of the planning instruments to carry out the project investments, incorporate as part of the guidelines that the developer of such instruments must review that the species to be used in the protection, conservation or restoration processes are not listed as exotic or invasive (according to the lists available from governments or scientific articles).
Climate Change	The project will not generate significant and / or unjustified increase in greenhouse gas emissions or any other cause of climate change.
Pollution Prevention and Resource Efficiency	● 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
Public Health	Develop and implement a biosafety protocol for Project staff as well as the target groups with whom there is contact, following national requirements.
Physical and Cultural Heritage	No mitigation measures necessary.
Lands and Soil Conservation	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.

250. 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).

251. **Unidentified Sub-projects (USPs).** For the correct identification of the USPs and the definition of the mitigation measures required during the life of the project, the following is described below:

Identification and characterisation of the climate vulnerability of the project area, by carrying out the diagnostic studies defined in components 1 and 2 of the project: (i) a local ecosystem valuation analysis will be carried out along the target areas of intervention using existing international methodologies; (ii) a loss/gain analysis in the target areas of the vegetation of the ecosystems present with the support of geographic information tools to compare the historical evolution of vegetation cover and land use as an element to determine critical areas for conservation, rehabilitation and sustainable management; (iii) studies of coastal flood projections and analysis of damages and losses; and (iv) identification of key ecosystems for

protection, conservation and sustainable management to reduce projected damages and losses due to slow onset hazards based on flood model projections.

As part of the results of these studies, the corresponding digital mapping will be generated in a Geographic Information System (GIS) to identify the areas of greatest climatic vulnerability as well as the rural population centres within these areas.

Identification of the potential beneficiary population of the USPs residing within the areas of greatest environmental climate vulnerability that are organised in agricultural or fishing producers' cooperatives (or any other model of collective organisation legally recognised by the Government); small individual agricultural or fishing producers; and households made up of rural, indigenous or Afro-descendant people.

As part of the potential beneficiary population, special attention will be paid to identify marginalised and vulnerable rural, indigenous or Afro-descendant people in communities, households and producer cooperatives, such as women, children, youth, older adults, migrants, refugees, people with disabilities and people living with HIV/AIDS.

Call and dissemination of the Project's support will be key to implement in the first years, with the purpose of providing information to the potential beneficiary population of the USPs, ensuring that such information is delivered directly through an open and public call through the available means of communication (e.g. social networks, traditional/digital media, radio, etc.), and that they are carried out in strategic sites of greater accessibility to the interested population, such as in the facilities of the implementing entities. e.g., social networks, traditional/digital media, radio, etc.), and that they are carried out in strategic locations of greater accessibility to the interested population, such as in the facilities of the implementing entities present in the territory (if they exist), mayors' offices, offices of producers' cooperatives, local communities, among others. Part of the key information to be disseminated will be, among others, the legal, technical and social requirements that the potential beneficiary population must comply with to access the USPs.
The objective of providing information to the potential beneficiary population of the USPs is that they can obtain as much information as possible, that they can autonomously and freely analyse whether they meet their expectations, identify if there are barriers or restrictions that may prevent them from accessing the USPs and, finally, make the decision whether they wish to participate in this process. Therefore, the project will ensure that the FPIC approach and methodology is implemented.

Part of this process, as indicated above, is to identify the barriers or limitations expressed by the population concerned so that they can be analysed by the executing entities and take the relevant measures to overcome these barriers (when socially, legally and economically feasible), communicating to the interested parties the reason why they can or cannot be integrated into the USPs process. In addition, the Project should indicate that in case of disagreement, there is a grievance mechanism that is publicly and freely available to present their case, providing all the necessary information for due process and resolution in this instance.

Integration of the file and request for support for the formulation and implementation of the USPs. The project must ensure that the population interested in requesting resources to develop and implement a sub-project (applicant) has all the necessary information to compile and organise the required documentation. The project will also provide support and technical assistance to integrate the corresponding support application dossier.

Review and approval of applications for support from the USPs. In accordance with the technical and legal provisions defined by the Project, the application will be reviewed by an Approval Committee, which will have the power to determine whether the applicant complies with the defined requirements. It is recommended that the Project considers a budget item so that in case the application is approved, the applicant contracts the services of technical assistance to accompany them in the process of elaborating the USPs.

USPs formulation process will be developed in the framework of the eligible activities that are defined in Components 2 and 3 of the Project to reduce the risks of natural disasters (of climate origin) to the sustainability of the main livelihoods (agricultural and fisheries livelihoods) and to the protection, conservation and/or restoration of coastal ecosystems. The project will ensure that in the instruments to elaborate the USPs, a specific section of the Environmental and Social Management Plan (ESMP) will be integrated to identify the specific risks that exist locally for the USPs to be implemented and to define the mitigation measures and the corresponding budget for their implementation. To formulate the USPs, the requirements and technical specifications should be developed and integrated into the Project Implementation Manual (PIM).

Implementation of the USPs. The beneficiary of the USPs, with the support of the contracted technical assistance services, will implement the approved activities in its sub-project, as well as the mitigation measures defined in the ESMP. Upon physical completion of the approved activities, a final report will be prepared, where the requirements and technical specifications must be developed and integrated into the PIM.

Systematisation and evaluation of the results achieved with the implementation of the USPs. As part of the Project's monitoring and evaluation system (M&), the methodology and procedures will be developed to systematise the activities implemented, the products generated, and the results achieved with the USPs. These actions should be integrated into the IPM. With these inputs, as far as possible, the metrics of the Logical Framework indicators will be incorporated (as appropriate) and it will also be identified whether any activities and results achieved contribute directly to the mitigation measures of the project's ESMP.

Progress report in the six-monthly project implementation reports. Based on the systematisation and evaluation of the results achieved with the implementation of the USPs, the progress achieved will be included in the Project's six-monthly reports, which will make it possible to document the achievements and take decisions for the management of the project (in the event that any problems are identified that need to be addressed or to continue and replicate the good practices for the following USPs to be formulated).

D. MONITORING AND EVALUATION PLAN

252. 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.

253. 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.

254. 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.

255. **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.

256. **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.

257. 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 RPSC.
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. ***Final Evaluation:*** A final evaluation will be performed at least 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.

258. The project monitoring and evaluation system incorporates differentiation according to gender for each of the indicators in which reference is made to the beneficiary population. Additionally, there are specific indicators in the Gender Action Plan and Results Framework (Annex 5, Section 5.3) that will be incorporated into the system. The Gender Action Plan includes associated budget provisions as part of the M&E budget.

259. 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 11: Monitoring and Evaluation Activities

M&E Activities	Timelines	Cost (USD)	Responsible Parties	Source
Baseline study	Year 1	30,000	PMUs, RCU	FAO execution
M&E Specialist Activities in Panama (see description below)	Annually	150,000	PMU Panama	Panama Execution
M&E Specialist Activities in Cuba (see description below)	Annually	60,000	PMU Cuba	Cuba Execution
Supervision visits	Annually	95,200	IFAD, PMUs, Government	IFAD Fee
Mid-term Review	At mid-point (January 2027)	30,000	IFAD, external consultants	IFAD Fee
Terminal Evaluation	No later than 3-months before project termination (June 2029)	30,000	IFAD, external consultants	IFAD Fee
Total		**395,200**		

260. Each of the M&E Specialists in Cuba and Panama will perform the following activities:

- Monitor project progress and participate in the production of progress reports ensuring that they meet the necessary reporting requirements and standards.
- Ensure project's M&E meets the requirements of the Government, the IFAD Country Office, and the AF; develop project-specific M&E tools as necessary.
- Oversee and ensure the implementation of the project's M&E plan, including periodic appraisal of the Project's Results Framework with reference to actual and potential project progress and results.
- Oversee and guide the design of surveys/ assessments commissioned for monitoring and evaluating project results.
- Facilitate mid-term and terminal evaluations of the project; including management responses.
- Facilitate annual reviews of the project and produce analytical reports from these annual reviews, including learning and other knowledge management products.
- Support project site M&E and learning missions.
- Visit project sites as required to appraise project progress on the ground and validate written progress reports.

261. The Mid-term review specialist (external consultant) will conduct the following activities:

- Assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document
- Assess early signs of project success or failure with the goal of identifying the necessary changes to be made to set the project on-track to achieve its intended results.
- Review all relevant sources of information including documents prepared during the preparation phase (i.e. Project Proposal, IFAD Social and Environmental Screening), project reports including annual reports, project

budget revisions, national strategic and legal documents, and any other materials that the consultant considers useful for this evidence-based review.

- Review the baseline AF Core Indicators/Tracking Tools submitted to the AF at project approval and the midterm AF Core Indicators/Tracking Tools that must be completed before the MTR field mission begins.
- Conduct interviews, field visits and other activities for data collection.

262. The Terminal Evaluation specialist (external consultant) will conduct the following activities:

- Assess the achievement of project results against what was expected to be achieved.
- Draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of project programming.
- Review all relevant sources of information including documents prepared during the preparation phase, (i.e. Funding Proposal, IFAD Social and Environmental Screening) the Project Document, project reports including annual reports, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the consultant considers useful for this evidence-based evaluation.
- Review the baseline and midterm AF Core Indicators/Tracking Tools submitted to the AF at project approval and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.
- Conduct interviews, field visits and other activities for data collection.

E. RESULTS FRAMEWORK

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

Table 12: Project 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	**Direct: 14,848** (7,424 women 7,424 men) (8,270 Cuba 6,578 Panama) **Indirect: 59,394** (29,697 women 29,697 men) (33,080 Cuba 26,314 Panama)	- Project M & E reports - Progress reports - Mid-term and final project evaluations	
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	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
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	- Project M & E reports - Progress reports - Mid-term and final	

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		Cuba and 13 cooperatives in Panama)	project evaluations	information and data
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 productivity affecting local economies and livelihoods in target coastal municipalities due to slow onset climate impacts completed in target municipalities	0	9	- 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
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 people (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 weather
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 evaluations	

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	events etc.), political and economic stability
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	

Table 13

Adaptation Fund Core Impact Indicator "Number of Beneficiaries"				
Date of report	26 Feb 2025			
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			
Country	Cuba/Panama			
Implementing Agency	IFAD			
Project duration	5 years			
	Baseline *(absolute number)*	Target at project approval *(absolute number)*	Adjusted target first year of implementation *(absolute number)*	Actual at completion *(absolute number)*
Direct beneficiaries supported by the project		14848		
Female direct beneficiaries		7424		
Youth direct beneficiaries		3246		

Indirect beneficiaries supported by the project		59394		
Female indirect beneficiaries		29697		
Youth indirect beneficiaries		12982		

Table 14

Adaptation Fund Core Impact Indicator "Early Warning Systems"				
Date of Report	26 Feb 2025			
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			
Country	Cuba/Panama			
Implementing Agency	IFAD			
Project Duration	5 years			
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion
Adopted Early Warning Systems *(Category targeted – 1, 2, 3, 4; and absolute number)* *(1) risk knowledge,* *(2) monitoring and warning service,* *(3) dissemination and communication,* *(4) response capability.* *(report for each project component)*	(1) risk knowledge,	(1) risk knowledge (2) monitoring and warning service (3) dissemination and communication		
Hazard *(select from the list on page 2)* *(report for each project component)*		• Floods • Tropical cyclones • Severe storms • Droughts • Extreme temperatures • Tsunami		
Geographical coverage *(km2)* *(report for each project component)*		4243 km^2 in Cuba		
Number of municipalities *(number)* *(report for each project component)*		5 municipalities in Cuba		

F. RF ALIGNMENT WITH ADAPTATION FUND

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

Table 1315: Results Framework alignment with the Adaptation Fund

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Project Objective(s)[91]	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				

[91] 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	Outcome 2: 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)	2,142,326
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)	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses 3.2. Percentage of targeted population applying appropriate adaptation responses	396,512
Strengthened climate resilience of coastal ecosystems	Natural assets protected or rehabilitated (hectares of natural assets)	Outcome 5: Increase ecosystem resilience in response to climate change and variability induced stress	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	3,828,257
Increased climate resilience of coastal communities' livelihoods	Number of agricultural and fishing-based cooperatives strengthened as a result of project support	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1. Percentage of households and communities having more secure access to livelihood assets 6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods	5,237,192
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
Component 1: Climate change adaptation planning and regional cooperation				
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	No. of municipalities with climate-related planning instruments and frameworks defined (damage loss assessments and participatory plans)	Output 2.1: 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)	1,456,523
1.2 Institutionalized Damage and Loss Information Systems (DLIS) at a sectoral and local level for enhanced adaptive capacity	Damage and loss assessment results are integrated in national strategies and/ or reporting	Output 2.1: Strengthened capacity of national and sub-national centres and networks to respond rapidly	No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	685,803

and management	commitments (e.g., NDCs)	to extreme weather events		
1.3 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.	Output 8: 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	396,512
Component 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	No. of hectares where selected EbA interventions have been successfully implemented with community participation and leadership based on good practices for enhanced coastal resilience	Output 5: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	3,828,257
Component 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	No. of people adopting climate-smart agricultural and fishing productive technologies across nine target municipalities through the FFS approach	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	2,335,203
3.2 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	Output 6: 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	2,901,989

Table 14

Adaptation Fund Core Impact Indicator "Number of Beneficiaries"				
Date of report				
Project title				
Country				
Implementing Agency				
Project duration				
	Baseline *(absolute number)*	Target at project approval *(absolute number)*	Adjusted target first year of implementation *(absolute number)*	Actual at completion *(absolute number)*
Direct beneficiaries supported by the project				
Female direct beneficiaries				
Youth direct beneficiaries				
Indirect beneficiaries supported by the project				
Female indirect beneficiaries				
Youth indirect beneficiaries				

Table 15

Adaptation Fund Core Impact Indicator "Early Warning Systems"				
Date of Report				
Project Title				
Country				
Implementing Agency				
Project Duration				
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion
Adopted Early Warning Systems *(Category targeted – 1, 2, 3, 4; and absolute number)* *(1) risk knowledge,* *(2) monitoring and warning service,* *(3) dissemination and communication,* *(4) response capability.* *(report for each project component)*				
Hazard *(select from the list on page 2)* *(report for each project component)*				
Geographical coverage *(km2)* *(report for each project component)*				
Number of municipalities *(number)* *(report for each project component)*				

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G. BUDGET

265. 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:

PANAMA				
	Activities		Tot OUT	Tot OUTC
Output 1.1.1: Baseline data for loss and damage assessment collected.	Workshops on (EbA) solutions, training on data processing, standardization, and methodology implementation to engage regional and international experts to enhance the Ministry of Environment's M&E and climate risk team capabilities	25,090	458,458	871,993
	Technical specialists, Equipment, transportations, mobilization, office supplies and National Travel to raise the baseline for the losses and damages and the design of a virtual tool	433,368		
Output 1.1.2: Loss and damage analysis completed for nine municipalities.	National Travel, FAO workshop, communication equipment, mobilization, and technical specialist to develop an impact assessment	115,704	115,704	
Output 1.1.3: Nine PAPs prepared at the Municipal Level	Workshops with the participation of foreign experts on the employment of (CST) related to adaptation and resilience to climate change.	30,108	165,968	
	Consultancy for gender responsive PAPs in 4 districts including climate threat assessment, vulnerability mapping, and adaptation prioritization, community consultations, dissemination, and workshops.	86,850		
	National Travel and DSA, Communications Equipment, mobilization, transportation, and conferences to develop PAPs including climate threat assessment, vulnerability mapping, and adaptation prioritization	49,010		
Output 1.1.4: Nine PRMPs prepared at the Municipal Level identifying priority actions	National workshop and travel, communication equipment, mobilization, and equipment for exchanging experiences and lessons learned during the information gathering phase.	45,013	131,863	
	Consultancy for developing 4 participatory risk plans at municipal level.	86,850		
Subtotal comp 1:		871,993		
2.1.1. Baseline studies on key coastal ecosystems for enhanced resilience and food security inform selection of priority interventions.	Baseline analysis completed for the identification of key coastal ecosystems and selection of priority sites and EbA solutions for protection, conservation, and sustainable management to reduce projected damage and loss due to slow onset hazards as projected from initial flood modelling for each of the municipalities.	103,000	159,066	1,620,898
	National travel and mobilization to develop annual workshops for monitoring the implementation activity of the methodology and exchanging experiences.	56,066		
2.1.2. FFS support local training and the implementation of EbA	Consultancy, inputs equipment, mobilization, national and international travel for the implementation of EbA across target municipalities including sharing best practice techniques and workshop.	512,789	512,789	
2.1.3. Selected EbA interventions implemented	Inputs, communication and technical equipment, technical specialists, and national travel, to develop and implement an EbA plan in four municipalities.	949,043	949,043	
Subtotal comp 2:		1,620,898		
3.1.1. Agricultural and fishing cooperatives have been created and/or strengthened	Inputs, IT and technical equipment, mobilization and national travel to support investments for local cooperatives in CSA and fisheries. Technical training, investment programs, and long term sustainability planning. Focus on women and IPs	309,505	309,505	1,282,032
3.1.2. FFS support local training and use of sustainable and resilient productive across nine target municipalities.	Inputs, IT, technical and communication equipment, mobilization, national and international travel, and consultancy for implementing (EBA) in sustainable and resilient agricultural practices, training activities in EBA.	530,791	530,791	
3.1.3. CSA and fishing productive technologies adopted by local producers across nine target municipalities through the FFS approach.	Inputs, IT, technical, communication equipment, mobilization, national and international travel, and consultancy to develop an implementation plan for AbE measures in four municipalities. It includes stakeholder consultations, capacity building workshops, and the creation of educational materials	441,736	441,736	
3.2.1. Cooperatives have been created and/or strengthened cooperatives and/or to implement diversified EbA compatible livelihoods	Inputs, equipment, seed capital, national travel and mobilization to support and investments for community associations, prioritizing women and IPs, Workshops and field visits involving national stakeholders	309,411	309,411	1,322,903
3.2.2. FFS support local training and use of sustainable and resilient productive practices for EbA	Inputs, technical and communication equipment, travel, mobilization, and training to develop Farmer Schools across 4 municipalities focusing on local needs and sustainable agricultural practices aligned with (EbA).	490,489	490,489	

3.2.3. Diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities through the FFS approach.	Support climate resilient livelihoods through farmer education, cooperative resources, and diversified income opportunities. Provide travel, equipment, and maintenance for cooperatives. Enhance visibility through social communication.	523,003	523,003	-
Subtotal comp 3:		**2,604,935**		
Total project activity cost		**5,097,826**		
Project execution cost		Panama	-	-
Project coordinator national (M&E)		156,055	-	-
Accounting support		96,319	-	-
Project officer		82,643	-	-
Procurement support		36,714	-	-
Gender and communications specialist		30,289	-	-
IT, office support, bank charges, communications, consultants, calls for proposals and dissemination of results, field equipment, printing and photocopies, maintenance, coordination meetings (for project and consultancy proposal evaluations), life and hospitalization insurance, contingencies.		49,000	-	-
Basic services, rent, bank charges, fuel and lubricants, printing and photocopying, legal expenses, technology platform maintenance, office stationery and supplies, insurance, notarized stamps and sealed paper, travel, per diems, contingencies.		38,152	-	-
Tot Project execution cost (Panama)		**489,172**	-	-
Total project cost (Panama)		**5,586,998**		-

CUBA				-
-	**Activities**	-	**Tot OUT**	**Tot OUTC**
Output 1.1.1: Baseline data for loss and damage assessment collected.	Workshops on (EbA) solutions, training on data processing, standardization, and methodology implementation to engage regional and international experts	2,325	359,725	505,530
	National experts, technical specialists, IT Comm and technical equipment, transportation, mobilization, furniture, maintenance for office equipment and vehicles, spare parts, rental of premises, connectivity expenses, office supplies, national travel, and workshop to building the project baseline (15 intervention sites)	330,838		
	Information and social communication materials, teaching aids, and various school supplies for modules to be delivered to intervention sites.	26,562		
Output 1.1.2: Loss and damage analysis completed for nine municipalities.	National and International Travel, FAO workshop, communication equipment, mobilization, specialists, TA, maintenance for office equipment and vehicles, spare parts, communication products, rental of premises, connectivity expenses to develop an impact assessment	44,101	44,101	
Output 1.1.3: Nine PAPs prepared at the Municipal Level identifying priority adaptation actions	Workshops with the participation of foreign experts on the employment of (CST) related to adaptation and resilience to climate change.	10,040	54,448	
	Consultancy for gender responsive PAPs in 5 districts including climate threat assessment, vulnerability mapping, and adaptation prioritization, community consultations, dissemination, and workshops.	2,160		
	Maintenance for office equipment and vehicles, National Travel and DSA, Communications Equipment, mobilization, transportation, and conferences to develop PAPs including climate threat assessment, vulnerability mapping, and adaptation prioritization.	42,248		
Output 1.1.4: Nine PRMPs prepared at the Municipal Level identifying priority actions	National workshop for exchanging experiences and lessons learned during the information gathering phase, office supplies for training workshops and information processing, mobilization, cell phone services international and national travel, technical assistance, technology transfer, communication, and technical equipment	38,181	47,256	
	Consultancy for developing 4 participatory risk plans at municipal level	9,075		
Subtotal comp 1		**505,530**		
Output 2.1.1. Baseline studies on key coastal ecosystems for enhanced resilience and food security inform selection of priority interventions.	Baseline analysis completed for the identification of key coastal ecosystems and selection of priority sites and EbA solutions for protection, conservation, and sustainable management to reduce projected damage and loss due to slow onset hazards as projected from initial flood modelling for each of the municipalities.	63,080	1,743,366	2,132,559
	National and International travel, TA, technology transfer, IT, technical and communication equipment, vehicles, transportation and maintenance, connectivity expenses, communication products, furniture, appliance and office supplies to develop baseline studies and annual workshops.	1,603,799		
	Annual workshops for monitoring the implementation activity of the methodology and exchanging experiences. Social communication products for project visibility.	76,487		

Output 2.1.2. FFS support local training and the implementation of EbA including restoration and sustainable management of identified critical ecosystems.	Consultancy, national and international travel for the implementation of EbA across target municipalities including sharing best practice techniques and workshop on Risk Management Plans.	24,728	212,361	
	Office supplies for training workshops and information processing, mobilization, maintenance for office equipment and vehicles to ensure essential services for the plan and trainings.	187,633		
Output 2.1.3. Selected EbA interventions implemented with community participation and leadership based on good practices for enhanced coastal resilience.	Workshops conducted by specialists for the implementation of the Environmental Management Plan (EMP) at intervention sites, aiming to train individuals in existing tools and methodologies. Contracting with various companies to ensure essential service delivery.	32,800	176,832	
	Travel, Office supplies for training workshops and information processing, mobilization, maintenance for office equipment and vehicles to ensure essential services for the plan and trainings. Social communication products for project visibility. Legal services and other services.	144,032		
Subtotal comp 2:		**2,132,559**		
Output 3.1.1. Agricultural and fishing cooperatives have been created and/or strengthened	Workshops on ecosystems, food systems, and coastal resilience. Engage international experts to strengthen agricultural and fisheries cooperatives, with a focus on women. Ensure essential service delivery through contracted companies.	60,262	996,771	996,771
	Inputs, IT, technical and communication equipment, mobilization, national and international travel, maintenance for office equipment and vehicles, spare parts, communication products. Social communication products for project visibility.	662,631		
Output 3.1.2. FFS support local training and use of sustainable and resilient productive across nine target municipalities.	Inputs, IT, technical and communication equipment, mobilization, national and international travel, and consultancy for implementing (EBA) in sustainable and resilient agricultural practices, training activities in EBA. Social communication products for project visibility.	119,581		
Output 3.1.3. CSAI and fishing productive technologies adopted by local producers	Inputs, IT, technical, communication equipment, mobilization, national and international travel, office supplies, maintenance for office equipment and vehicles and consultancy to develop an implementation plan for EbA measures in the municipalities. Mid-term and final external audits and evaluations of the project. Social communication products for project visibility. Legal services and other services.	154,297		
Output 3.2.1. Cooperatives have been created and/or strengthened cooperatives and/or to implement diversified EbA compatible livelihoods	Inputs, specialized equipment for CSA technologies, furniture, computer equipment., national travel, mobilization, maintenance for office equipment and vehicles to support community associations, prioritizing women. Social communication products for project visibility.	1,165,030	1,165,030	1,472,286
Output 3.2.2. FFS support local training and use of sustainable and resilient productive practices for EbA	Conduct CSA training workshops, site exchanges, and direct training in municipalities. Develop Farmer Schools with essential resources, travel, and service contracts. Ensure project audits, evaluations, legal services, and social communication for visibility	162,192	162,192	
Output 3.2.3. Diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities through the FFS approach.	Support climate resilient livelihoods through farmer education, cooperative resources, and diversified income opportunities. Provide travel, equipment, and maintenance for cooperatives. Conduct project audits, ensure legal services, and enhance visibility through social communication.	145,064	145,064	
Subtotal comp 3:		**2,469,057**		
Total project activity cost		**5,107,146**		
Project execution cost		-		
Project coordinator national (M&E)		72,000	-	-
Financial support		60,000	-	-
Project officer (M&E)		60,000	-	-
Procurement support		60,000	-	-
Gender and communications specialist		48,000	-	-
Accounting support		60,000	-	-
Logistic assistant		14,400	-	-
International Exchanges		10,800	-	-
Office supplies for training workshops and information processing, fuel and lubricants for diagnostics and training workshops, cell phone services		7,800	-	-
IT equipment (laptop, multifunctional printer, server), audiovisuals, and communication		10,200	-	-

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Maintenance for office equipment and vehicles, spare parts, communication products (including audiovisuals), rental of premises, connectivity expenses	12,001	-	-
Tot Project Execution Cost (Cuba)	**415,201**	-	-
Total project cost (Cuba)	**5,522,347**	-	

Total project activity cost	**5,107,146**		
Project execution cost	Cuba		
Project coordinator national (M&E)	72,000	-	-
Financial support	60,000	-	-
Project officer (M&E)	60,000	-	-
Procurement support	60,000	-	-
Gender and communications specialist	48,000	-	-
Accounting support	60,000	-	-
Logistic assistant	14,400	-	-
International Exchanges	10,800	-	-
Office supplies for training workshops and information processing, fuel and lubricants for diagnostics and training workshops, cell phone services	7,800	-	-
IT equipment (laptop, multifunctional printer, server), audiovisuals, and communication	10,200	-	-
Maintenance for office equipment and vehicles, spare parts, communication products (including audiovisuals), rental of premises, connectivity expenses	12,001	-	-
Tot Project Execution Cost (Cuba)	**415,201**	-	-
Total project cost (Cuba)	**5,522,347**	-	

FAO				-
-	**Activities**	-	**Tot OUT**	**Tot OUTC**
Output 1.1.1: Baseline data for loss and damage assessment collected.	Field visits to gather information for the project baseline and Trainings and technical assistance for baseline data for loss and damage	79,000	79,000	79,000
Output 1.2.1: Damage and Loss Information System (DLIS) designed and operational.	Acquisition of climate control equipment to contribute to environmental conditions in facilities for capacity building in DSL, NbS, EbA, and ensure the proper functioning of information and communication technologies, M&E and DSL, DLIS expert.	308,172	515,680	685,802
	Inputs, communication and technical equipment, technical specialists, office equipment, supplies, and gender material to implement mechanisms implemented with a gender perspective, PMU gender trainings and DSL	207,508		
Output 1.2.2.: Technical capacity and regional coordination strengthened for the effective operationalization of the DLIS and data processing	Technical assistance, and a national workshop for DLIS operationalization and data processing. Support with DLIS expert, office supplies, fuel, mobile services, and gender-sensitive mitigation measures.	73,696	73,696	
Output 1.2.3: Binational mechanisms established to facilitate continuous dialogue and coordination in the design and operationalization of the DLIS methodology.	International trainings and exchanges, workshop to establish dialogue and coordination in the design and operationalization of the DLIS methodology. Support with, office supplies, fuel, mobile services, and facilitators.	96,426	96,426	
Output 1.3.1: 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.	National workshops for binational exchanges, International Travel, IT&Communication equipment, and specialist to establish a binational community	311,995	311,995	396,513
Output 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.	National workshops for FAO loss and damage methodology, contracting with various companies to ensure essential service delivery IT&Communication equipment and specialists, office supplies. to establish a lesson learnt	84518	84,518	
Subtotal comp 1		**1,161,315**		

~~Output 2.1.3. Selected EbA interventions implemented with community participation and leadership based on good practices for enhanced coastal resilience~~	~~International travel. Workshops conducted by specialists for the implementation of the Environmental Management Plan (EMP) at intervention sites, aiming to train individuals in existing tools and methodologies.~~	~~74,800~~	~~74,800~~	~~74,800~~
~~**Subtotal comp 2**~~		~~**74,800**~~		
~~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.~~	~~International Travel~~	~~56,400~~	~~56,400~~	~~56,400~~
~~Output 3.2.1. Cooperatives have been created and/or strengthened cooperatives and/or to implement diversified EbA compatible livelihoods~~	~~International Travel~~	~~78,800~~	~~78,800~~	~~106,800~~
~~output 3.2.3. Diversified and EbA compatible livelihoods supported based on good practices across 9 target municipalities through the FFS approach.~~	~~International Travel and Training activities for direct and indirect beneficiaries in Ecosystem-based Adaptation (EBA) involving national and international consultants, focusing on the actions to be undertaken within the project framework.~~	~~28,000~~	~~28,000~~	
~~**Subtotal comp 3**~~		~~**163,200**~~		
~~**Total project activity cost**~~		~~**1,399,315**~~		
~~**Project execution cost**~~		~~FAO~~	-	-
~~Coordination of Exchanges~~		~~82,500~~	-	-
~~Accounting and Financial Support~~		~~57,000~~	-	-
~~IT, office support, bank charges, communications, consultants, calls for proposals and dissemination of results, field equipment, printing and photocopies, maintenance, coordination meetings (for project and consultancy proposal evaluations), life and hospitalization insurance, contingencies.~~		~~1,500~~	-	-
~~M&E Baseline study~~		~~30,000~~	-	-
~~M&E Supervision visits~~		~~35,000~~	-	-
~~Technical support and supervision~~		~~107927~~	-	-
~~**Tot project execution cost**~~		~~**313,927**~~	-	-
~~**Total project cost (FAO)**~~		~~**1,713,242**~~	-	-

Table 16. Detailed project budget (Activity and activity breakdown)

	Cuba - Iris	**Panamá - Natura**	**FAO**	**Grand Total**	**Notes**
Outcome 1.1	**505 530**	**871 993**	**79 000**	**1 456 523**	
Output 1.1.1	**359 725**	**458 458**	**79 000**	**897 183**	
Activity 1.1.1. Development of a baseline DLA to agricultural and food productivity affecting local economies and livelihoods in target coastal municipalities due to slow onset climate impacts.					
Consultants	9 600	96 500		106 100	Design of the virtual tool and collection of primary data following the loss and damage FAO methodology.
Contracts	7 866	155 605		163 471	Development of database for baseline study.
Equipment and Infrastructure	299 418	103 255		402 673	IT equipment, technological resources, and logistical means necessary for the development of the tool, data collection and workshop/training
General Operating Expenses	9 466	14 475		23 941	Communication products (including audiovisuals), materials, connectivity expenses for the tool, data collection and workshop/training
Professional Services	1 950	40 000		41 950	Institutionalization of the loss and damage data collection process; communication materials, legal and other associated services
Training, workshops and conferences	31 425	45 960	51 000	128 385	Workshops given by FAO experts on evaluation of damage and losses Nine training sessions on the use of the virtual data collection module and good practices in data management and analysis

Travel		2 663	28 000	30 663	Exchange of experiences and lessons learned between the two countries.
Output 1.1.2	**44 101**	**115 704**		**159 805**	
Activity 1.1.2: Loss and damage analysis completed for 9 municipalities.					
Contracts	9 672	92 640		102 312	Assessments of the socioeconomic impacts of slow-onset climate change on coastal municipalities, focusing on income loss, productivity decline, and agricultural damages affecting local livelihoods and economies.
General Operating Expenses	7 109	2 895		10 004	Office supplies, communication products (including audiovisuals), connectivity
Professional Services	2 280			2 280	Create the database that is integrated into the Agricultural Damage and Loss Methodology in the event of slow-onset weather events.
Training, workshops and conferences	10 640	17 853		28 493	Nine training workshops on the collection of information required to implement the Loss and Damage methodology National workshop to exchange experiences and lessons learned during the information collection phase. Annual workshops to monitor the methodology implementation activity and exchange of experiences
Travel	14 400	2 316		16 716	Exchange of experiences and lessons learned between the two countries.
Output 1.1.3.	**54 448**	**165 969**		**220 417**	
Activity 1.1.3: Participatory Adaptation Plans (PAP) prepared at the municipal level that identify priority adaptation actions to improve productivity and resilience					
Consultants	15 960	39 738		55 698	Development of the PAP with a gender perspective that includes the prioritized identified adaptation actions (at least 5 per municipality)
Contracts	11 116	86 850		97 966	Analysis and identification of threats, vulnerability and climate risk and past, current and future impacts and identification of population groups most vulnerable and vulnerability maps and climate risk. Prioritization of Adaptation Measures for the nine municipalities Record community consultations
General Operating Expenses	8 135	3 000		11 135	Development of audiovisual material of the main results. Office supplies and vehicles, communication products (including audiovisuals), rental of premises, connectivity expenses for PAPs and training/ workshops on EbA.
Professional Services	2 720			2 720	External assessments, communication materials for visibility, legal and other associated services
Training, workshops and conferences	16 517	36 381		52 898	Two awareness-raising and training workshops per municipality to present the best practices of EbA and the use of climate-smart technologies. Workshops to disseminate the approved products in the nine municipalities and exchange of experiences and lessons learned
Output 1.1.4	**47 256**	**131 863**		**179 119**	
Activity 1.1.4: Development of 9 Participatory Risk Management Plans (PRMP) prepared at the municipal level that identify priority actions to reduce the projected risk for food productivity.					
Contracts	9 075	86 850		95 925	Consultancy for developing participatory risk plans at municipal level
General Operating Expenses	6 489	4 000		10 489	Office supplies for training, workshops and information processing
Professional Services	2 740			2 740	External services for communication, systematization and dissemination
Training, workshops and conferences	12 752	36 381		49 133	Workshops for dissemination of results and Exchange of experiences, development of informative materials
Travel	16 200	4 632		20 832	Exchange of experiences and Travel to develop PRMPs and training/ workshops
Outcome 1.2.			**685 803**	**685 803**	
Output 1.2.1			**515 680**	**515 680**	
Activity 1.2.1: Damage and Loss Information System (DLIS) designed and operational.					
Contracts			321 000	321 000	Development of a baseline gap analysis and the design and operationalization of the DLIS
Equipment and Infrastructure			116 872	116 872	Technological equipment and materials to implement the DLIS
Professional Services			3 172	3 172	Professional services: expert for DLIS

Training, workshops and conferences			68 636	68 636	Training/workshops to implement the DLIS
Travel			6 000	6 000	Exchange of experiences and lessons learned
Output 1.2.2			**73 696**	**73 696**	
Activity 1.2.2: Strengthened technical capacity and regional coordination for the effective operationalization of the DLIS (Danger, Loss Information System) and data processing					
Professional Services			19 720	19 720	Professional services: DLIS expert, ESPM good practices and Mitigation measures for gender sensitivity
Training, workshops and conferences			45 976	45 976	Binational workshops, training and technical assistance for operationalization of the DLIS and data processing
Travel			8 000	8 000	Exchange of experiences and lessons learned
Output 1.2.3			**96 427**	**96 427**	
Activity 1.2.3: Binational mechanisms established to facilitate ongoing dialogue and coordination in the design and operationalization of the DLIS methodology.					
Professional Services			3 172	3 172	Facilitators to Design and establish a real-time communication mechanism
Training, workshops and conferences			60 855	60 855	Training in Binational mechanism
Travel			32 400	32 400	Exchange of experiences and lessons learned
Outcome 1.3.			**396 512**	**396 512**	
Output 1.3.1			**311 995**	**311 995**	
Activity 1.3.1. Establishment of a binational community at various scales					
Equipment and Infrastructure			112 170	112 170	Equipment for FFS implementation and for establishment of the binational community
Professional Services			9 072	9 072	Professional services: communication expert for the establishment of a binational community
Training, workshops and conferences			145 317	145 317	Implementation of FFS exchange program in target sites
Travel			45 436	45 436	Regional exchange missions for capacity development and implementation of FFS.
Output 1.3.2			**84 516**	**84 516**	
Activity 1.3.2. Development of guidelines and recommendations that compile lessons learned from the implementation of the FAO loss and damage methodology for its expansion in similar contexts					
Contracts			43 981	43 981	Evaluation of the implementation of the loss and damage methodology, development of a best practices module for adaptation at the community level
Professional Services			2 014	2 014	Communication expert to Develop and disseminate knowledge products at different levels
Training, workshops and conferences			25 761	25 761	Training, workshops and guidelines/lessons learnt for the FAO methodology
Travel			12 762	12 762	Travel for training, workshops and guidelines/lessons learnt for the FAO methodology
Outcome 2.1.	**2 132 559**	**1 620 898**	**74 800**	**3 828 257**	
Output 2.1.1	**319 525**	**159 066**		**478 591**	
Activity 2.1.1. Baseline studies on key coastal ecosystems for improving resilience and food security inform the selection of priority interventions					
Consultants	42 000			42 000	Determine priority ecosystems for investment in ecosystem-based adaptation
Contracts	70 774	109 273		180 047	Development of feasibility studies to Assess coastal ecosystems, identify priority areas, design and validate Ecosystem-based Adaptation (EbA)

					measures, and evaluate their cost-effectiveness for implementation in four municipalities.
General Operating Expenses	53 176			53 176	IT equipment (laptop, multifunction printer, server), specialized equipment for feasibility studies
Professional Services	4 000			4 000	Communication materials for visibility, legal and other associated services
Training, workshops and conferences	72 375	45 162		117 537	Validation and consultation workshops on EbA measures with communities and key actors (at least 1 per municipality).
Travel	77 200	4 632		81 832	Travel to develop the feasibility studies
Output 2.1.2.	**212 361**	**512 789**		**725 150**	
Activity 2.1.2. Farmer Field Schools (FFS) support local training and EbA implementation, including the restoration and sustainable management of identified critical ecosystems.					
Contracts	41 941	129 000		170 941	Consultancy for implementing Farmer Field Schools (FFS) to support local training and EbA implementation.
Equipment and Infrastructure	83 140	307 071		390 211	Inputs and specialized equipment for training and EbA implementation of agricultural and fishing practices
Professional Services	4 050			4 050	Associated services for FSS, EbA and training/ workshops
Training, workshops and conferences	61 012	36 381		97 393	Exchange sessions/workshops to share experiences in the implementation of EbA measures and to present results including \ educational and didactic materials for EbA measures
Travel	22 218	40 337		62 555	Travel for Exchange sessions/workshops and to implement FSS and EBA
Output 2.1.3	**1 600673**	**949 043**	**74 800**	**2 624 516**	
Activity 2.1.3. Selected EbA interventions implemented with community participation and leadership based on good practices to improve coastal resilience.					
Consultants	55 633	58 809		114 442	Design of an outreach, communications and sustainability strategy for the EbA measures Systematization of the activities carried out, results obtained, and lessons learned
Contracts	45 069	149 790	44 800	239 659	Development of an Implementation Plan of EbA measures, Coordination, execution, supervision and monitoring of the implementation and progress of the EbA measures
Equipment and Infrastructure	1 423 841	732 000		2 155 841	Procurement of equipment and infrastructure to implement of at least 20 Ecosystem-based Adaptation Measures in Panama and 25 EbA measures in Cuba
General Operating Expenses	69 325	8 444		77 769	It equipment to support implementation of EbA interventions
Professional Services	5 550			5 550	Associated services for EBA and training/ workshops
Training, workshops and conferences	1 255		30 000	31 255	Workshops to present results of the implementation of EbA measures, consultation sessions with key stakeholders in the municipalities, exchanges
Outcome 3.1.	**996 771**	**1 282 032**	**56 400**	**2 335 203**	
Output 3.1.1	**722 893**	**309 505**	**56 400**	**1 088 798**	
Activity 3.1.1. Agricultural and fishing cooperatives have been created and/or strengthened (favoring women and vulnerable populations) in their associative, productive capacities for a climate-smart production capacity.					
Consultants	10 880		34 000	44 880	Diagnosis of agricultural and fishing cooperatives
Contracts	47 325	298 273		345 598	Strengthen technical capacity of cooperatives and associations on climate-smart agricultural and fishing practices
Equipment and Infrastructure	587 994	5 790		593 784	Early Warning Systems: specialized equipment for monitoring agroclimatic variables at the sites
General Operating Expenses	36 906			36 906	Office supplies for training workshops and information processing, fuel and lubricants for diagnostics and training workshops, cell phone services
Training, workshops and conferences	17 570			17 570	Training in municipalities on the use of Climate Smart Technologies and exchanges
Travel	22 218	5 443	22 400	50 061	Travel for training, workshop and TA

Output 3.1.2	**119 581**	**530 791**		**650 372**	
Activity 3.1.2. Implementation of FFS in the use of sustainable and resilient production practices, including coconut, banana and rice harvesting, and fishing-related practices.					
Contracts	48 688	141 273		189 961	Implementing Ecosystem-based Adaptation (EBA) in sustainable and resilient agricultural practices, including coconut, banana, rice harvesting, and fisheries-related practices.
Equipment and Infrastructure		329 071		329 071	IT and specialized equipment to support FFS for the development of climate smart technologies.
General Operating Expenses	37 806	4 825		42 631	Development of educational and didactic materials for climate-smart agricultural and fishing practices. Maintenance for office equipment and vehicles, spare parts, rental of premises, connectivity expenses.
Professional Services	4 600			4 600	associated services for FSS
Training, workshops and conferences	9 650	15 054		24 704	Training activities for direct and indirect beneficiaries in Ecosystem-based Adaptation (EBA) involving national and international consultants, focusing on the actions to be undertaken within the project framework and exchange sessions/workshops
Travel	18 837	40 569		59 406	Travel for implementation of FSS, training and exchanges
Output 3.1.3	**154 297**	**441 736**		**596 033**	
Activity 3.1.3. Climate-smart agricultural and fishing productive technologies adopted by local producers through the FFS approach					
Consultants	21 280			21 280	Identification and prioritization of climate-smart agricultural and fishery production technologies
Contracts	29 622	72 000		101 622	FFS implementation plan
Equipment and Infrastructure		324 246		324 246	Technological equipment for conservation agriculture, agroforestry, crop diversification, efficient water use, and sustainable fisheries. Acquisition of fishing gear and aquaculture tools for sustainable fishing practices
General Operating Expenses	10 258	19 300		29 558	Purchase of necessary consumables for on-site training in FFSs
Professional Services	4 400			4 400	Specialists to support legal and regulatory aspects related to the implementation of climate-smart fishing and agricultural practices.
Training, workshops and conferences	64 104	21 327		85 431	Workshops and training on climate-smart agricultural technologies in the municipalities where the FFSs have been developed
Travel	24 633	4 864		29 497	Regional workshops and exchanges
Outcome 3.2.	**1472 286**	**1 322 903**	**106 800**	**2 901 989**	
Output 3.2.1	**151 394**	**309 411**	**78 800**	**539 605**	
Activity 3.2.1. Cooperatives have been created and/or strengthened to implement diversified livelihoods compatible with EbA.					
Consultants	40 121	6 273	34 000	80 394	Diagnosis of cooperatives and the evaluation of their technical, financial, and business needs.
Contracts	39 673	286 000		325 673	Capacity building programs on business skills, financial management, and marketing to cooperatives Technical support in climate-smart agricultural and fishing practices
General Operating Expenses	46 458			46 458	Costs related to the administration and coordination of cooperative support programs. Operational expenses for TA implementing partners
Professional Services	3 900			3 900	Legal and financial advisory services for the cooperatives to improve governance and administration
Training, workshops and conferences	9 650	11 580		21 230	Capacity-building workshops on climate-smart agriculture National workshops to share lessons learned and best practices.
Travel	11 592	5 558	44 800	61 950	Field visits to cooperatives for technical support and monitoring Binational exchange programs to facilitate knowledge-sharing on best practices for cooperatives.

Output 3.2.2	**162 192**	**490 489**		**652 681**	
Activity 3.2.2. FFSs support local training and the use of sustainable and resilient productive practices for EbA-compatible livelihoods in target municipalities.					
Contracts	46 287	451 746		498 033	Participatory diagnosis of climate risks in agriculture, fishing, and nature tourism. Development and execution of the FFS implementation plan
General Operating Expenses	47 594	6 667		54 261	Administrative and logistical costs associated with the implementation of FFS, including venue rentals and utilities. Training materials, office supplies for training sessions and participatory workshops
Professional Services	3 900			3 900	Engagement of legal, financial, or cooperative governance advisors
Training, workshops and conferences	47 023	22 581		69 604	Workshops on climate-smart agricultural and fishing practices. Training sessions on the participatory monitoring and evaluation system Exchange workshops to share experiences on implementing climate-smart practices.
Travel	17 388	9 496		26 884	South-South exchange between Cuba and Panama, facilitating knowledge-sharing on best practices for FFS implementation (10 people for five days).
Output 3.2.3.	**1 112 413**	**523 004**	**74 287**	**1 701 704**	
Activity 3.2.3. Diversified and EbA-compatible livelihoods supported based on good practices in target municipalities through the FFS approach					
Contracts		486 267	46 287	532 554	Evaluation and identification of alternative livelihoods that are compatible with EbA and to take advantage of participatory plans and climate projections. Technical assistance to implement alternative liverlihood solutions: inputs, extension services, etc.
Equipment and Infrastructure	1 041 878	6 273	-	1 040 151	Equipment and materials necessary for the implementation of climate-smart agricultural and fishing practices.
General Operating Expenses	30 035	10 546		40 581	Administrative costs associated with FFS: Printing and distribution of educational and awareness materials, venue rental, etc.
Professional Services	3 800			3 800	Legal and financial advisors to ensure the sustainability of climate-smart technology adoption
Training, workshops and conferences	12 550	15 054	28 000	55 604	Workshops to analyse the potential of communities to diversify livelihoods from agriculture. Exchange sessions where participants share experiences in adopting climate-smart technologies.
Travel	24 150	4 864		29 014	Field visits Regional exchanges between Cuba and Panama, supporting best practice

National Project execution cost	Panama	Cuba
Project Coordinator	156,055	72,000
Financial support		60,000
Accounting support	96,319	60,000
Project officer	82,643	60,000
Procurement support	36,714	60,000
Gender and communications specialist	30,289	48,000
Logistics Assistant		14,400
International Excnages		10,800
IT, office support, bank charges, communications, consultants, calls for proposals and dissemination of results, field equipment, printing and photocopies, maintenance, coordination meetings (for project and consultancy proposal evaluations), life and hospitalization insurance, contingencies.	49,000	10,200
Basic services, rent, bank charges, fuel and lubricants, printing and photocopying, legal expenses, technology platform maintenance, office stationery and supplies, insurance, notarized stamps and sealed paper, travel, per diems, contingencies.	38,152	19,801
Tot Nstional Project execution cost	**489,172**	**415,201**

Regional (FAO) Project execution cost	
Coordination of Exchanges	82,500
Accounting and Financial Support	57,000
IT, office support, bank charges, communications, consultants, calls for proposals and dissemination of results, field equipment, printing and photocopies, maintenance, coordination meetings (for project and consultancy proposal evaluations), life and hospitalization insurance, contingencies.	1,500
M&E Baseline study	30,000
M&E Supervision visits	35,000
Technical support and supervision	107927
Total FAO project execution cost	**313,927**

Project Activity Costs (A)	**11,604,287**
Project Execution Cost (B)	**1,218,300**
Total Project Costs (A+B)	**12,822,587**
Project Cycle Management Implementing Entity Fee	
Financial Management (General financial oversight, support audits and quality control, manage, monitor and track AF funding including allocating and monitoring expenditure based on agreed work plans; financial management compliance with AF requirements; financial reporting compliance with AF standards; procurement support and compliance with Government procurement rules).	235,482
Programme Support (Technical support in project implementation; methodologies, identification of experts; troubleshooting and support implementation missions as necessary; portfolio management, reporting; Independent Environmental and Social Audits and policy programming and implementation support services).	553,385
Technical support (Supervision missions, mid-term review, final evaluation, implementation support, risk management, programming; guidance in establishing performance measurement processes; technical support on methodologies, TOR validation, identification of experts, results validation, and quality assurance; troubleshooting, and support evaluation missions as necessary; support on technical issues in programme implementation).	388,546
Total Project Cycle Management Implementing Entity Fee	**1,177,413**
Amount of Financing Requested	**14,000,000**

H. DISBURSEMENT SCHEDULE

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

Table 17: Project calendar with associated milestones

	Upon signature of Agreement	One Year after Project Start a)	Year 2	Year 3	Year 4	Total
Scheduled date	01/09/2025	01/09/2026	01/09/2027	01/09/2027	01/09/2029	
Project Funds	3,441,487	2,448,180	2877,070	3,180,475	875,375	12,822,587
Implementing Entity Fees	235,481	235,483	235,483	235,483	235,483	1,177,413
Total	3,676,968	2,683,663	3,112,553	3,415,958	1,110,858	14,000,000

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

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT[92]

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:

Juan Carlos Monterrey *Director of Climate Change* *Ministry of Environment* *Republic of Panama*	Date*: November 19, 2024*
Sr Ulises Fernández Gómez *Director of International Relationship* *Ministry of Science, Technology and Environment* *Republic of Cuba*	Date*: December 13, 2023*

Letter of Endorsement by Government

[92] 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.

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

CITMA

DIR: 123/2023

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 3240/3

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 Panama 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 Orozco

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

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, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.
Implementing Entity Coordinator: Pierre-Yves GUEDEZ Lead Multilateral Climate & Environmental Funds (AF, GCF, GEF)
e-mail: p.guedez@ifad.org
Mr Juan Carlos Mendoza Casadiegos, Director, Environment, Climate, Gender and Social Inclusion Division
Date: 13 December 2024 e-mail: ecgmailbox@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: j.delapena@ifad.org
Mr Enrique Hennings, Country Director for Panama
e-mail: e.hennings@ifad.org

Field Code Changed

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ANNEX 1 - STAKEHOLDER CONSULTATIONS (CONCEPT NOTE STAGE)

Several presentation, interviews and survey 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 consutlations 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 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, Achiote). 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)**
Hector Pino Mata-Ileana Sanchez-Thais Kenya Gutierrez-Benjamin Reys-Hadiel Melo-Juliana Rodriguez -José Ramirez-Felicito Terán-Armando Johnson	Maria Esther Estil-Leopoldo Babará-Osvaldo Marinez-Sebero Castañeda-Tomas Mejía-Horacio Jimenez-Adrian Guerra -Graciela Vasquez-Katherine Martinez	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
Municipal Council Santa Isabel: (meeting-surveys)	**Institutional consultations (meeting-surveys)**	**Producers- Surveys/ phone interview**
Tomás Salazar-Siria Melisa de Cordoba-Luis Barrera-José Anibal Valencia-Pablo Salazar-Bredio Barrios-Brenda Mencha-Tilsio Nuñez Sanchez	Abel díaz (Tourism Autority) -Rogelio Caballero (Tourism Autority)-Yaribel Perez (Tourism Autority)-Maryuri Estrada (Acuatic Resource Authority)-Katherin Aimeed Aguirre (Acuatic Resource Authority)-Ivan Elias Mendoza (National Council for Sustainable Development -CONADES)-Olga Carrasquilla de Yepez 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 Protected Area of San Lorenzo)-Daylene (in charge of Protected Area of Portobelo)	Paulina Govea Hector Platanal Vielka tenis Lucio Medina Vicente Rivas Elvia Vega Oscar Río Diego
Indigenous people: (meeting-interview) **Iniquilipi Chiari- Indigenous Representative at Ministry of Environment- Arcadio Castillo- Coordinator of the Association of Central American fishermen.** **Carolina Paredes Rodríguez- Handcraft seller- Yiri Milushka Rodriguez** 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 Ngäbe families have been identified in Donoso Distric. 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 handicraft mainly for tourists.

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.

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.

Cuba

Cuba: Producers- surveys*	**Cuba- Virtual Meetings**	**Cuba- Institutional sectors (meetings)**
Batabanó: Maria Teresa Aguiar P.A Gulf of Batabano, Maura Lopez tree Nursery UEB Melena del Sur. **Consolación del Sur:** Roberto Rodríguez (CITMA regional)-Rodolfo Esteves(producer CCS) **San Cristobal:** Milagros bien Flores (municipality directive)-Ricardo Gonzalez Bofil (Basic Unit of cooperative production UPBC)-Felix Tamayo Arrenciba (Producer CCS) **La Sierpe:** Rafael Antonio Obregón Obregon (National Asociation of small agriculture-ANAP)- Andreis Oreste García -producer (Basic Unit of cooperative production UPBC) *Consultation via mail (survey with questions) due to COVID national confinement and mobility difficulties between la Habana and local regions.	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	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 Sience and innovation Sacti Spiritu), J. Carlos Perez (Dir. Dpt Sieence and innovation Pinar del Río), Malbis Betancourt (Dir. Dpt Sieence and innovation Guantanamo).

Cuba: Consultation process

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 (Consolación del Sur, San Cristóbal, Batabanó, La Sierpe and Baracoa),

National, territorial, and local coordinators	Participating entities
PhD. Maritza Garcia Garcia. WADA, President MSc. Edelsy Carmona Lescay. AMA, Head of Environment Department PhD. Orlando Enrique Sánchez León. IGT, Director Mr. Francisco Cutie Rizo. IGT, Deputy Scientific Director MSc. Zaraith 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, UPSA, 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	Ministry of Science, Technology and Environment (CITMA) ● Environment Agency (AMA) ● Institute of Tropical Geography (IGT) ● Sancti Spíritus Environmental Services Center (CSASS) ● Environmental Services Unit "Alejandro de Humboldt" (UPSA) ● Delegations and provincial offices of CITMA Ministry of Agriculture (Minag) ● Institute of Agricultural Research (IAGRIC) ● Provincial and municipal delegations of the 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)

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BSc. Geyser 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	

Municipality Consolación del Sur	**San Cristobal Municipality**	**Batabano Municipality**
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.	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.	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).
La Sierpe Municipality	**Baracoa Municipality**	
Inquiries were made to producers, fishermen and housewives from the settlements of Mapos, Natividad, San Carlos and El Jibaro.	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.	

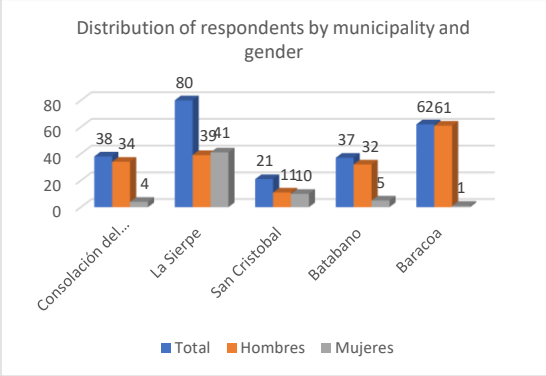
ANNEX 2 – STAKEHOLDER CONSULTATIONS (FINAL PROJECT PROPOSAL)

A series of consultations were conducted in target municipalities in Panama in April 2022 and in Cuba in between October and December 2022. Additional consultations were held during the first half of 2024. In Panama, an exclusive consultation was carried out for the indigenous population and in the Province of Colón, Donoso district, Río Palmilla community, the previous consultation was complemented with a majority female group to guarantee a representation close to their participation as part of the project's target population. A total of 731 people participated, 41.6% of whom were women. In both countries, the distribution by sex was similar as shown in the following table.

PARTICI PATION IN CONSULTATIONS ACCORDING TO COUNTRY, YEAR AND SEX			
	MEN	WOMEN	TOTAL
CUBA			
2022	177	61	238
2024	160	178	338
TOTAL	337	239	576
%	58,5	41,5	
PANAMA			
2022	69	49	118
Indigenous 2024	21	16	37
TOTAL	90	65	155
%	58,1	41,9	
GRAND TOTAL	427	304	731
%	58,4	41,6	

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 km^2. 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, Rio 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, furnia 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) La Sierpe

La Sierpe is a municipality and town in the Sancti Spíritus 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/km^2 (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.

Distribution of Surveys to Stakeholders and Institutions by Gender

Year	2022		2024		
Municipalities and Institutions	Men	Women	Men	Women	Total
Batabanó	32	5	18	19	74
San Cristóbal	11	10	35	36	92
Baracoa	61	1	21	22	105
Consolación del Sur	34	4	31	32	101
La Sierpe	39	41	20	22	122
National Institutions*			30	33	63
Municipal Institutions *			5	14	19
Total	177	61	160	178	576

Source: Prepared by the technical team

Detailed Analysis

Personal Information This section collected data on sex, skin color, educational level, occupation, age, and place of residence. The consultation revealed that San Cristobal had the highest representation with 71 respondents, 51% of whom were women.

Table 3: Description of the Sample Year 2024

Municipalities and National Institutions	Men	Women	Total
Batabanó	18	19	37
San Cristóbal	35	36	71
Baracoa	21	22	43
Consolación del Sur	31	32	63
La Sierpe	20	22	42
National Institutions	30	33	63
Municipal Institutions	5	14	19
Total by Gender	160	178	338

Source: Prepared by the technical team

Knowledge on Climate Change Adaptation: While most respondents had heard about Ecosystem-based Adaptation (EbA), their detailed understanding was limited. Many participants associated EbA with general environmental protection rather than specific climate-smart agricultural practices. This indicates a significant need for capacity building to improve the understanding and implementation of EbA practices.

Participation and Gender Equality: The majority (82.84%) considered equitable participation of men and women crucial for generating nature-based livelihood benefits. Respondents proposed equal training opportunities for both genders, promoting gender equality in project benefits. It was noted that women often face barriers to participating in certain productive activities, such as fishing, due to traditional gender roles. Encouraging more inclusive participation would help address these disparities.

Project Objectives Awareness: About 75% of respondents were aware of the project, with 47.34% having received training on climate change adaptation and environmental topics. However, a significant portion of respondents had not been adequately informed, highlighting the need for improved communication and training efforts. Training was provided through various courses, workshops, and projects like "Bases Ambientales para la Sostenibilidad Alimentaria Local (BASAL)" and "Resiliencia al Cambio Climático en la zona costera de Cuba a través de la Adaptación Basada en Ecosistemas (Mi Costa)."

Implementation Concerns: While 236 respondents did not foresee major risks related to inequity or discrimination, 20% expressed concerns about stakeholder engagement, resource allocation, and the long-term sustainability of project benefits. Key concerns included:

- Limited perception of environmental issues within society.
- Lack of basic cultural formation on environmental topics.
- Fuel shortages and labor migration affecting project stability.
- Insufficient knowledge of existing regulations and high pollution levels.
- Economic constraints hinder the adoption of new technologies.
- Weak commitment to implementing climate adaptation measures.
- Poor dialogue and participation among stakeholders.

Addressing these concerns through continuous capacity building and inclusive approaches was recommended to ensure successful project implementation.

Recommendations

Based on the consultation findings, several key recommendations were developed to enhance the project's effectiveness and sustainability:

- Enhance the Gender Action Plan: Continuous feedback and consultations should be integrated into the Gender Action Plan to ensure it addresses emerging gender issues and barriers. This includes setting specific targets for female participation and empowerment in project activities.
- Ensure Participatory and Gender-Sensitive Approaches: The project should maintain its focus on participatory methods that include a diverse range of stakeholders, particularly marginalized groups. This approach aligns with the Adaptation Fund's gender policy and the International Fund for Agricultural Development (IFAD) guidelines.
- Promote Continuous Capacity Building: Ongoing training programs are essential to build local capacities in climate-smart agriculture, EbA, and gender-sensitive approaches. These programs should be tailored to address the specific needs identified during the consultations, such as the need for better understanding of climate-smart practices.
- Improve Communication and Awareness: Increase efforts to disseminate information about the project objectives, benefits, and progress. This could involve regular updates through community meetings, local media, and social networks to ensure all stakeholders are well-informed and engaged.
- Address Resource Allocation and Sustainability Concerns: Develop clear plans for resource allocation that ensure equitable distribution and long-term sustainability of project benefits. This includes securing funding for ongoing maintenance and scaling of successful initiatives.
- Foster Stronger Stakeholder Engagement: Strengthen mechanisms for stakeholder feedback and involvement, ensuring that all voices, especially those of women and vulnerable groups, are heard and considered in decision-making processes.
- Monitor and Evaluate Impact: Establish robust monitoring and evaluation frameworks to track the progress of gender-specific targets and the overall impact of the project. This data will be critical for adjusting strategies and ensuring that the project remains on track to meet its goals.

These recommendations will help create a more inclusive, effective, and sustainable project, contributing to the overall resilience of the communities involved

Conclusion

The consultation processes conducted from 2021 to 2024 have been instrumental in engaging a broad range of stakeholders and ensuring their active participation. The findings emphasize the need for ongoing gender-sensitive capacity building and stakeholder engagement to achieve the project's objectives effectively. The success of these consultations highlights the project's commitment to fostering inclusive and sustainable development practices.

The extensive national and local consultation process involved a total of 697 people, demonstrating the project's broad reach and the significant interest from various stakeholders in strengthening local capacities for climate change adaptation. These efforts align with national commitments to sustainable development and climate resilience, as outlined in the National Economic and Social Development Plan until 2030 and the State Plan for Confronting Climate Change (Life Task) (Gaceta Oficial de la República de Cuba, 2022).

The continued focus on gender equality and inclusive participation is crucial for addressing the unique vulnerabilities faced by women and other marginalized groups in the context of climate change. The project's approach to integrating these perspectives into its planning and implementation phases sets a strong foundation for achieving its long-term goals.

II. PANAMA

The Republic of Panama is a multiethnic society. There are seven indigenous peoples established in different parts of the country: Bribri, Naso, Wounaan, Buglé, Embera, Kuna, and Ngäbe. According to the 2023 Population and Housing Census, 17.2% of the census population, out of a total of 4,064,780 people, declared they belonged to some indigenous ethnic group, that is, 698,114 people. Of these, 345,822 are men and 352,292 are women (INEC, 2023a). The largest group is the Ngäbe (444,878 members, 63.7%), followed by the Kuna people (112,319 members).

There are six regions or comarcas, recognized by different laws that are based on the constitutional rights of indigenous peoples: Guna Yala (1938), Emberá-Wounaan (1983), Guna Madungandi (1996), Ngäbe-Buglé (1997), Guna Wargandí (2000), and Naso Tjër Di Region (2020). In total, these regions cover an area of 1.7 million hectares.

Map 1: Location of Indigenous Peoples

The majority of the indigenous population settles in rural areas, with the main points of concentration being the Ngäbe-Buglé region, the Kuna Yala region, and the Emberá-Wounaan region. The Naso Tjërdi are found in the La Amistad International Park, and the Bribri live on the banks of the Sixaola River, on the border of Panama with Costa Rica.

Indigenous rights

Panama signed the United Nations Declaration on the Rights of Indigenous Peoples of 2007 and the American Declaration on the Rights of Indigenous Peoples of 2006. However, it has not ratified Convention No. 169 (1989) of the International Organization of Labor (ILO) on indigenous and tribal peoples in independent countries. Despite not having ratified ILO Convention 169, Panama has National Law 37 on the right of indigenous peoples to free, prior and informed consultation, when it comes to activities in their territories.

The rights of the indigenous peoples located in Panama have constitutional, conventional, and legal recognition. This recognition has strengthened their traditional governance, since they have their own government, representative structures, and strong social capital. However, numerous challenges persist, especially those related to recognition, territorial rights, forced evictions, high poverty rates and gaps in access to basic and financial services, etc.

In 1998, the Panamanian State approved the General Law of the Environment, through Law No. 41. This law includes the fundamental principles of the rights of indigenous peoples in matters of natural resources and the environment, by incorporating Title VII, “Of the Regions and Indigenous Peoples.” This means that the General Environmental Law recognizes the rights of all indigenous peoples and communities, whether they are local or not, whether their lands are legalized or not. Article 97 recognizes the knowledge, innovations, and practices of indigenous peoples regarding the conservation and use of renewable natural resources found in their territories.

Forestry Legislation created by Law No. 1 of January 3 , 1994 and the Wildlife Law, Law No. 24 of June 7, 1995, which creates the National Wildlife Commission with indigenous representation, determines that forestry use permits, as well as permits for the collection, hunting and fishing of wildlife, as well as its use, research or study in areas of regions, reserves and indigenous communities, will be authorized by ANAM, together with the respective Congresses, after studying a scientific management plan .

Indigenous people invariably demonstrate a deep and intimate bond with their territory of origin. According to the indigenous worldview, land and sea cannot be separated from culture and identity. The land represents not only a source of resources for subsistence, but also a fundamental source, and an integral part, of indigenous belief systems. The indigenous people draw their spirituality, their cultural values and their collective identity from the land, and this union is reflected in their laws, customs and traditional ways.

In the indigenous worldview, the Earth is the Mother who offers the elements for the survival of her children and to meet the human needs of future generations; These elements include air, land, water, natural gas, coal, oil, minerals, wood, fauna, forests, in other words, both that is, renewable and non-renewable natural resources, the latter being irreplaceable once extracted from water or land.

The Earth represents a means of subsistence for life, rather than an economic means of subsistence. This conception establishes a form of relationship between indigenous people and Mother Earth that can be altered by external pressures, leading to the adoption of practices that are not friendly to the environment and the exploitation of natural resources to produce wealth.

Description of Ngäbe-Buglé group

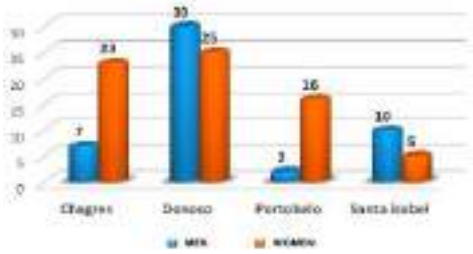
It is estimated that only half of the Ngäbe population lives within the limits of the region, the rest resides in the provinces of Bocas del Toro (banana zone), Chiriquí (highlands) and Veraguas, and more recently there have been significant displacements to areas in Panama, Colón and Darién, being the most relevant group in the project area.The Ngäbe-Buglé ethnic group is located in the project area and forms small communities in remote and difficult-to-access areas.
Indigenous communities are predominantly family-oriented settlements that are generally dispersed, even within the region; Furthermore, their mobility and location in remote and difficult-to-access areas increase the cost of traditional healthcare solutions, making it difficult to justify economics of investments and private participation .
The Ngäbe-Buglé people have a fundamental role in the culture of Panama, from the production and cultivation of coffee to artisanal products and the protection of ancient spiritual and nature rituals.
The economic base of the Ngäbe comes from subsistence agriculture. Some migrate to sell their labor for wages on the large coffee, banana, rice, sugar cane, and vegetable plantations in western Panama. Others are engaged in hunting and fishing, and some raise poultry and livestock. Women play a fundamental role in agricultural work, managing their households and producing most of the Ngäbe-Buglé arts.
This town stands out for for the colorful nature of its art, which includes objects such as the chaquiras, the chácaras, the mastes (tree bark that is treated to make a kind of cloth on which different figures are painted) and the hats. They also highlight traditional dresses that women make for daily use, which have geometric or linear figures inspired by elements of nature.
The second consultation process continued efforts from previous years, involving 338 participants (52.66% women, 47.34% men). This process aimed to integrate findings into the project's Environmental and Social Management Plan, Stakeholder Engagement Plan, Gender Action Plan, and Grievance Mechanism. The extensive participation demonstrated the stakeholders' interest in strengthening local capacities for climate change adaptation. 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:

o **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.

o **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.

o **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.

o **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.

o **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:

o 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.

o 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.

o 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.
o 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.
o 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.
o 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.
o 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.
o 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.
o 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.
o The project will ensure an inclusive approach for vulnerable populations, including women and minority groups facing differentiated needs and conditions for climate adaptation.
o The project should strengthen the technical capacities of institutions for training programs in risk management and disasters caused by natural phenomena.

I. 2024 Consultation process: Indigenous peoples

Public consultation with the Ngäbe indigenous community of Rio Palmilla

- Country: Panama, Date: June 25-27, 2024
- Location: Province of Colón, Donoso district, Río Palmilla community, Meeting place: Río Palmilla School
- Coordinates: Latitude: 8.90623, Longitude: -80.79492

- Organization and facilitation: Ministry of Environment, FIDA, Natura Foundation
- Participants: 37 people, 43% women and 57% men. 46% of the participants were under 30 years of age and 38% were between 30 and 44 years of age.
- Annexes: agenda, attendance list, audio-visual material (including photos of the posters used).

Rio Palmilla Community is made up of approximately 40 houses, according to the 2023 census data, it indicates that the total population of the community is 230 people, of which 121 (53%) are men and 109 women (47%) .

According to the agenda, the meeting begins with a brief introduction and explanation of the design process " Strengthening the adaptation capacity of the coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management. and local food security"'.

The meeting took place in a local elementary school. The meeting took place in a local elementary school. The methodology included playful methods used in the form of games to break the ice. The project design process and the current status was explained, as part of the introduction, and post the facilitators explained the objective as well as each component and key information related to each component (lead by Natura Foundation, Ministry of the Environment). The audience was engaging through direct communication, use of posters and drawings, questions, examples. Specifics and motivation to facilitate the community's ability to give their opinion and express their concerns and needs in a friendly safe space. Key findings were divided in institutional-coordination and technical level:

a. institutional: it is crucial to assure continual contact with the community by the authorities (giras de salud and vaccination of the children) as well as continuous technical supporting , considering that this community has negative experience with the mining sector and there is a lack of confidence in any externally perceived interventions,

b. technical capacity building: the community particularly welcomed the opportunity to engage and learn (: Farmers Field Schools (FFS) component 2, as well as Creation or Strengthening of Existing Cooperatives: actions included in the 3rd component). "There is almost no exchange among the community members, nor is there any significant access to the external market" The community emphasised the need for the promotion of collective actions, potential organisation in the cooperatives, diversification of production, learning new technical skills and enhancing their opportunities for economic growth. The community validated the project also showing slow growing interest during the engagement process; they confirmed the relevance and the desire to participate in the project

c. The community particularly emphasised the following aspects as valuable and saw them as beneficial: Technical assistance for sustainable production, land preparation using organic fertilisers, diversification of production, use of ecosystems such as mangroves for wave protection and freshwater lagoons for fish production. In a complementary way the economic incentives (subsidies) that could generate diversification and increased livelihoods while adapting to the effects of climate change at the same time.

Results:

There are many children; most move to the room next door to receive their classes. Younger girls and boys attend with their mothers. The community has a certain degree of distrust due to the proximity of the Cobre Panamá project and a history of negative interactions with mining. In general, men are the primary speakers. Initially, they do not perceive significant issues related to climate change. As the session progresses, this view begins to shift. In particular, concerns about drought, rising temperatures, increased sea temperatures, and fish shortages are raised. They also express worries about worms that have increased due to the heat and are attacking plants. Overall, they seem to think the proposal is good, believe they could learn from it, and see potential economic benefits.

Community members report that in Rio Palmilla, there is a certain balance between rain and drought. The houses are built in the mountains; however, the community notes that the school has experienced flooding issues. The community engages in subsistence agriculture, generally planting vegetables and tubers (cassava, yams, bananas, dazen, coffee), fishing (to a lesser extent), and livestock. There is minimal exchange between community members or access to external markets. Sporadic hunting and artisanal mining activities also occur.

The women (most of them very young, apparently between 15 and 25 years old) are very shy, it is difficult for them to express themselves and they often lower their gaze when they introduce themselves. They wear typical clothing, which they sew themselves. It is confirmed that some gaps that could cause impede their participation and empowerment are (i) language-communication, (ii) overload at the household level due to multiple domestic tasks and caregiving responsibilities, (iii) lack of time, (iv) schedules/ days of the week and difficulties with mobilization (v) he sexist culture that limits their decision-making power. The project's gender strategy includes specific mechanisms to address gender gaps. Some of these are: (i) define specific goals and goals for women in a participatory manner, jointly agreeing on needs and opportunities (ii)

promote decision-making spaces, considering schedules, availability and adapting women's agendas accordingly(iii) ensuring access to project information, including information on the effects of climate change (iv) developing specific capabilities of women including technical skills and life skills . A general observed gap at the community level that is observed is distrust due to a history with mining (Petaquilla and Cobre Panamá). Women and men participate in the Parents' Club, in which decisions related to the community are made. The community does not have an identified leader and makes decisions jointly with the members of the Parents' Club of the Río Palmilla Educational CenterHowever, at the public level, men's opinions tend to dominate. Women have tasks related to prepare food within the framework of the School Lunch program of the Ministry of Education (MEDUCA) , which is currently not adequately supplied; Some supplies for the dining room are provided directly by the parents. Younger women express the desire to continue studying, train, obtain various skills; to have opportunities to become technically and economically empowered, for example through courses from the National Institute of Vocational Training and Training for Human Development (INADEH).

What was learned related to gender relevant results: To assure meaningful quality participation of women:

- Multiple household burdens as well as household power dynamics and mobilisation constraints are key gaps, to take in consideration when engaging with indigenous women.
- It is very important to consider the traditional chores such as for example typical dress making, as well as school related activities (school parents clubs) as key entry points for promoting women collective agency as well as the intrinsic agency.
- Essential to engage on a household level and consider sensibilization of the household, in particular male partners/husbands, as well as the whole community referring to women's participation and empowerment as a key factor to community involvement and accessing project services.
- Focus groups need prior trust building, which takes considerable time, or the indigenous women felt insecure to separate in groups and communicate without their partners.
- Most of these aspects have been considered in the Gender Action Plan of the Project and will be taken in consideration further when the coordination of the implementation process begins.

Some activities that stand out in response to the question about what other activities could be incorporated into the project include: gardens, chicken farming , crafts, medicinal plants, ecotourism, cooking including uniforms for school-age children with cultural elements, how to organize (establish OBC) and product marketing. These activities mentioned by the community, which, in some cases, are in line with the diversification of livelihoods and adaptation to climate change, must be analyzed and rethought based on direct articulation with the project's AF approach. . There is a perceived absence at the institutional level (very few health tours, previously 1x every 2 months, according to what was commented by the community during the last five years, they have not been carried out with the same frequency).

The activities embodied in the project such as: Field schools, exchange between communities with learning objectives, promotion of collective actions, organization in cooperatives, will be of special benefit to the community by responding to their needs regarding diversification, collective actions, technical empowerment and economic. Assistance for sustainable production, land preparation using organic fertilizers (animal waste), diversification of production, use of ecosystems such as mangroves for wave protection and freshwater lagoons for fish production, and in a complementary way, economic incentives (subsidies) that could generate diversification and increased livelihoods while adapting to the effects of climate change. Interest related to economic empowerment stands out, which must be analyzed, reconsidered and corrected within the framework of the third component.

Due to the complex logistics, very isolated areas, history with mining companies and a certain level of mistrust, it is recommended to work with community leader facilitators who generate trust, manage the language and increase the presence of local authorities (environment, health, education).

WORK REPORT ON THE CONSULTATION PROCESS IN CUBA WITHIN THE FRAMEWORK OF THE PROJECT FORMULATION AND REVIEW
YEARS 2021, 2022 y 2024

Introduction

Within the framework of the project "Strengthening the adaptive capacity of coastal communities in Cuba and Panama to climate change," the IRIS Climate Foundation, in collaboration with the Latin American Faculty of Social Sciences (FLACSO - Cuba), conducted a third consultation process to assess the perceptions and knowledge of key stakeholders. This process builds on the consultations from 2021 and 2022, emphasizing the importance of inclusive, gender-sensitive, and participatory approaches.

2021 Consultation Process
The Ministry of Environment in Cuba and the Directorate of Climate Change in Panama initiated the first consultation. The process used Kobo Methodology to gather updated information from high-vulnerability communities regarding climate change adaptation. Focus groups and local director surveys were conducted, involving 121 participants (57.4% men, 42.6% women). The findings highlighted the need to enhance women's participation in productive activities such as agriculture and fishing.

2022 Consultation Process
The second consultation aimed to evaluate the socio-economic and environmental contexts and identify potential project activities. Specialists from various institutions conducted surveys with 238 respondents (74% men, 26% women). The results underscored the agricultural sector's importance in improving life quality and identified potential for commercial fishing and local tourism. There was a notable gender disparity in participation in agriculture, fishing, and forestry.

Table 1: Results of the Consultation Process Year 2022

Intervention Sites	Consolación del Sur		San Cristóbal		Batabanó		La Sierpe		Baracoa		Total	%			
Gender	F	M	F	M	F	M	F	M	F	M	Total	F	M	F	M
Number	4	34	10	11	5	32	41	39	1	61	238	61	177	25.63	74,35

Source: Prepared by the technical team

2024 Consultation Process
The third consultation process continued the efforts of the previous years, involving 338 participants (52.66% women, 47.34% men). This process aimed to integrate findings into the project's Environmental and Social Management Plan, Stakeholder Engagement Plan, Gender Action Plan, and Grievance Mechanism. The extensive participation demonstrated the stakeholders' interest in strengthening local capacities for climate change adaptation.

Table 2: Distribution of Surveys to Stakeholders and Institutions by Gender

Year	2021		2022		2024		
Municipalities and Institutions	Men	Women	Men	Women	Men	Women	Total
Batabanó	11	8	32	5	18	19	75
San Cristóbal	13	14	11	10	35	36	86
Baracoa	10	10	61	1	21	22	104
Consolación del Sur	12	13	34	4	31	32	113
La Sierpe	17	13	39	41	20	22	132
National Institutions*					30	33	40
Municipal Institutions *					5	14	14
Total by Gender	63	58	177	61	160	178	697
Total	121		238		338		697

Source: Prepared by the technical team

Detailed Analysis

Personal Information This section collected data on sex, skin color, educational level, occupation, age, and place of residence. The consultation revealed that San Cristobal had the highest representation with 71 respondents, 51% of whom were women.

Table 3: Description of the Sample Year 2024

Municipalities and National Institutions	Men	Women	Total
Batabanó	18	19	37
San Cristóbal	35	36	71
Baracoa	21	22	43
Consolación del Sur	31	32	63
La Sierpe	20	22	42
National Institutions	30	33	63
Municipal Institutions	5	14	19
Total by Gender	160	178	338

Source: Prepared by the technical team

Knowledge on Climate Change Adaptation: While most respondents had heard about Ecosystem-based Adaptation (EbA), detailed understanding was limited. Many participants associated EbA with general environmental protection rather than specific climate-smart agricultural practices. This indicates a significant need for capacity building to improve understanding and implementation of EbA practices.

Participation and Gender Equality: The majority (82.84%) considered equitable participation of men and women crucial for generating nature-based livelihood benefits. Respondents proposed equal training opportunities for both genders, promoting gender equality in project benefits. It was noted that women often face barriers to participating in certain productive activities, such as fishing, due to traditional gender roles. Encouraging more inclusive participation would help address these disparities.

Project Objectives Awareness: About 75% of respondents were aware of the project, with 47.34% having received training on climate change adaptation and environmental topics. However, a significant portion of respondents had not been adequately informed, highlighting the need for improved communication and training efforts. Training was provided through various courses, workshops, and projects like "Bases Ambientales para la Sostenibilidad Alimentaria Local (BASAL)" and "Resiliencia al Cambio Climático en la zona costera de Cuba a través de la Adaptación Basada en Ecosistemas (Mi Costa)."

Implementation Concerns: While 236 respondents did not foresee major risks related to inequity or discrimination, 20% expressed concerns about stakeholder engagement, resource allocation, and the long-term sustainability of project benefits. Key concerns included:

- Limited perception of environmental issues within society.
- Lack of basic cultural formation on environmental topics.
- Fuel shortages and labor migration affecting project stability.
- Insufficient knowledge of existing regulations and high pollution levels.
- Economic constraints hinder the adoption of new technologies.
- Weak commitment to implementing climate adaptation measures.
- Poor dialogue and participation among stakeholders.

Addressing these concerns through continuous capacity building and inclusive approaches was recommended to ensure successful project implementation.

Recommendations

Based on the consultation findings, several key recommendations were developed to enhance the project's effectiveness and sustainability:

- **Enhance the Gender Action Plan:** Continuous feedback and consultations should be integrated into the Gender Action Plan to ensure it addresses emerging gender issues and barriers. This includes setting specific targets for female participation and empowerment in project activities.

- **Ensure Participatory and Gender-Sensitive Approaches:** The project should maintain its focus on participatory methods that include a diverse range of stakeholders, particularly marginalized groups. This approach aligns with the Adaptation Fund's gender policy and the International Fund for Agricultural Development (IFAD) guidelines.
- **Promote Continuous Capacity Building:** Ongoing training programs are essential to build local capacities in climate-smart agriculture, EbA, and gender-sensitive approaches. These programs should be tailored to address the specific needs identified during the consultations, such as the need for better understanding of climate-smart practices.
- **Improve Communication and Awareness:** Increase efforts to disseminate information about the project objectives, benefits, and progress. This could involve regular updates through community meetings, local media, and social networks to ensure all stakeholders are well-informed and engaged.
- **Address Resource Allocation and Sustainability Concerns:** Develop clear plans for resource allocation that ensure equitable distribution and long-term sustainability of project benefits. This includes securing funding for ongoing maintenance and scaling of successful initiatives.
- **Foster Stronger Stakeholder Engagement:** Strengthen mechanisms for stakeholder feedback and involvement, ensuring that all voices, especially those of women and vulnerable groups, are heard and considered in decision-making processes.
- **Monitor and Evaluate Impact:** Establish robust monitoring and evaluation frameworks to track the progress of gender-specific targets and the overall impact of the project. This data will be critical for adjusting strategies and ensuring that the project remains on track to meet its goals.

These recommendations will help create a more inclusive, effective, and sustainable project, contributing to the overall resilience of the communities involved

Conclusion

The consultation processes conducted from 2021 to 2024 have been instrumental in engaging a broad range of stakeholders and ensuring their active participation. The findings emphasize the need for ongoing gender-sensitive capacity building and stakeholder engagement to achieve the project's objectives effectively. The success of these consultations highlights the project's commitment to fostering inclusive and sustainable development practices.

The extensive national and local consultation process involved a total of 697 people, demonstrating the project's broad reach and the significant interest from various stakeholders in strengthening local capacities for climate change adaptation. These efforts align with national commitments to sustainable development and climate resilience, as outlined in the National Economic and Social Development Plan until 2030 and the State Plan for Confronting Climate Change (Life Task) (Gaceta Oficial de la República de Cuba, 2022).

The continued focus on gender equality and inclusive participation is crucial for addressing the unique vulnerabilities faced by women and other marginalized groups in the context of climate change. The project's approach to integrating these perspectives into its planning and implementation phases sets a strong foundation for achieving its long-term goals.

References

Gaceta Oficial de la República de Cuba 2022. Ley 148/2022 “Ley de Soberanía Alimentaria y Seguridad Alimentaria y Nutricional”

Carballo A.; Muñoz M.; Rodríguez A.; Barrios D.; Romero M.; Ortiz L.; & Olmo A. (2023). “Programa de creación y fortalecimiento de capacidades para la adaptación al cambio climático en zonas costeras de Cuba a través de la formación de formadores”. Estudios del Desarrollo Social: Cuba y América Latina vol. 11 número especial 3 2023.

CITMA. 2017. Enfrentamiento al cambio climático en la República de Cuba.

CITMA. 2023. Cinco años de Tarea Vida. Mirada a un futuro resiliente. La Habana.

FLACSO 2023. Informe Técnico. Salvaguardas Ambientales y Sociales. Proyecto Mi Costa.

Muñoz Campos, Romero Sarduy, Carballo Concepción 2019. La Consulta Pública como herramienta de las salvaguardas sociales y ambientales. Propuesta metodológica para proyectos con enfoque de Adaptación Basada en Ecosistemas y Adaptación Basada en Comunidades (ABE/ABC).

Free, Prior, Informed Consent Plan

As part of the consultation process carried out with indigenous peoples and taking into account the guidelines of the Adaptation Fund, IFAD, as well as the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), the

guidelines to be applied by the project to ensure free, prior and informed consent during its implementation phase are described below.

A. Executive summary

Free, Prior and Informed Consent (FPIC) is a principle of the Adaptation Fund, IFAD and UNDRIP where by local communities, and indigenous peoples are empowered to give or withhold their consent to investment proposals or development programs that may affect their rights, access to their lands, territories and resources, and livelihoods. FPIC is sought through consultations with representative institutions endorsed by the communities involved, which are carried out in good faith. This principle ensures that communities are involved in the decision-making process of a given project. FPIC is a process closely linked to the right of indigenous and traditional peoples to determine their own development priorities, to participate fully in and influence development initiatives, and to prevent potential adverse effects that may arise from the implementation of a project.

FPIC seeks to ensure their participation in development decisions through representative consultation. In projects where there may be indigenous peoples, such as the Kuna, Ngäbe, Emberá and Buglé in Panama, an FPIC Implementation Plan is required from the initial phase to address possible exclusions. There are no indigenous peoples in Cuba.
The indigenous comarcas in Panama have territorial autonomy, with self-government structures and territories with collective rights.

The indigenous comarcas in Panama have territorial autonomy, with self-government structures and territories with collective rights. The 1972 Constitution respect's ethnic identity and establishes programs for indigenous development. Although Panama has not ratified ILO Convention 169, it has National Law 37 that guarantees the right to prior consultation of indigenous peoples. This FPIC plan provides guidelines for carrying out the necessary consultations throughout the development of the project, considering the particularities and rights of the indigenous peoples in the area.

B. Project description

B1 General description of the project

The regional project aims to reduce vulnerability and strengthen the adaptive capacities of nine coastal municipalities in Cuba and Panama in the face of climate change. Ecosystem-based solutions and sustainable land management practices will be implemented to improve climate risk management and food security.

B2. Components/activities that may affect indigenous peoples and historically underserved local communities.

There are no indigenous peoples in Cuba. The project area in Panama includes the Kuna, Ngäbe, Emberá and Buglé indigenous peoples. The possible adverse effects that may occur are: i) that ancestral knowledge is not considered in the training processes; in the process of creating or strengthening agricultural and fishing cooperatives, as well as in the implementation of best practices under the EbA approach, indigenous peoples may be excluded from participating in and benefiting from the actions of project. These risks are expected to be "Possible" to occur during the life of the project and the "Consequence" of their impacts are expected to be moderate.

C. Description of the indigenous peoples and historically underserved local communities.

In Cuba, the National Office of Statistics and Information (ONEI) and ECLAC indicate that there are no indigenous peoples. In contrast, Panama legally recognizes seven indigenous peoples: Guna, Emberá, Wounaán, Ngäbe, Buglé, Naso Tjer-Di and Bribri, organized in 12 structures such as Congresses and Councils, with five territories recognized as comarcas.

Despite Panama's economic progress, inequalities in well-being and access to basic services are marked among the indigenous population, with 86% of poverty in indigenous territories compared to 12% in the non-indigenous population. The comarcas, which are territories with political and administrative autonomy, are regulated by laws that protect the rights of these peoples over their lands and resources.Las mujeres indígenas han jugado un papel crucial en la defensa de su

cultura y derechos[93], destacando organizaciones como la Coordinadora Nacional de las Mujeres Indígenas de Panamá, que aborda temas de liderazgo y derechos. Each indigenous people have unique characteristics[94]:

1. Kuna: Native to Colombia, they are dedicated to subsistence agriculture and are organized in communities that regulate themselves.
2. Ngäbe: Descendants of millenary tribes, they face problems of miscegenation and changes in land ownership, with a strong social system based on kinship relations[95].
3. Emberá: Originating from the Colombian Chocó, they have evolved towards a more complex political organization, with cacique structures.
4. Buglé: One of the lesser-known peoples, they are dedicated to handicrafts and agricultural activities, but their population density is low.[96].

Indigenous peoples in Panama face significant challenges, but also show a high degree of autonomy and a process of active organization, especially in the empowerment of women.

D. Summary of substantive rights and legal framework for indigenous peoples

The constitutional antecedents in Panama reflect an evolutionary process in the recognition of the rights of indigenous peoples. Since 1903, laws were implemented that sought to integrate indigenous peoples, such as Law 59 of 1908 and Law 56 of 1912, which had had detrimental effects. The 1925 reform introduced the possibility of creating comarcas, and in 1946 territorial and cultural commitments were included in the Constitution. The 1972 Constitution, amended in 2004, recognized the ethnic identity of indigenous communities and guarantees land and programs for their development.

Panamanian legislation has created six indigenous comarcas, representing more than 20% of the national territory, providing a framework for the territorial management of their communities. Despite ratification of ILO Convention No. 107, Panama has not ratified Convention No. 169, although it has National Law 37, which establishes the right to prior consultation of indigenous peoples.

Since the 2004 Constitution, various laws have been enacted to guarantee the rights of indigenous peoples, such as Law No. 72 of 2008 for the adjudication of collective land ownership. However, the recent approval of Law 196 has raised concerns about the lack of consultation with indigenous communities and their territorial rights, favoring economic interests to the detriment of indigenous peoples and their resources.

In conclusion, Panama's current regulatory framework recognizes the collective ownership of indigenous peoples' lands and resources, allowing the implementation of activities related to the respect of their rights.

E. Procedures for selection, evaluation, and consultation development

The text presents the guidelines for the selection, evaluation, and development of consultations with the Kuna, Ngäbe, Emberá and Buglé indigenous peoples in Panama during the first 12 months after an initial workshop.

E1. Selection of Indigenous Groups: Consultations will be held with the National Coordination of Indigenous Peoples of Panama (COONAPIP), representatives of the General Congresses of each people, the Organization of Indigenous Women United for Biodiversity of Panama (OMIUBP), and other relevant organizations. The project will seek to identify villages and communities in five municipalities, their leaders, and representatives, creating a directory with their contact information. Maps will also be generated to geolocate the communities.

E2. Consultation Development: This process will be carried out in three phases:

First phase: Define informational materials about the project and its potential impacts, which should be translated into Spanish and indigenous languages, including the hiring of translators.

Second phase: Plan the number of consultation forums according to the number of indigenous leaders, documenting the invitations and responses received.

Third phase: Execute the consultations following the procedures established in the project documentation.

These activities are designed to ensure effective participation of indigenous peoples in the project.

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[93] IWGA. 2022. Pueblos indígenas en Panamá. International Work Group for Indigenous Affairs (IWGIA). El mundo indígena 2022. Disponible en: https://www.iwgia.org/es/panama/4794-mi-2022-panama.html.

[94] INEC. 2023. Diagnóstico de la Población Indígena de Panamá con base en los Censos de Población y Vivienda de 2010. Instituto Nacional de Estadística y Censo (INEC). Censos Nacionales 2010 XI de Población y VII de Vivienda. Disponible en: https://www.inec.gob.pa/archivos/P6571INDIGENA_FINAL_FINAL.pdf.

[95] Polo Rivera, Felipe; y Meza-Lopehandía, Matías. 2022. Autonomía territorial indígena en Panamá: las comarcas indígenas. Serie Minutas N° 01-22, 10/01/2022. Biblioteca del Congreso Nacional de Chile. Disponibel en: https://obtienearchivo.bcn.cl/obtienearchivo?id=repositorio/10221/32822/1/N_01_22_Autonomia_Territorial_Indigena_Panama.pdf

[96] Biblioteca Nacional. 2023. Biblioteca Nacional "Ernesto J. Castilleros", del Gobierno de Panamá. Disponible en: https://binal.ac.pa/binal/index.php?option=com_content&view=article&id=88:indigenas-panamenos&catid=82:ofrecemos#:~:text=BOKOTAS%20(BUGLE)&text=Este%20grupo%20étnico%20se%20encuentra,encuentra%20a%20un%20nivel%20limitado.

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F. Participation, consultation and FPIC processes

The project will implement an engagement process with representatives of indigenous organizations to obtain Free, Prior and Informed Consent through a series of organized steps described below:

Initial Consultation: Consultation with stakeholders and indigenous peoples will be carried out during the project design phase, the results of which will be documented.

Consultation Methodology: The Project Management Unit (PMU) will develop a clear and transparent methodology for communicating project objectives and activities, identifying selection criteria and resource access conditions.

Facilitation of Consultations: A facilitator will ensure that participants understand the project and answer their questions, recording questions and answers for their final report.

Evaluation of FPIC: The PMU will create a methodology for participants to evaluate the impacts of the project and, according to their criteria, decide on their participation.

Consultation Forums: Consultation forums will be organized considering the identification of indigenous groups, their motivations to participate, the logistics of the meetings and the mobilization of attendees.

Formalization of Consent: Records will be generated to record the decisions of the participating representatives, which will be included in the final report.

Transparency and Accountability: After the final report is prepared, copies will be provided to all representatives of the participating groups.

Structure of the Final Report: The report will include a cover page, introduction, objectives, methodology, results, consent agreement and annexes with lists of participants.

This approach seeks to ensure an inclusive process that respects the rights of indigenous peoples throughout the development of the project.

G. Appropriate benefits

The following are the measures that the PMU will implement to ensure that indigenous peoples and historically underserved local communities receive equitable and culturally appropriate social and economic benefits.

1. *Conceptual definition of the distribution model of economic and social benefits that will be generated by the project.* According to the project design, the economic benefits are distributed through an open and public call for proposals to finance the implementation of specific agricultural, livestock or fishing projects that will provide income to the indigenous households of the members or workers of the organizations of small indigenous producers. In the social component, the social benefits are based on the selection of proposals that encourage: (i) the participation of indigenous women either to promote economic empowerment or to occupy positions of power in the organization; (ii) involve indigenous youth in the implementation of the project; and (iii) involve indigenous people with physical or intellectual disabilities.

2. *Open and public call for participation in the implementation of project activities.* The PMU will annually issue an open call in Spanish and in the language of the four indigenous peoples present in the project area to identify the activities being offered, the requirements, the targeting criteria, the information/documents required, and the criteria for approval of the proposals received. Project personnel must indicate in the Call for Proposals the contact information for receiving and clarifying any doubts that may arise from the groups or interested parties and must prepare a simplified record of the topic consulted and the response thereto. As part of the Call for Proposals, it must indicate for those who decide to request support, that they must sign a letter of free, prior, and informed consent in which they agree to participate in the possible granting of resources to implement the proposal presented.

3. *Allocation and transfer of resources.* The project proposals formulated by interested indigenous peoples will be evaluated in a transparent and open manner according to the criteria established in the calls for proposals, after obtaining the FPIC. The resources that are transferred are to implement productive activities that generate income for members and their families.

H. Support capacity

The following are the measures that the PMU will implement to support the development of social, legal, and technical capacities of indigenous peoples' organizations and historically neglected local communities in the project area.

1. *1. Capacity building.* The project will incorporate as part of the diagnostic process of indigenous small producers' organizations, the gaps and/or weaknesses in organizational, legal, and technical aspects related to agricultural, livestock or fishing value chains.

2. *Accompaniment and technical assistance.* Through the investment projects that are formulated and approved, they will incorporate funding to hire technical assistance to support them in the process of improving their organizational, administrative, managerial, legal, and technical capacities.

3. *3. Monitoring.* PMU staff will periodically plan the review and follow-up of the implementation process of the projects that are financed to indigenous groups, to identify the support needs required to ensure their proper implementation.

I. Grievance mechanism

To address grievances filed by indigenous peoples and historically underserved local communities (Stakeholders) that may be affected by project implementation, including available remedies, how grievance mechanisms consider customary law and indigenous peoples' and local communities' conflict resolution processes. The project will define in the first year of implementation the Grievance Mechanism to receive, address and resolve complaints or grievances from individuals and groups of indigenous peoples and historically neglected local communities that are negatively affected by project implementation. To this end, it shall consider the following guidelines:

Scope of Grievance Mechanism: Interested parties may submit complaints anonymously, in writing (anonymously or by identifying themselves) or verbally.

Modes of Submission: Grievances may be submitted through physical offices (with complaint boxes), electronic means (such as an online chat) or via telephone. MiAmbiente staff will register these complaints and send the information to the PMU for attention.

Resolution Timeframe: Staff will inform interested parties that they have 60 calendar days to resolve grievances.

Grievance Minutes: Minimum requirements will be established for minutes recording grievances, including details on the type and reason for the grievance, as well as the grievant's contact information.

Grievance Committee: A committee composed of members of MiAmbiente and the PMU will be created to evaluate complaints, define resolutions and corrective measures, and follow up on their implementation. The committee will have 60 days to communicate the results to interested parties.

Review Mechanisms: If the corrective actions do not satisfy the interested party, the final resolution will be sent to FAO for evaluation.

Documentation and Follow-up: Minutes will be generated for each committee meeting, which will be held at least once a year or when urgent complaints arise.

Code of Ethics: Committee members will follow a code of ethics that ensures impartiality, transparency, and respect for human rights.

Implementation of Resolutions: The PMU is responsible for carrying out corrective measures and involving the interested party in their implementation, leaving it to their discretion to participate or not.

Closure Report: At the end of the implementation, a report will be prepared documenting the measures adopted and the stakeholder's perception of their effectiveness.

Format and Structure: In the first six months after the start of the project, the format and content of the closing minutes will be developed.

These measures seek to ensure that complaints are dealt with in an effective and respectful manner, promoting responsible and transparent management in the relationship with indigenous peoples.

J. Monitoring, reporting, and evaluation

The objectives of the FPIC monitoring, evaluation and reporting plan are: i) to have relevant, timely and reliable information on FPIC implementation performance; ii) to provide accountability for transparency to beneficiaries, partners, stakeholders and other actors and iii) to disseminate results for FPIC learning. The use of GIS will be useful to support with evidence on territorial targeting processes. In the first three months after the kick-off workshop, the PMU should develop a matrix for planning FPIC activities, including at least the following procedures and checkpoints: 1General data; 2. Planning of the consultation; 3. Activities in the preparatory phase of the consultation; 4. Implementation of the consultation; and 5. Periodic reporting on the FPIC implementation process.

NOTE: At the project start-up workshop or in the first year of implementation, this plan will be reviewed and updated to ensure effective implementation.

K. Implementation arrangements

Project Management Unit (PMU). The Project PMU Director is directly responsible for the implementation of FPIC. To this end, the director will ensure that the indigenous peoples specialist is hired after the financing agreement enters into force and the first disbursement is made to carry out the hiring through a public bidding process by MiAmbiente. The director will ensure that financial resources are budgeted in the AOP/ to implement FPIC during the life of the project. The project director will carry out the communications, coordination and institutional arrangements with government agencies, non-governmental organizations, and organized civil society groups required to facilitate the process of obtaining FPIC. The Project Director is responsible for ensuring compliance with the country's FPIC policy framework as well as IFAD's Indigenous Peoples Policy (related to FPIC) and the procedures set out in the updated PESAC volumes published in November 2021. The social inclusion, technical, administrative, financial and procurement specialists that are part of the PMU are responsible for supporting and taking specific actions to support the project manager in fulfilling the above responsibilities.

Indigenous Peoples Specialist. It is recommended that an indigenous peoples specialist be hired to coordinate the indigenous peoples' consultation and participation process to obtain the FPIC resolution during the life of the project, including the development, implementation, and monitoring of the FPIC Plan. The specialist will establish communication and coordination with the technical, administrative, financial and procurement specialists that are part of the PMU, who will be responsible for supporting her in implementing the FPIC mechanism. The Social Inclusion Specialist assists the PMU Director in his/her responsibility to ensure compliance with the FPIC mechanism.

Indigenous groups and organizations. On a voluntary and informed basis, they have the decision to participate or not, in the consultation process for the project to obtain (or not), the FPIC. In the case of indigenous groups or organizations that participate in the consultations carried out by the project, they must make the decision based on the information received, that the project staff will answer the doubts and queries until they are clarified.

ANNEX 3. ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

Projects implemented by IFAD are designed in a participatory manner with the executing agencies, taking into account stakeholder concerns. IFAD requires that projects comply in the first instance with the Adaptation Fund's environmental and social obligations and are complemented by its policies and standards. In addition, IFAD's Strategic Framework requires that they promote the sustainable use of natural resources, increase resilience to climate change and integrate the most vulnerable populations such as women, youth, indigenous peoples and people with disabilities.

Therefore, it is required to identify and determine the environmental and social risks that may represent constraints for the project to comply with the principles of the Adaptation Fund, and if such risks may hinder or limit the implementation of the planned activities in the three project components, they are managed through an Environmental, Social and Climate Management Plan (ESMP).

1. Alignment analysis between the Adaptation Fund's environmental and social principles and IFAD's environmental, social and climate standards

IFAD's Social, Environmental and Climate Assessment Procedures (SECAP) were approved by the Executive Board and became effective in 2015. They were updated in 2017 and 2021. These procedures defined an improved course of action for assessing social, environmental and climate risks to enhance the sustainability of Country Strategic Opportunities Programmes (COSOPs), Country Strategy Notes (CSNs), programmes and projects. SECAP along with its 9 Social, Environmental and Climate Standards, sets out the mandatory requirements and other elements that must be integrated throughout the project life cycle.

The 2021 updated version (i) draws on lessons learned in SECAP's implementation since 2017; (ii) clarifies the mandatory and non-mandatory requirements applicable to IFAD-supported investments; (iii) further aligns IFAD's environmental and social standards and practices with those of other multilateral financial institutions; (iv) reflects IFAD's complementary policies[1] and climate mainstreaming agenda; (v) enables IFAD's continued access to international environment and climate financing; and (vi) accounts for IFAD's new commitments and upgraded internal processes.

All IFAD projects entering the pipeline are subject to an environmental, social and climate risk screening, and are assigned a risk category for environment and social risks (High, Substantial, Moderate or Low), and for climate risks (High, Substantial, Moderate or Low). These findings, along with subsequent analysis and assessments, must be reflected in the project's SECAP review note and project documents. Projects with "Low environment and social Risk" and "Low" climate risk do not require any further analysis. Moderate Risk projects require: (i) the final SECAP review note and ESMP, indicating how potential risks and impacts can be avoided or mitigated; and (ii) an environmental and social monitoring programme. Projects classified Moderate Risk for climate require a basic climate analysis.

For projects with High and Substantial environmental and social risks and impacts, the due diligence process entails a critical review of the documentation provided by the borrower/recipient/partner. This should involve site visits and interviews with project representatives and other stakeholders by independent environmental and social specialists. These specialists should gain first-hand knowledge of the project and meet with representatives of affected groups to discuss environmental and social concerns, and information needs. This provides IFAD with a more holistic view of the project's major environmental and social risks and impacts, and the project's mitigation resources. For Substantial Risk projects, a formal SECAP review note or abbreviated ESCMF is required. For "High Risk" projects, an Environmental, Social and Climate Management Framework or Environmental and Social Impact Assessment are required. These should also incorporate an ESCMP. In addition, thematic studies or plans can be required for substantial and high-risk projects. These can include a Resettlement Action Framework or Plan (RAF or RAP), Indigenous Peoples Plan (IPP), FPIC implementation Plan, Pesticide Management Plan (PMP), etc.

AF ESP guidance principle	IFAD SECAP standards, guiding values and principles
ESP 1 **Compliance with the law**	SECAP requires that activities in the framework of the IFAD financed projects or programmes meet IFAD's safeguard policy guidance, comply with applicable national laws and regulations (labour, health, safety, etc.) and international laws and treaties, and the prohibited investment activities list produced by the International Finance Corporation is adhered to. Project design should review: (i) current national policies, legislation and legislative instruments governing environmental management health, gender and social welfare, climate change (mitigation and adaptation) and governance with their implementation structures, identify challenges, and recommend appropriate changes for effective implementation; (ii) all relevant international treaties and conventions on the environment, climate change, health, gender, labour and human rights to which the country is a signatory."
ESP 2 **Access and equity**	Access and Equity is a cross-cutting issue in all the 9 SECAP standards. SECAP requires that projects and programmes ensure the participation of target groups and equitable distribution of benefits. When projects result in physical or economic displacement (affecting access and user rights to land and other resources), the borrower or grant recipient should obtain FPIC from the affected people, document stakeholder engagement and consultation process and prepare resettlement plans or frameworks. **Standard 2 – Resource efficiency and pollution prevention** highlights that Sustainable management requires that people who are dependent on these resources are properly consulted, enabled to participate in development and share equitably in the benefits of that development, and indicates that IFAD promotes an integrated water resources management approach that seeks the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner and without compromising the sustainability of ecosystems. **Standard 3 – Cultural Heritage** includes the following objective: promote the equitable sharing of benefits from the use of Cultural Heritage. **Standard 4 – Indigenous People** includes the following objective: ensure indigenous peoples obtain fair and equitable benefits and opportunities from supported activities in a culturally appropriate and inclusive manner. **IFAD's mainstreaming** themes in the project cycle guidance note highlights that projects should aim at Expanding women's economic empowerment through access to and control of productive assets and benefits.
ESP 3 **Marginalised and vulnerable groups**	**Marginalized and vulnerable groups is a cross-cutting issue in all the 9 SECAP standards,** as such groups are also the primary target of IFAD interventions. A robust SECAP process requires attention to social dimensions such as land tenure, community health, safety, labour, vulnerable and disadvantaged groups, and historical factors, particularly in relation to natural resource management. It not only looks at compliance (e.g., managing potential negative impacts), but expected positive impacts and ways to maximize opportunities. To assure a good contribution to the quality of SECAP, project design should assess the socio- economic and cultural profile, including key issues relating to disadvantaged or vulnerable groups, conflict, migration, employment and livelihoods. Consultation with communities and stakeholders must be maintained throughout the project lifecycle, especially in high-risk projects. For investment projects with a projected high sensitivity to climate hazards, IFAD requires a climate vulnerability analysis which can help to improve the targeting of investment actions to include the most vulnerable and least resilient target groups. Other IFAD policies that support and complement this principle are: Improving Access to Land Tenure Security Policy, Gender Equality and Women's Empowerment Policy, Engagement with Indigenous Peoples Policy, Targeting Policy, Youth Policy Brief, Climate Change Strategy, Rural Enterprise Policy, Rural Finance Policy, Private Sector Strategy.
ESP 4 **Human rights**	**Human rights are a cross-cutting issue in all the 9 SECAP standards**. Among the Guiding Principles and Specific Requirements for IFAD's Social Environmental Climate Assessment Procedures, is the principle to "support the efforts of borrowers/recipients/ partners to respect human rights, avoiding infringement on any human rights and addressing adverse human rights risks and impacts caused by clients' business activities.
ESP 5 **Gender equality and women's empowerment**	Gender Equality and Women's Empowerment is a cross-cutting issue in all the 9 SECAP Standards. **IFAD's mainstreaming themes in the project cycle guidance note** provides an overview of the importance of IFAD's mainstreaming commitments (including gender equality, women and youth empowerment); highlights entry points for promoting mainstreaming along the project cycle; proposes the use of assessments which – even if they may be focused on risk assessment and management – are opportunities for mainstreaming; and provides an overview of inventories of key sources of data, tools, methods and approaches that have been found useful.
ESP 6 **Core labour rights**	Core Labour Rights is a cross-cutting issue in all the 9 Standards. A robust SECAP process requires attention to social dimensions such as land tenure, community health, safety, labour, vulnerable and disadvantaged groups, and historical factors, particularly in relation to natural resource management. One of the guiding values and principles for SECAP is to minimize adverse social impacts and incorporate externalities. Avoid and mitigate any potential adverse impacts on health and safety, labour and working conditions and well- being of workers and local communities. The requirements set out in **Standard 5 – Labour and working** conditions are designed to achieve the following objectives: 1. Promote direct action to foster decent rural employment. 2. Promote, respect and realize fundamental principles and rights at work through preventing discrimination and promoting equal opportunity of workers effective recognition of the right to collective bargaining, and preventing the use of child labour and forced labour. 3. Protect and promote the safety and health of workers. 4. Ensure projects comply with national employment and labour laws and international commitments, and 5. Leave no one behind by protecting and supporting workers in disadvantaged and vulnerable situations, including a special focus, as appropriate, on women workers, young workers, migrant workers, workers in the informal economy and workers with disabilities.
ESP 7 **Indigenous people**	**Standard 4 – Indigenous People** is a cornerstone to IFAD's goal to design projects not only with the full, effective and meaningful anticipation of indigenous peoples but also in a manner that aligns with their distinct vision and development priorities, building sustainable partnerships with indigenous peoples. Standard 4 seeks to ensure that projects are designed and implemented in a way that fosters full respect for indigenous peoples and their human rights, livelihoods and cultural uniqueness as they define them. The need for the standard is an acknowledgement of a history of discrimination and exclusion of indigenous peoples that has limited or prevented them from directing the course of their own development and well-being. The requirements set out in Standard 4 are designed to achieve the following objectives: • Promote indigenous peoples ability to determine and develop priorities and strategies for exercising their right to development. • Ensure that programming is designed in partnership with indigenous peoples, with their full effective and meaningful consultation and participation, with the objective of seeking their free, prior and informed consent (FPIC). • Ensure indigenous peoples obtain fair and equitable benefits and opportunities from supported activities in a culturally appropriate and inclusive manner, and • Recognize and respect the rights of indigenous peoples to their lands, territories, waters and coastal seas and other resources that they have traditionally owned or otherwise occupied and used. According to SECAP, when impacting indigenous peoples, the borrower or the grant recipient must seek FPIC from the concerned communities, document stakeholder engagement and consultation process and prepare an indigenous plan (IP). Whenever FPIC is not possible during project design, the FPIC implementation plan should specify how FPIC will be sought during early implementation. The FPIC

	plan and related documents must be disclosed in a timely and accessible manner at the Quality Assurance (QA) or relevant stage during implementation. IFAD SECAP promotes the Indigenous Peoples Plan as a tool to ensure that the design and implementation of projects foster full respect for indigenous peoples' identity, dignity, human rights, livelihood systems and cultural uniqueness, as defined by the indigenous peoples themselves. It also ensures that the affected groups receive culturally appropriate social and economic benefits, are not harmed by the projects, and can participate actively in projects that affect them. Other IFAD policies that support and complement these principles: Indigenous People's Policy; Targeting Policy; Gender Policy; Climate Change Strategy.
ESP 8 Involuntary resettlement	**Standard 7 – Physical and economic resettlement** recognizes that increasing investments in the rural sector may at times involve project-related land acquisition and restrictions on land use – actions that, if improperly managed, may have adverse impacts on communities and persons, including physical displacement (relocation, loss of residential land or loss of shelter), economic displacement (loss of land, assets or access to assets, leading to loss of income sources or other means of livelihood) or both. The term "involuntary resettlement" refers to these impacts. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in displacement. Throughout the process of identification, planning, implementation and evaluation of the various elements of resettlement or economic displacement and their impacts, adequate attention will be paid to gender concerns: specific measures addressing the needs of female headed households, gender-inclusive consultation, information disclosure, and grievance mechanisms will be put in place in order to ensure that women and men will receive adequate and appropriate compensation for their losses and to restore and possibly improve their living standards. Other IFAD policies that support and complement this principle are Gender Equality and Women's Empowerment Policy, Engagement with Indigenous Peoples Policy, Targeting Policy, Land Policy, ENRM Policy, Youth Policy Brief, Climate Change Strategy."
ESP 9 Protection of natural Habitats	**Standard 1 – Biodiversity conservation** requires identification of habitat type and applies increasingly stringent requirements based on an areas' biodiversity values. Where natural habitats are affected, IFAD-funded/supported projects and programmes will proceed only after putting in place appropriate mitigation measures to achieve no net loss, and preferably a net gain of the associated biodiversity values over the long term. This must be accompanied by a robust long-term biodiversity action plan or equivalent that describes conservation outcomes and implementation, monitoring and evaluation actions. Other IFAD policies that support and complement these principles are Environment and Natural Resources Management (ENRM) Policy; Land Policy; Climate Change Strategy.
ESP 10 Conservation of Biodiversity	The requirements set out in **Standard 1 – Biodiversity conservation** are designed to achieve the following objectives: (i) maintain and conserve biodiversity; (ii) preserve the integrity of ecosystems; (iii) maintain and enhance the benefits of ecosystem services; (iv) adopt the use of a precautionary approach to biodiversity conservation and ensure opportunities for environmentally sustainable development; (v) ensure the fair and equitable sharing of the benefits from the utilization of genetic resources; and (vi) respect, preserve, and maintain knowledge, innovations and practices of indigenous peoples, and local communities relevant to the conservation and sustainable use of biodiversity and their customary use of biological resources. The main role of this safeguard standard is to avoid or, if avoidance is not possible, minimize and mitigate potential adverse social and environmental impacts on biodiversity and ecosystem services associated with project-related activities. This can be seen through the promotion and requirements on the "use of a precautionary approach" as outlined throughout standard 1, and more specifically in paragraph 6 of the standard. Requirements of Standard 1address risks to biodiversity and ecosystem types, with increasing stringency depending on risk levels and biodiversity values of project areas. Mitigation activities to eliminate or reduce the negative impacts of a project on biodiversity should follow the following order of preference: (1) Complete avoidance of adverse impact; (2) Reduction of impacts on biodiversity where unavoidable; (3) Restoration of habitats to their original state; (4) Relocation of affected species; (5) Compensation for any unavoidable damage.
ESP 11 Climate change	SECAP asks to incorporate climate change risk analysis into projects, which are subject to an environmental, social and climate risk screening, and are assigned a risk category for climate vulnerability (substantial, high, moderate, low). The requirements set out in **Standard 9 – Climate change** are designed to achieve the following objectives: (i) ensure alignment of IFAD-supported projects with targets and priorities of countries' Nationally Determined Contributions and the goals of the Paris Agreement and other international frameworks; (ii) ensure that proposed activities are screened and assessed for climate change and disaster risks and impacts both of and to projects; (iii) apply the SECAP risk mitigation hierarchy principle of applying a hierarchy of risk management measures in project design; (iv) strengthen the climate resilience of communities and their adaptive capacity to address risks of climate change impacts and climate-related disasters; and (v) increase the ability of communities to adapt to the adverse impacts of climate change, and foster climate resilience and low GHG-emitting projects that do not threaten without compromising food production. **IFAD's mainstreaming themes in the project cycle guidance note**provides an overview of the importance of IFAD's mainstreaming commitments (including Climate change); highlights entry points for promoting mainstreaming along the project cycle; proposes the use of assessments which – even if they may be focused on risk assessment and management – are opportunities for mainstreaming; and provides an overview of inventories of key sources of data, tools, methods and approaches that have been found useful.
ESP 12 Pollution prevention and resource efficiency	**Standard 2 – Resource efficiency and pollution prevention** includes requirements that aim at ensuring that IFAD-supported projects and programmes minimize, mitigate and manage any risks and potential adverse impacts that may be related to resource use and pollution, with the following objectives: (i) avoid, minimize and manage the risks and impacts associated with hazardous substances and materials, including pesticides; (ii) avoid or minimize project-related emissions of short-and long-lived climate-change related pollutants; (iii) promote sustainable use of resources, including energy, land and water; and (iv) identify, where feasible, project-related opportunities for resource-use efficiency. Standard 2 outlines a project-level approach to mitigating, minimizing and managing any risks and potential adverse impacts that may be related to resource use and pollution. IFAD requires that key principles are applied. These include a precautionary approach to addressing significant environmental and social risks and impacts through the mitigation hierarchy; the "polluter pays" principle (whereby the cost of mitigation is borne by the polluter, where relevant); and adaptive management techniques (whereby lessons are learned from past management actions and are proactively utilized to predict and improve management as the project implementation progresses).
ESP 13 Human health	The requirements of **Standard 6 – Community Health and Safety** aim to ensure that IFAD- supported programs and projects avoid or minimize the risks and impacts to community health, safety and security. The requirements are designed to achieve the following objectives:

	(i) to anticipate and avoid adverse impacts on the health and safety of project- affected communities during the project life cycle from both routine and non-routine circumstances; (ii) to ensure that measures are taken to avoid or minimize community exposure to hazardous materials that be used during project activities; (iii) to promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams; (iv) to avoid or minimize community exposure to project-related traffic and road safety risks; (v) to minimize community exposure to diseases; (vi) to ensure that projects abide by the principles of "do no harm to nutrition"; (vii) to avoid risks of project-related gender-based violence, including risks of sexual harassment, sexual exploitation and abuse, and human trafficking to project-affected people and communities; (viii) to avoid or minimize adverse impacts on ecosystems services that may arise from project activities; (ix) to have in place effective measures to address emergency events; and (x) to ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.
ESP 14 Physical and cultural heritage	The requirements set out in **Standard 3 – Cultural heritage** are designed to achieve the following objectives: (i) preserve and safeguard Cultural Heritage; (ii) ensure that effective and active measures are taken to prevent IFAD-supported projects from altering, damaging, or removing any tangible or intangible Cultural Heritage; (iii) promote the equitable sharing of benefits from the use of Cultural Heritage; (iv) promote meaningful consultation on matters relating to Cultural Heritage. Other IFAD policies that support and complement ESP 14 are: Gender Equality and Women's Empowerment Policy, Engagement with Indigenous Peoples Policy, Targeting Policy, ENRM Policy, Climate Change Strategy.
ESP 15 Lands and soil conservation	**Standard 2 – Resource efficiency and pollution prevention** includes a specific focus on soil conservation, stating that sustainable soil management is an essential element of sustainable agriculture and is central to sustainable intensification, climate -change resilience and safeguarding ecosystem services and biodiversity. The updated World Soil Charter lists nine guiding principles that guide all actions to ensure that soils are managed sustainably and that the functions of degraded soils are rehabilitated or restored. IFAD will integrat e these principles into its projects, as appropriate, to ensure sustainable soil management and to promote restoration of degraded soils. Other IFAD policies that support and complement these principles: Land Policy; Targeting Policy; ENRM Policy; Climate Change Strategy."

For projects that are screened as "substantial" for climate risks, a Targeted Adaptation Assessment is required. For projects classified as "high", a detailed vulnerability impact and adaptation assessment is required. These assessments aim to quantify risks, identify related adaptation options and ways to integrate them into the project design.

SECAP (Edition 2021) includes 9 Standards, for which detailed guidance is provided in 9 corresponding Guidance Notes (GN) with: (i) an introduction to each subject, (ii) key steps, roles and responsibilities, objectives, and background, (iii) criteria for environmental screening in IFAD projects; (iv) potential mitigation and adaptation plans and measures for controlling adverse impacts, (v) monitoring project implementation. The SECAP also includes a 10th guidance note that provides an overview of the importance of IFAD's mainstreaming commitments and highlights entry points for promoting mainstreaming along the project cycle. IFAD's mainstreaming commitments are related to environmental sustainability, climate finance, gender equality, women, and youth empowerment and improved nutrition. The following table provides some information about the relation between the Adaptation Fund's 15 environmental and social principles and IFAD SECAP.

2. Assessment of national systems for environmental and social management

This section identifies and analyzes the components and elements that integrate the national systems of Cuba and Panama to comply with the environmental and social requirements of the Adaptation Fund. To facilitate this process, the analysis is disaggregated according to each of the 15 principles of the Adaptation Fund. This action will subsequently identify whether: (1) there is any risk that the project will not be able to comply with the Adaptation Fund principles; (2) identify those external risks that may limit or affect the implementation of project activities; and (3) determine whether project activities will have a potential adverse impact on the social and environmental components present in the project area.

1.1 Compliance with the Law. Compliance with Cuba's legal framework is based on the Constitution of the Republic of Cuba -article 75- (2019). The environmental dimension appears in key legislation of the Cuban government such as: Law 85 of 1998, Forestry Law, Law 129 of 2019 on fishing regulation, Decree-Law 77/2023, Management of coastal areas, Decree-Law 136 Forest heritage and wild fauna and its contravention, Law 124 of 2017 on terrestrial waters, Decree-Law 50/2021 "On the conservation, improvement and sustainable management of soils and the use of fertilizers", Decree-Law 200 System environmental infractions and Law 150/2022 "System of Natural Resources and the Environment". For the purposes of environmental management in Cuba, a total of 17 Laws, 33 Decrees, 6 Agreements of the Executive Committee of the Council of Ministers, 223 Resolutions issued by different Organisms of the Central State Administration, 3 instructions issued by different organisms as well as 570 Cuban technical norms were identified as being in force. Law 81 "Environment", approved on 11 July 1997, establishes the main responsibilities of state actors in environmental matters and the rights and obligations of society in general. Several articles of the Law are "self-executing" and give rise to direct obligations and responsibilities. In the climate field, the State Plan to Combat Climate Change "Tarea Vida", Law 83/2024 of the National System of protected areas. and the National Environmental Strategy 2021-2025. The Ministry of Science, Technology and Environment (CITMA) is the institution responsible for implementing the regulatory framework and coordinating with other Cuban government institutions (The Ministry of Science, Technology and Environment of Cuba, CITMA, is the state body in charge of directing, executing and controlling the policy of the State and the Government in scientific and technological

activity, environmental policy and the peaceful use of nuclear energy, ensuring its development and evolution in a coordinated manner to contribute to the sustainable development of Cuba).

Panama's environmental framework is very broad. The laws are based on the Political Constitution of Panama (2004), which is why they have incorporated the ecological regime to support environmental regulation and administration. Among the many laws are the Forestry Law, the General Environmental Law (2009), the National Water Policy - Executive Decree 84 of 9 April 2007, the National Water Security Plan: 2015-2050 - Water for all. Creation of the National Water Council and the Technical Secretariat (Resolution of the Council of Ministers No. 114, 23 August 2016), Administrative Resolution 88 of 23 August 2011, Administrative Resolution 103 of 7 October 2011, Regulation of the process of elaboration and adoption of the good environmental practices guides provided for in Article 23 A - Chapter II Title IV of Law I of the General Environmental Law (Ex. Decree 111, August 25, 2016), National Wetlands Policy (Executive Decree 127 - December 21, 2018), National Forestry Strategy to 2050 (Executive Decree 10, April 2, 2019), National Agricultural Transformation Policy 2001 (Law June 25, 2001), Reforestation Incentives Law, the Wildlife Law, the Environmental Education Law, the Decree Law that develops the Forestry Law (1994), the Family Agriculture Law (Law 127), the General Environment Law 41, the Law 44 that establishes the Special Administrative Regime for the management, protection and conservation of hydrographic basins and Executive Decree No. 35 of 26 February 2007. 35 of 26 February 2007, which approves the National Policy on Climate Change.

In the social dimension, the government's intervention in the rural sector is based on the National Economic and Social Development Plan (PNDES) until 2030.. Associated with access to land is the current model of social and economic development of the rural population: cooperativism. There are three types of cooperatives in the agricultural sector: Credit and Service Cooperatives (CCS), which emerged in the 1960s, Agricultural Production Cooperatives (CPA), created in 1976, and Basic Units of Cooperative Production (UBPC), established in 1993, which have been expanded with the enactment of rules authorising the formation of cooperatives in sectors other than agriculture in 2012, and which are regulated under Decree Law 366 of 2019 of the Council of State on Non-Agricultural Cooperatives.

With respect to Panama in the same social dimension, the state's action to promote rural development is based on administering assets that are considered state patrimony and that can be the object of concessions, as long as they respond to the social interest. It also has a framework for action to comply with and enforce the rights recognised through Panamanian domestic law, such as the right to Panamanian domestic law, such as the right to a healthy environment and community participation. And the Political Constitution defines as a key point, respect for collective property and the indigenous comarca regime, where most of the rural population resides in territories under this type of administrative regime.

1.2 Access and equity. In the case of Cuba, FLACSO-Cuba carried out a study on inequalities and equity in which it identifies the main causes of barriers that hinder fair and equitable access for the population to achieve their social wellbeing, which is multidimensional, but highlights: gender, skin colour, age, territory, rurality, disability, class, as well as economic inequalities, poverty, housing/habitat, participation, cultural consumption and social policies. Cuba addresses these factors in the different social policies and programmes (reducing equity gaps) through the following actions: (i) application of the principle of positive discrimination so that the vulnerable population has access to resources; (ii) income transfer (conditional and unconditional); (iii) development and strengthening of capacities; (iv) labour insertion and employability policies; (v) time policies; (vi) conciliation acts; (vii) accessibility guarantees; (viii) policies to strengthen collective participation and political organisation; (ix) social recognition and identity; (x) violence prevention; (xi) gender mainstreaming strategies; and (xii) application of equity criteria in economic policies and legislative updating policies xii) National Program for the Advancement of Women.

In Panama, ECLAC has identified that the inequality matrix is concentrated on socio-economic, gender, indigenous peoples, Afro-descendants, life cycle and territorial aspects. The factors of inequality are multidimensional, but it has identified the gaps that make it difficult for people to move up the social ladder and achieve higher levels of well-being: the exercise of rights and areas of social development such as education, health and social protection. Panama has higher average annual incomes than the region, but they are unevenly distributed across the population, and labour income accounts for the largest share of total household income. The 2018 data show that the incidence of poverty and extreme poverty is higher among those living in rural areas, particularly children, adolescents, women, indigenous people and those who are unemployed or out of the labour market. The territorial inequality seen in terms of monetary income is in turn correlated with multidimensional poverty, mainly in the comarcas. In this context, the Panamanian government has carried out social policy actions. Initially (2000), the objective was to redirect public social spending towards social inclusion through a set of interventions and poverty reduction programmes, and in the last five years this effort has been reoriented to identify the target population, prioritising early childhood, the elderly, people with disabilities and those living in extreme poverty or multidimensional poverty, and implementing the Colmena Plan "Panama free of poverty and inequality, the Sixth Border". This is a new strategy for a territorial approach to social policies and its objective is to organise the comprehensive

implementation of public policy in the territory through an articulated multi-sectoral offer. Finally, the current government has prioritised its social policy in health, inclusive education, employment and peaceful society. In relation to international treaties, Panama has framed its social policy in the 2030 Agenda for Sustainable Development and the achievement of the Sustainable Development Goals. The 2030 Agenda emphasises the reduction of inequality as an end in itself and as a cross-cutting condition for the achievement of sustainable development, with no one left behind.

1.3 Marginalized and vulnerable groups. Cuba's marginalised and vulnerable population is concentrated in seven groups: (i) small-scale farmers and agricultural workers: this sector of the population often faces challenges related to limited access to resources, technology and markets. (ii) rural women: women in rural areas face a number of gender barriers, but there are also other barriers related to access to land ownership, finance and training. In addition, they often have a disproportionate burden of domestic and care work; (iii) rural youth: Young people in rural areas may have few employment opportunities outside the agricultural sector, which can lead to migration to cities in search of better opportunities; (iv) older adults: Older people in rural areas often lack adequate health care and social support, and may live in conditions of poverty; (v) individuals living in extreme poverty: people living in these conditions have limited access to basic services such as education, health and adequate housing; (vi) people with disabilities: the segment of this population residing in rural areas may face additional difficulties due to the lack of accessible infrastructure and support services; (vii) low literacy populations: this population may have difficulties accessing information and resources that could improve their living conditions and productivity; (viii) people with disabilities: this population may have difficulties accessing information and resources that could improve their living conditions and productivity.

In Panama, there are eight marginalised and vulnerable groups in the rural sector: (i) indigenous peoples, who generally face challenges related to loss of land, lack of access to basic services, and limitations in education and health; (ii) Afro-descendant communities, where certain rural areas present discrimination and exclusion, resulting in limited opportunities and adverse living conditions; (iii) rural women, having less access to land ownership, financing, training, and a tax burden of unpaid work, in addition to their agricultural work; (iv) rural children and youth: the main factors determining their vulnerability are limited access to quality education and adequate job opportunities, contributing to high school dropout rates and migration to cities in search of better prospects; (v) older adults are isolated, lack access to health services, social support and live in precarious living conditions; (vi) agricultural workers are exposed to job insecurity, low incomes and limited access to technology and markets. They generally operate in a subsistence economy framework, which leaves them vulnerable to climatic and economic changes; (vii) people with disabilities face additional barriers due to the lack of accessible infrastructure and support services, which restricts their full participation in economic and social life; and (viii) the population living in extreme poverty, which corresponds to individuals and families living in extreme poverty who have very limited access to essential basic services such as health, education, and quality housing; (viii) the population living in extreme poverty, which corresponds to individuals and families living in extreme poverty who have very limited access to essential basic services such as health, education, and quality housing; and (viii) the population living in extreme poverty, which corresponds to individuals and families living in extreme poverty who have very limited access to essential basic services such as health, education, and quality housing.

1.4 Human Rights. In Panama, the government has implemented various policies to promote, protect and fulfil human rights, the main ones being: (i) public health, with universal health coverage through the Ministry of Health and the Social Security Fund. Specific programmes are implemented to combat chronic, infectious, maternal and child diseases, and to improve nutrition; (ii) free and compulsory education up to secondary level (baccalaureate). Efforts are being made to improve the quality of education and reduce dropout rates. In access to higher education, scholarship and subsidy programmes have been established so that more students can access higher education; (iii) social security coverage, which is administered by the Social Security Fund (CSS), provides pensions, health insurance, and other social benefits to workers and their families. It has social inclusion programmes to support the elderly, people with disabilities, and vulnerable groups, ensuring that they receive adequate social benefits; (iv) social housing programmes, such as the "Techos de Esperanza" programme to provide housing for low-income families, improve housing conditions and reduce the housing deficit. Subsidies and loans are provided for the purchase and improvement of housing; (v) protection of women's rights by enacting laws to protect women against domestic and gender-based violence, including awareness campaigns and support services for victims, and by implementing programmes to promote women's equal participation in the labour market and in decision-making; (vi) rights of children and adolescents through the declaration and implementation of laws and programmes aimed at protecting the rights of children and adolescents, guaranteeing their education, health and well-being. Combating child labour through policies to eradicate child labour and protect minors from exploitation; (vii) rights of indigenous peoples through legal recognition by the Panamanian State of indigenous comarcas and respect for their autonomy and territorial rights. Implementation of social inclusion and development programmes to improve the living conditions of indigenous communities, including access to basic services and sustainable economic development; (viii) right to water and sanitation through programmes to ensure access to safe drinking water and improve sanitation infrastructure, especially in rural areas and marginalised communities; (ix) regulation and protections of labour rights through a comprehensive regulatory

framework that establishes fair working conditions, job security, minimum wages, and workers' rights. Implementation of programmes to ensure a safe and healthy work environment, with workplace inspections and regulations; (x) civil and political rights are guaranteed through a legal framework that allows for freedom of press and expression, although there are challenges and criticisms from international bodies regarding its application, and with mechanisms for citizen participation in democratic and decision-making processes; and (xi) Law 15 of 1977 by which Panama approves the Inter-American Convention on Human Rights.

The main policies, programmes and actions promoted by the Cuban government are: (i) universal access to public health, where the health system is public and free for all citizens. This system includes medical care, hospital care and essential medicines. There is a strong emphasis on preventive medicine and health promotion, with programmes addressing infectious and chronic diseases and maternal and child health; (ii) free and compulsory basic and secondary education up to the secondary level. All have access regardless of socio-economic status. University education is also free for nationals, and the government encourages students to enter various technical and professional careers. Cuba has implemented successful literacy programmes and has one of the highest literacy rates in Latin America; (iii) social security through universal coverage for all citizens, including pensions, sickness benefits, and other types of social assistance. In relation to the protection of vulnerable groups, the national system is designed to protect the elderly, persons with disabilities, and those who are temporarily unemployed; (iv) the right to food which is guaranteed through the supply booklet, which provides basic foodstuffs and other essential goods at subsidised prices. There are specific programmes aimed at improving the nutrition of children, pregnant women and the elderly; (v) housing is guaranteed through the implementation of housing construction programmes and provides subsidies for the purchase and repair of housing, especially for low-income families. The government guarantees access to decent housing as a fundamental right; (vi) labour rights are guaranteed through policies to ensure full employment and fair wages, along with labour rights such as maternity leave, health insurance, and pensions. Cuba's Labour Code regulates working conditions, protecting workers' rights; (vii) gender equality and women's rights are promoted through policies to ensure women's equal participation in all spheres of society. Laws and programmes have been established to combat gender-based violence and protect women's rights; and (viii) cultural and recreational rights are promoted through access to culture and the arts through public programmes and subsidies for cultural activities. In recreation and sport, there are multiple programmes among the population.

1.5 Gender equity and women's empowerment. Policies, programmes and mechanisms to promote gender equality and women's empowerment in Panama are comprehensive: (i) it has legislation and equal rights through the Equal Opportunities Law (Law 4 of 1999) which establishes the regulatory framework to guarantee equal opportunities and rights between women and men in various areas, such as employment, education and political participation. The Comprehensive Law against Gender Violence (Law 82 of 2013) provides a comprehensive framework to prevent, punish and eradicate gender-based violence, and establishes care and protection services for victims; (ii) institutions and mechanisms are in place to implement gender policies and programmes: National Women's Institute (INAM) is the government body in charge of designing, coordinating and supervising policies and programmes for gender equality and women's empowerment in Panama: gender commissions that are formed in various public and private institutions to ensure that gender perspectives are integrated in all their policies and actions: (iii) political participation and decision-making promoted through gender quotas to ensure women's participation in elected office and decision-making at national and local levels and there are programmes aimed at training women leaders in politics and public management; (iv) in education and professional development there is equal access to all levels of education for girls and women; (v) economic empowerment through financing, training and counselling programmes for women entrepreneurs, promoting their economic empowerment and the creation of their own businesses: (vi) in health, women have access to reproductive health services, including family planning and maternal and child care; sexual and reproductive health education programmes for young women and men; (vii) in the fight against HIV/AIDS, women have access to health services, including family planning and maternal and child care; (viii) in the fight against HIV/AIDS, women have access to sexual and reproductive health education programmes for young women and men; (vi) for the fight against gender violence, it has created shelters and comprehensive care centres for women victims of violence and their children, emergency lines and psychological, legal and social support services for victims of violence; (vii) public awareness and education campaigns to sensitise the population on the importance of gender equality and women's rights and the inclusion of gender equality issues in school curricula and in training programmes for teachers; (viii) strengthening of aboriginal rights that protect women's labour rights, including equal opportunities, non-discrimination, and reconciliation of work and family life, guaranteed maternity and paternity leave and work facilities for mothers and fathers; (ix) gender data and analysis through the collection and analysis of gender-disaggregated data to monitor progress and design more effective policies and the promotion of research and studies on the situation of women and gender equality in Panama; and (x) the National Plan for Gender and Climate Change.

In the case of Cuba, the policies, programmes and mechanisms to promote gender equality and women's empowerment are the following: (i) legislation and equal rights established in the 2019 Constitution that guarantees gender equality, ensures equal rights for men and women in various aspects such as work, education, politics and social life and in the new

reform of the Family Code, approved in 2022, strengthens women's rights and promotes co-responsibility in household chores and childcare; (ii) political participation and decision-making by promoting women's representation in political and leadership positions (women currently make up a significant part of the members of the National Assembly of People's Power and hold important positions in the government and the Communist Party), and has the Federation of Cuban Women (FMC) which works to empower women and promote their participation at all levels of society; (iii) access to education and professional development by ensuring education on equal terms with men, from primary school to university, which facilitates their professional development and there are specific programmes for the training and education of women in various areas, including science, technology and administration; (iv) gender equality in the workplace and economy that promotes equal opportunities and remuneration, prohibiting gender discrimination; (v) gender equality in maternity and paternity that guarantees equal opportunities and remuneration, prohibiting gender discrimination; in maternity and paternity that guarantees specific labour rights for women, such as maternity and paternity leave, as well as facilities to balance work and family life; (v) health care and reproductive rights, where women have free access to health services, including prenatal care, postnatal care and family planning programmes and Cuba is a pioneer in terms of reproductive rights and guarantees access to safe and legal abortion; (vi) combating gender-based violence through laws and policies aimed at preventing and punishing gender-based violence. This includes mechanisms for reporting and protection of victims: there are specialised centres and services that provide support and counselling to women victims of violence; (vii) awareness raising and education programmes promoted by the FMC and other organisations through awareness raising campaigns on gender equality and women's rights. The teaching of gender equality is promoted at all educational levels, with the aim of transforming stereotypes and discriminatory practices from an early age; (viii) economic empowerment with programmes aimed at supporting women entrepreneurs and facilitating their access to financing and business training and the development of community initiatives involving women in local development and economic sustainability projects; and (ix) Law 148/2022 "Food Sovereignty and Nutritional Food Security Law".

1.6 Core labour right. The government of Panama has a number of policies and programmes that seek to protect the rights of rural workers and improve their working conditions. Panama has been a member of the ILO since 28 June 1919. It has ratified 81 conventions and 1 protocol, including 8 of the 10 fundamental conventions, the 2014 Protocol to the Forced Labour Convention (No. 029) and three governance conventions. The main policies and actions in this area are described below: (i) labour legislation and working conditions regulated through the Labour Code (1995) with specific measures on minimum working conditions to be ensured in the rural sector, including working hours, breaks, minimum wages, and occupational safety, with the aim of protecting agricultural workers. The Ministry of Labour and Labour Development (MITRADEL) carries out regular inspections in rural areas to ensure compliance with labour laws and to prevent abuses and exploitation; (ii) in relation to occupational health and safety, there are specific regulations that seek to guarantee the health and safety of rural workers, obliging employers to provide protective equipment and to comply with occupational safety measures. There are training programmes for workers and employers on safe agricultural work practices and safe handling of machinery and chemicals; (iv) there are specific minimum wages for rural workers, which are periodically reviewed and adjusted to ensure fair remuneration. Rural workers are entitled to social benefits, including social insurance, access to health care, and retirement funds; (v) workers' right to organise and collective bargaining is supported by the Constitution and public policies so that they can collectively bargain for better working conditions; (vi) workers' right to organise and collective bargaining is supported by the Constitution and public policies so that they can collectively bargain for better working conditions. The negotiation of collective bargaining agreements between workers and employers in the rural sector is allowed; (vi) social protection and assistance to vulnerable rural workers with food, housing and education programmes. The inclusion of rural workers in social security schemes is promoted to guarantee them access to benefits such as pensions and health insurance; (vii) rural development initiatives with national or international resources through projects and programmes aimed at improving agricultural productivity and the living conditions of rural workers, including access to technology, financing, and markets. There are initiatives to provide education and technical training to rural workers, improving their skills and capacities to improve their economic opportunities; and (viii) there are specific policies and programmes to eradicate child labour in rural areas, providing educational and development alternatives for children and their families.

Cuba is a pioneer and active member of the International Labour Organisation (ILO), having been one of the nine member countries of the Labour Commission that drafted the ILO Constitution in 1919. It has ratified 90 Conventions, including the ILO's eight fundamental Conventions. In addition, it has the following normative framework: (i) the Labour Code, which establishes rights and obligations for workers and aims to protect agricultural workers and ensure a fair working environment. There is a regulation that promotes the formalisation of employment in the rural sector and ensures that labour contracts comply with legal standards; (i) occupational health and safety regulations to ensure that work is carried out in a safe and healthy environment. Employers are required to provide the necessary protective equipment and comply with safety measures. The government provides training and education programmes for rural workers on occupational health and safety, safe handling of machinery and agrochemicals, among others; (ii) labour policies ensure that rural workers receive a fair wage and benefits, including access to social security, health care and pensions; (iii) labour policies ensure

that rural workers receive a fair wage and benefits, including access to social security, health care and pensions; and (iv) labour policies ensure that rural workers receive a fair wage and benefits, including access to social security, health care and pensions, and that rural workers receive a fair wage and benefits. There are specific bonuses and subsidies for workers in rural areas, especially in strategic sectors such as food production; (iii) Cuba's social security system includes rural workers, guaranteeing them access to health services and pensions, as well as disability and maternity benefits. Social assistance programmes are implemented to support rural families in vulnerable situations, including financial aid, food and housing; (iv) rural workers can join trade unions and agricultural cooperatives. These organisations play a crucial role in defending workers' rights and in collective bargaining on working conditions. Rural workers participate in the management and decision-making of cooperatives, which allows them to influence policies and strategies that affect their work and welfare; and (v) in education and training Cuba offers technical and vocational education programmes to train rural workers in various areas of agriculture and livestock, improving their skills and knowledge. Continuous training of rural workers is promoted through workshops, courses and agricultural extension programmes, ensuring that they are up to date with best agricultural practices.

1.7 Indigenous peoples. There are no indigenous peoples in Cuba.

Panama has signed a wide range of international treaties on indigenous peoples and has various policies and legal norms to ensure the rights of indigenous peoples, which are described below: (i) Panama adopted the United Nations Declaration on the Rights of Indigenous Peoples in 2007: (ii) right to information and informed consent, so that indigenous people receive transparent information as well as be effectively consulted on any intervention or policy that affects them, and have the right to the implementation of the mechanism of free, prior and informed consent (FPIC) to ensure that no external action is carried out without the agreement of the communities; (iii) right to autonomy and self-government in the comarcas, which are officially recognised autonomous territories, where indigenous peoples have their own forms of government and manage their resources. The main indigenous comarcas in Panama are Guna Yala, Emberá-Wounaan, Ngäbe-Buglé, Madugandí and Wargandí. The comarcas have their own internal rules and regulations, respecting national laws, but adapted to their worldviews and social structures; (iv) territorial rights where indigenous peoples have the right to collective ownership of their traditional lands and territories, including protection against eviction or expropriation without their consent. They also have the right to manage and use their natural resources in accordance with their own practices and traditions, and to benefit economically from them; (v) cultural and linguistic identity rights to maintain, protect and develop their cultures, traditions, languages and knowledge. There are intercultural bilingual education programmes that respect and promote indigenous languages and cultures within the national education system; (vi) the right to participation and decision-making in matters that directly affect them, both at the county and national levels, and the right to FPIC before projects that may affect their territories or ways of life; (vii) access to state public health services as well as free and quality medical services in their communities; (viii) the right to receive education in their mother tongue and to include intercultural content that values and preserves their cultural identity. Indigenous children and youth have the right to access quality education, free of charge and adapted to their cultural context; (ix) indigenous justice system based on their own traditional legal institutions and procedures to resolve internal conflicts. They also have the right to full and equal access to national justice systems, with sensitisation and adaptation to their cultural contexts to avoid discrimination; (x) there are specific programmes for the protection and empowerment of indigenous women and children, promoting equal opportunities and support against violence and discrimination.

1.8 Involuntary resettlement. The regulatory framework to prevent and regulate involuntary resettlement in Panama is broad, but the following international treaties signed by the Panamanian State, laws, policies and public mechanisms stand out: (i) Article 44 of the Political Constitution of the Republic of Panama establishes the right to private property and its use for the benefit of the community. Expropriation can only be carried out for reasons of public utility or social interest and prior compensation; (ii) Law 22 of 2006 establishes the procedures and requirements that public projects must follow, including consideration of social impacts and the need to minimise involuntary displacement; (iii) the General Environmental Law (Law 41 of 1998) establishes the obligation to carry out an Environmental Impact Assessment (EIA) for projects that may affect the environment and local communities. The EIA must include an analysis of social impacts, including involuntary displacement, and propose mitigation measures; (iv) Law 19 of 1997 (Law on the Special Regime for the Ngäbe-Buglé Comarca and public use waters impaired for the construction of infrastructure) establishes the protection of indigenous territories and provides for special measures for consultation and consent of indigenous communities in case of infrastructure projects affecting their lands; (v) Law 64 of 2010 which establishes the right to FPIC for indigenous peoples, the procedures for its exercise and dictates other provisions prior to the implementation of projects to ensure, among other situations, the avoidance of involuntary displacement without the consent of the communities; and (vi) Executive Decree No. 23 of 1997 which requires all government agencies to ensure that indigenous peoples have the right to FPIC and the procedures for its exercise. 23 of 1997, which requires all projects involving significant impacts to include a citizen participation component, allowing affected communities to participate in the process and propose mitigation measures, and

(vi) Executive Decree No. 23 of 1997, which requires all projects involving significant impacts to include a citizen participation component, allowing affected communities to participate in the process and propose mitigation measures.

The regulatory and reference framework to prevent and regulate involuntary resettlement Cuba is based on: (i) the General Law for the Protection of the Environment and the Rational Use of Natural Resources (Law 150/2022) which requires all potentially environmentally damaging development projects to carry out an EIA. which must also consider social impacts, including possible displacement; (ii) land and urban development plans that regulate land use and ensure that urban and rural development is carried out in an orderly and sustainable manner, minimising the need for involuntary resettlement, and community involvement in land use planning and development decision-making, seeking to obtain their consent and address their concerns; (iii) the National Housing Policy establishes that in the event of necessary relocation of the population for works of public interest, the State must guarantee compensation and adequate living conditions for affected persons; and (iv) the legislation on natural disasters establishes the State's obligations to protect communities affected by natural disasters and guarantee their temporary relocation only when strictly necessary, always ensuring their return or a suitable permanent location.

1.9 Protection of natural hábitats. The project area in Panama includes the protected natural area "Portobelo National Park", which has critical natural habitats of tropical forests, coastal and marine areas (including mangroves and reefs), which is of great importance for the indigenous communities and local rural communities. For the protection, conservation and management of this type of natural protected areas (NPA), the following policies, programmes, strategies and mechanisms exist: (i) compliance with the international conventions signed and ratified by Panama, specifically the Convention on Biological Diversity (CBD) and the Ramsar Convention on Wetlands; (ii) Chapter 7, Article 119 of the Political Constitution of the Republic of Panama, establishes that the State guarantees the protection, conservation and rational use of natural resources; (iii) the General Law on the Environment (Law No. 41 of 1998) establishes the creation of the National Environmental Protection Agency (ANP); (iv) the General Environmental Law (Law No. 41 of 1998) establishes the creation of the National Environmental Protection Agency (ANP), which is responsible for the protection, conservation and rational use of natural resources; (v) the National Environmental Protection Agency (ANP) is responsible for the protection, conservation and rational use of natural resources. 41 of 1998) establishes the creation of the National System of Protected Areas (SINAP) to be in charge of the management and administration of all protected areas in the country and defines the role of the Ministry of Environment (MiAmbiente) as the main authority in the administration and management of natural protected areas; (iv) Executive Decree No. 257 of 2006 establishes the categories of protected areas in the National System of Protected Areas (SINAP); (v) Executive Decree No. 257 of 2006 establishes the categories of protected areas in the National System of Protected Areas (SINAP). 257 of 2006 establishes the management categories of protected areas in Panama, which include national parks, biological reserves, wildlife refuges, natural monuments, forest reserves and multiple use areas; it also provides guidelines for the planning, management and administration of protected areas, including the elaboration of management plans; (v) by law, each NPA must have an approved management plan that establishes the strategies and actions necessary for its conservation and administration. Management plans include zoning, conservation strategies, research programmes, environmental education, monitoring and surveillance, as well as sustainable resource use programmes; and (vi) the publication of resolutions and agreements issued by MiAmbiente that provide details and specific technical aspects related to the management of each protected area, including the designation of specific areas, the approval of management plans, and the regulation of permitted and restricted activities.

In the case of the project area in Cuba, the following NPAs are present in the municipality of Consolación del Sur (with partial or total coverage): Alturas de Pizarra del Sur Ecological Reserve and Veinte Caballerías (Valles de Viñales and San Vicente). In the municipality of Batabanó are located the Ciénega de Zapata National Park, Gavanes Fauna Refuge and the Protected Area of the Ciénega de Zapata Biosphere Reserve. In the municipality of La Sierpe, the Caguanes National Park, El Jicotea Recreation Area, Santa Rosa Fauna Refuge and La Sierpe Lake are located. And for the municipality of Baracoa, the NPAs present are Alejandro de Humboldt National Park and the Alejandro de Humboldt Biosphere Reserve. For the protection, conservation and management of this type of NPA, the following policies, programmes, strategies and mechanisms exist: (i) compliance with international conventions signed and ratified by Cuba, specifically the Convention on Biological Diversity (CBD) and the and the Ramsar Convention on Wetlands (ii) in Articles 27 and 118 of the Constitution of the Republic of Cuba (2019), recognizes the importance of environmental protection and establishes that everyone has the right to live in a healthy and ecologically balanced environment, as well as the duty to protect it and establishes the responsibility of the State in the conservation of biodiversity and natural resources; (iii) Law 150/2022considering the connotation of protected areas, it establishes the identification, recognition, declaration or approval, structuring, and functioning, as well as the levels of classification; (iv) Decree Law 201 of 1999 establishes that the Ministry of Science, Technology and Environment (CITMA) is the entity responsible for environmental policy and is in charge of the management and administration of natural protected areas in Cuba, including the elaboration of policies, supervision and regulation of activities within these areas; (v)decree-law no. 83 of the national system of protected areas, which aims to regulate matters concerning the National System of Protected Areas, regarding its governance, control, and administration, management

categories, its proposal and declaration, the protection regime, and the granting of authorizations for activities carried out within them ; (vi) the Law on Protected Areas (Decree-Law No. 201 of 1999), with regard to regulations for the management of NPAs, establishes that the definition of use and protection zones within protected areas must be carried out, where specific regulations on permitted and prohibited activities are established. Each protected area must have a management plan that defines objectives, strategies and activities to be implemented for the conservation and sustainable use of its resources; and (vii) the Environmental Protection Law and its regulations establish the obligation to carry out environmental impact assessments for projects that may affect protected natural areas and to encourage community participation in these processes.

1.10 Conservation of biological diversity. Most of the biodiversity conservation actions in Panama and Cuba are based on the policies, programmes, strategies and mechanisms described in the previous principle of the Adaptation Fund (Protection of natural habitats). In a complementary manner, this framework for action is complemented by the following policies, laws or regulations applicable to the conservation of biological diversity:

(i) (i) Panama has the General Environmental Law (Law No. 41 of 1998), Wildlife Law (Law No. 25 of 1997), Natural Heritage Law (Law No. 14 of 2006), Climate Change Law (Law No. 1 of 2017), National Environmental Policy (State Policy), Regulations of the General Environmental Law, National Strategy for the Conservation of Biodiversity, Environmental Impact Assessment (EIA) procedures and compliance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

(ii) Cuba is a signatory to the Convention on Biological Diversity, the Protocol Concerning Specially Protected Areas and Wildlife of the Wider Caribbean Region, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and the Convention on Migratory Species, among others associated with biodiversity conservation. In 2020, the Council of Ministers approved the "Government Plan for the Prevention and Combat of Crimes and Illegalities Affecting Forest Resources and Wildlife." This plan is part of Cuba's environmental policy and is a cross-cutting program that encompasses various sectors of society. Cuba has the National Action Plan for the Conservation of Biodiversity; Environmental Impact Assessment (EIA); and environmental education and awareness programmes.

1.11 Climate change. According to the National Greenhouse Gas (GHG) Inventory, Panama emitted approximately 4.5 million tonnes of carbon dioxide equivalent (CO_2e) in 2018. This value may vary slightly depending on the year and the methodology used for the calculation, but in general, Panama's emissions represent about 0.01-0.03% of total global emissions. It is important to highlight that Panama, despite its low contribution to global emissions, has committed to reduce its emissions and has submitted its Nationally Determined Contribution (NDC) under the Paris Agreement, which sets targets to mitigate climate change in the coming years. The sectors that contribute the largest amount of national emissions are: (i) energy, which is one of the main contributors to GHG emissions in Panama, especially for the generation of electricity from fossil fuels (such as diesel and coal), although the country also has important renewable energy sources, such as hydroelectric; (ii) the transport sector accounts for a significant part of emissions, driven by the increasing use of vehicles and the maintenance of transport infrastructure; and (iii) and agriculture and livestock: contribute to methane (CH_4) and nitrogen oxides (N_2O) emissions from livestock and fertiliser use.

Panama has several strategies to mitigate GHG emissions, the main ones being: (a) setting emission reduction targets in its NDC; (b) promoting diversification of the energy matrix and promoting renewable energy projects; (c) development and implementation of regulations that encourage the use of technologies that reduce energy consumption and emissions; (d) improvements in public transport, encouraging the use of sustainable and efficient means of transport, such as electric buses and mass transit systems; (e) implementation of programmes for proper waste management and promotion of recycling, related to reducing methane emissions in landfills; (f) promotion of agricultural practices that reduce emissions of gases such as methane and nitrous oxide, encouraging organic agriculture and the responsible use of fertilisers; and (g) reforestation and forest conservation programmes that help sequester carbon, as well as the promotion of agroecological practices.

Cuba, like Panama, has a relatively low contribution to global GHG emissions. According to the most recent data from the National Greenhouse Gas Inventory, Cuba emitted approximately 11.5 million tonnes of CO_2e in 2019. Cuba has been active in developing policies to mitigate and adapt to climate change. The country has submitted its NDC targets under the Paris Agreement, and although its emissions are low compared to many countries, it emphasises the need for international cooperation to address environmental challenges. The sectors contributing GHG emissions are as follows: (i) energy sector through electricity generation (it is one of the main sources of CO_2 emissions in Cuba) and fuel use; (ii) transport due to the consumption of fossil fuels and transport associated with mobility for infrastructure development; (iii) agriculture with the

use of agrochemicals and livestock (excreta, enteric fermentation); (iv) solid waste through urban and rural landfills; and (v) land use change (deforestation and forest degradation processes).

Cuba has several strategies to mitigate GHG emissions, the main ones being: (a) managing resources from international cooperation and establishing partnerships with international organisations and friendly countries to receive advice, technology transfer and financing for its mitigation projects; (b) defining targets in its NDC to reduce its GHG emissions by 20% by 2030, subject to financing, technology transfer and capacity building conditions; (c) promote agricultural practices that reduce the emission of methane and nitrogen oxides, such as agroecology and organic production, along with optimisation of fertiliser use; (d) implement reforestation initiatives that help sequester carbon and conserve biodiversity; (e) increase the share of renewable energy in its energy mix to 24% by 2030. This includes solar, wind and biomass energy projects; (f) implementing initiatives to improve energy efficiency in industry, transport and the residential sector, accompanied by awareness-raising campaigns; and (g) programmes to improve waste management and reduce emissions associated with waste disposal in landfills, encourage recycling and projects to convert organic waste into biogas and compost.

1.12 Pollution prevention and resource efficiency. The strategies implemented by Panama to prevent and reduce pollution are based on the following legal framework: (i) the General Environmental Law (Law No. 41 of 1998) includes regulations to prevent air, water and soil pollution; (ii) regulations limiting emissions of atmospheric pollutants from industries, vehicles and productive activities; (iii) implementation of programmes to prevent air, water and soil pollution. 41 of 1998) includes regulations to prevent air, water and soil pollution; (ii) regulations limiting emissions of atmospheric pollutants from industries, vehicles and productive activities; (iii) implementation of programmes for the collection and proper disposal of solid waste, including separation at source and recycling, which minimises pollution and promotes the circular economy; (iv) investment in infrastructure for adequate wastewater treatment, preventing pollution of rivers, lakes and seas; and (v) regulations governing maritime traffic and waste management at sea, in order to prevent pollution in coastal areas and protect marine ecosystems.

In terms of maximising energy efficiency, Panama has: (i) Law 35 of 2013 that promotes the implementation of technologies that reduce energy consumption and sets long-term targets for energy efficiency; (ii) investment funds and public programmes for incentives and regulations to facilitate the implementation of renewable energy projects, such as solar, wind and biomass. This not only improves energy efficiency, but also diversifies the energy matrix; (iii) participation in international cooperation initiatives and financing projects that promote energy efficiency and sustainability in the country; and (iv) with international funding, the creation of financing mechanisms that facilitate investment in projects that improve the efficiency of energy use in the country.

41 of 1998), it promotes the sustainable use of natural resources and waste minimisation; (ii) the National Solid Waste Policy includes measures to reduce the use of material resources related to energy production and distribution and the adoption of technologies that require fewer resources for their operation and that minimise waste; (iii) the promotion of practices that seek to maximise the use of resources throughout their life cycle, reducing waste and using recycled materials in production; and (iv) the promotion of projects to transform waste into new products, thus avoiding the need to extract additional natural resources.

Cuba has several strategies and public programmes to prevent and reduce pollution: (i) the Environmental Protection Law (Law No. 81 of 1997) which establishes specific measures to prevent air, water and soil pollution; (ii) environmental control regulations which contain specific norms regulating waste management, industrial emissions and environmental quality; (iii) law 150/2022 of the system of natural resources and the environment ; (iii) regulation of atmospheric emissions, which defines, among other actions, limits on pollutant gas emissions by industries and vehicles as well as regular monitoring to ensure compliance with these regulations; (iv) National Waste Management Programme which contains strategies for the collection, classification and final disposal of waste. It focuses on reducing waste generation and maximising recycling; (v) water quality regulation, which establishes a set of regulations to ensure that treated wastewater meets quality standards before being discharged into water bodies; and (vi) the promotion of organic agriculture and agro-ecology, which minimise the use of pesticides and chemicals, helping to reduce soil and water pollution.

In terms of maximising energy efficiency, Cuba has: (i) the Energy Development Plan establishes the actions to be implemented to achieve The national policy seeks to diversify Cuba's energy matrix, increasing energy efficiency and promoting the use of renewable energy sources; (ii) Energy Efficiency and Renewable Energy Strategy (EEP): established in 2014, which aims to achieve 24% of the energy matrix from renewable energy by 2030 and improve efficiency in all sectors; (iii) development of renewable sources through the promotion of solar, wind, biomass and biogas projects, with the aim of diversifying the energy matrix and reducing dependence on fossil fuels; (iv) and the implementation of solar panels in homes and communities, as well as in government facilities, to take advantage of solar energy.

150 of 2022) establishes general principles for the rational use of natural resources and waste minimisation; (ii) the National Policy for Sustainable Development integrates sustainability approaches in public policies to ensure the responsible and efficient use of material resources; (iii) the implementation of programmes for the collection, separation, and recycling of urban and industrial solid waste, with the objective of reducing waste generation and taking advantage of waste as secondary materials- resolution 93/2023 regulations for the control of emissions and transfers of pollutants-; (iv) seeking international funding to develop projects that seek to convert waste into resources, such as the production of biogas from organic waste and the recycling of materials such as paper, glass and plastics; (v) sustainable soil and water management programmes, promoting techniques that preserve soil fertility and use water efficiently; and (vi) promoting agro-ecology and organic agriculture, which minimise the use of chemical inputs and promote the efficient use of natural resources.

1.13 Public health. The focus of this social principle is that projects should be designed and implemented to avoid potentially significant impacts on public health. In this context, the approach to risk analysis is twofold: to determine whether the activities contemplated in the project components may generate public health problems, and secondly, to identify resources and programmes available to the countries to address health problems that may be caused by the project, beyond its capacities and scope of intervention.

1.13.1 Potential impacts of the project on the public health of the target population.

Project activity	Potential public health impact	Assessment of the activity
Component 1. Climate change adaptation planning and regional cooperation		
Baseline data for loss and damage assessment collected	No	The activity is focused on institutional strengthening, without directly affecting the target population.
Loss and damage analysis completed for nine municipalities	No	The activity is focused on institutional strengthening, without directly affecting the target population.
Nine (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.	No	Activities are focused on improving the environment, so the risk of causing public health problems is low.
Nine (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	No	Activities are focused on improving the environment, so the risk of causing public health problems is low.
Damage and Loss Information System (DLIS) designed and operational.	No	The activity is focused on institutional strengthening, without directly affecting the target population.
Technical capacity and regional coordination strengthened for the effective operationalization of the DLIS and data processing.	No	The activity is focused on institutional strengthening, without directly affecting the target population.
Binational mechanisms established to facilitate continuous dialogue and coordination in the design and operationalization of the DLIS methodology.	No	The activity is focused on institutional strengthening, without directly affecting the target population.
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	No	The activity is focused on institutional strengthening, without directly affecting the target population.
Guidelines and recommendations developed compiling lessons learned from the implementation of the FAO loss and damage methodology for scale up in similar contexts.	No	The activity is focused on institutional strengthening, without directly affecting the target population.

Project activity	Potential public health impact	Assessment of the activity
Component 2. Ecosystem-based Adaptation (EbA) implemented for enhanced resilience and food security in nine coastal municipalities		
Farmers Field Schools (FFS) support local training and the implementation of EbA including restoration and sustainable management of identified critical ecosystems	No	This activity focuses on improving the management of natural resources, thus impacting on public health welfare.
Selected EbA interventions implemented with community participation and leadership based on good practices for enhanced coastal resilience.	No	This activity focuses on improving the management of natural resources, thus impacting on public health welfare.
Component 3. Coastal communities adopt and share sustainable practices and develop resilient value chains increasing their food security and livelihood resilience		
Agricultural and fishing cooperatives have been created and/or strengthened cooperatives (favoring women and vulnerable populations) in their associative, productive capacities for climate smart production capacity	No	This activity focuses on improving sustainable production practices, with an impact on improving the health of the target population.
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	No	This activity focuses on improving sustainable production practices, with an impact on improving the health of the target population.
Climate-smart agricultural and fishing productive technologies adopted by local producers across nine target municipalities through the FFS approach.	No	This activity focuses on improving sustainable production practices, with an impact on improving the health of the target population.
Cooperatives have been created and/or strengthened cooperatives and/or to implement diversified EbA compatible livelihoods	No	This activity focuses on improving sustainable production practices, with an impact on improving the health of the target population.
FFS support local training and use of sustainable and resilient productive practices for EbA compatible livelihoods across nine target municipalities	No	This activity focuses on improving sustainable production practices, with an impact on improving the health of the target population.
Diversified and EbA-compatible livelihoods supported based on good practices across nine target municipalities through the FFS approach.	No	This activity focuses on improving sustainable production practices, with an impact on improving the health of the target population.

1.13.2 Public health resources and programmes

Panama has the following programmes and services for public health care: (i) universal health coverage through the Ministry of Health and the Social Security Fund. Specific programmes are implemented to combat chronic, infectious, maternal and child diseases, and to improve nutrition; and (ii) social security coverage, which is administered by the Social Security Fund, provides pensions, health insurance, and other social benefits to workers and their families. It has social inclusion programmes to support the elderly, persons with disabilities, and vulnerable groups, ensuring that they receive adequate social benefits.

Cuba has the following programmes and services: (i) universal access to public health, where the health system is public and free for all citizens. This system includes medical care, hospital care, and essential medicines. There is a strong emphasis on preventive medicine and health promotion, with programmes addressing infectious diseases, chronic diseases and maternal and child health; and (ii) social security through universal coverage for all citizens, including pensions, sickness benefits, and other types of social assistance. In relation to the protection of vulnerable groups, the national system is designed to protect the elderly, persons with disabilities, and those who are temporarily unemployed.

1.14 Physical **and cultural heritage**. The main physical and cultural heritage values that exist in the project area in Panama are: (i) Fortifications of Portobelo, a UNESCO World Heritage Site since 1980; (ii) San Felipe Church which attracts thousands of pilgrims every year; (iii) Fortifications of the Caribbean Coast of Panama (San Lorenzo and Portobelo), a UNESCO World Heritage Site; (iv) National Park and natural heritage "Chagres River Basin"; (v) Afro-Caribbean culture: Colón is an important centre of Afro-Antillean culture in Panama; (vi) The province is home to communities of the Emberá and Wounaan indigenous peoples, who preserve their traditions, crafts and ancestral knowledge; and (vii) Isla Grande, where the Congo dance takes place, recognised as cultural heritage of the nation, in addition to the rock and coral pillars which are of great interest due to biological richness and archaeological potential.

The main physical and cultural heritage values that exist in the project area in Cuba are:

(i) (i) the municipality of Consolación del Sur is home to the cultural landscape of tobacco (production and processing of high artisanal value); (ii) historic colonial buildings; (iii) religious festivities, such as those dedicated to the Virgen de la Caridad del Cobre, the patron saint of Cuba, are important events that reflect the devotion and cultural traditions of the municipality; and (iv) a stronghold of traditional Cuban music, including genres such as son, guajira and other styles of peasant music. Music and dance are essential components of community celebrations and events.

(ii) (ii) Municipality of San Cristóbal: (i) tobacco cultural landscape, high value of the population for cultivation, production and artisanal processing; (ii) religious celebrations and festivities such as those dedicated to San Cristobal, the patron saint of the municipality, are important events that reflect local devotion and traditions; (iii) traditional Cuban music, including genres such as son, guajira and other peasant music styles of high local and national value; and (iv) educational programmes that include elements of local cultural heritage in the school curriculum, ensuring that young people learn about and value their cultural heritage.

(iii) (iii) Municipality of Batabanó: (i) is known for its fishing tradition, being one of the most important fishing ports in Cuba. This activity has shaped both the local economy and culture; (ii) the Church of Our Lady of Lourdes is one of the main architectural landmarks of the municipality and is an important centre of religious and cultural activity; (iii) artisanal production, particularly of fishing-related items such as nets and tools, is a significant part of the municipality's cultural heritage; (iv) the natural heritage of the mangroves and coastal areas are both ecologically and culturally important. These ecosystems sustain fisheries and provide materials and food for the community; and (v) Batabanó's gastronomy is famous for its fresh seafood and fish dishes, prepared according to traditional recipes that reflect the abundance of the sea and the historical connection to fishing.

(iv) (iv) Municipality of La Sierpe: (i) traditional farming knowledge and techniques (mainly rice), are passed down from generation to generation and constitute an important cultural heritage; (ii) local handicrafts related to agricultural practices and products derived from the cultivation of rice and other crops have cultural value; (iii) although there is currently no indigenous population, the municipality is culturally influenced by the original peoples who were there in the past, and this culture has been transmitted in the form of oral traditions and cultural practices; and (iv) religious and popular festivities dedicated to saints and virgins reflect the deep religious and cultural roots of the population.

(v) Municipality of Baracoa: (i) colonial architecture of the centre of Baracoa, which was founded in 1511 and is the oldest city in Cuba; (ii) the Cathedral of Nuestra Señora de la Asunción is an important historical and religious landmark. It houses the Cruz de la Parra, a relic brought by Christopher Columbus on his first voyage to America; (iii) Castillo del Morro (Matachín), built in the 18th century to defend the city from pirate attacks; (iv) the region is known in the country for its cocoa plantations and its tradition in the production of handmade chocolate; (v) in recognition of the importance of cocoa in the local economy and culture, a festival dedicated to this traditional crop is celebrated; and (iv) the unique gastronomy which includes dishes such as "bacán" (a banana tamale), "calalú" (a vegetable soup) and "tetí" (a small fish). Baracoa chocolate, made with local cocoa, is another significant culinary heritage.

To protect the physical and cultural heritage in Panama, the government has the following policies and programmes: (i) Article 104 of the Political Constitution of the Republic of Panama (1972, amended in 2004), establishes the obligation of the State to protect the historical, cultural and artistic resources of the nation, promoting their conservation and dissemination; (ii) the Law for the Protection of the National Historical Heritage regulates the conservation, protection and rehabilitation of Panama's historical heritage; (iii) the National Directorate of Historical Heritage under the administration of the National Institute of Culture (INAC), now the Ministry of Culture (MiCultura), is the institution in charge of the supervision and management of the country's physical and cultural heritage; (iv) Law No. 58 of 2003 regulates the protection and rehabilitation of Panama's historical heritage. 58 of 2003 regulates the protection and conservation of archaeological and paleontological sites in Panama, establishing preventive and corrective measures to avoid their deterioration; and (v) Law

No. 2 of 2006 protects underwater cultural heritage, such as shipwrecks and remains of historic vessels, ensuring their preservation and proper management.

Cuba has the following policies and programmes to protect physical and cultural heritage: (i) Articles 95 and 110 of the Constitution of the Republic of Cuba (2019) establish the responsibility of the State and all citizens in the protection, conservation and preservation of the nation's historical and cultural heritage;; (ii) Law No. 1 of 1977 (Law on National and Local Monuments) establishes measures for their protection and conservation; (iv) the State creates and empowers the Ministry of Culture to manage and conserve declared monuments; (iii) the State creates and empowers the Ministry of Culture to manage and conserve declared monuments. 1 of 1977 (Law on National and Local Monuments) establishes the measures for their protection and conservation; (iv) the State creates and empowers the Ministry of Culture for the management and conservation of declared monuments; (v) the National Institute of Cultural Heritage (INPC) has as its main responsibility to supervise and coordinate actions for the protection and conservation of cultural heritage in Cuba; (vi) Cuba is a signatory to the UNESCO World Heritage Convention and the Convention for the Safeguarding of the Intangible Cultural Heritage, committing itself to identify, protect and conserve sites of outstanding universal value; and (vii) Law No. 2 of 2000 (Complementary). 2 of 2000 (Complementary), sets out the provisions for the protection of intangible cultural heritage at the national level.

1.15 Lands and soil conservation. In general terms, the activities defined in components 2 and 3 of the project are focused on implementing good agricultural, livestock and fishing practices under the ecosystem approach (EbA) and agroecology, which is expected to generate positive impacts for land and soil conservation (including the improvement of ecosystem services). For this reason, environmental risks with the implementation of these practices are projected to be low.

On the other hand, Panama and Cuba have a broad framework of national action for land and soil conservation, which can help mitigate any external risks. The main programmes in each of these countries for soil management under this conservation approach are described below.

Panama has several instruments for land and soil conservation: (i) the National Soil and Water Conservation Programme (PRONACOSA) promotes the implementation of sustainable soil and water management practices and techniques to improve agricultural productivity and reduce natural resource degradation. (ii) the Agricultural Research Institute of Panama (IDIAP) conducts research on soil conservation and the development of sustainable technologies for agricultural land management; (iii) the plan for the management of natural protected areas requires that specific measures for soil conservation and erosion prevention be defined; (iv) funding of projects that involve local communities in the reforestation of degraded areas, with native and useful species for soil conservation and biodiversity; (v) promotion of agroecological techniques such as crop rotation and association, agroforestry and direct sowing, which help maintain soil health; and (vi) projects that integrate soil and water management at the watershed level to prevent erosion and improve water quality.

Cuba has several instruments for land and soil conservation: (i) the main one is the National Programme for Soil Conservation and Improvement, aimed at protecting and improving soil quality in Cuba. It includes the identification of areas at risk of degradation, the application of conservation techniques and the education of farmers on sustainable practices; (ii) Soil Erosion Programme, which includes guidelines for techniques to prevent and control soil erosion, such as the construction of terraces, the planting of living barriers and the stabilisation of dunes; (iii) Agrotechnical Soil Conservation Plan, which includes guidelines for the implementation of agrotechnical techniques that improve soil structure and its capacity to retain water and nutrients, as well as the use of organic fertilisers, composting and biofertilizers to improve soil fertility and reduce dependence on chemical fertilisers; (iv) Soil and Water Resources Management programme, aimed at integrated watershed management to coordinate water use and soil conservation; (v) reforestation of degraded areas and establishment of riparian vegetation to protect riverbanks and improve water quality; (vi) promotion of agroecology and organic agriculture as approaches to sustainable soil management, including the use of natural techniques to improve soil fertility and promote biodiversity; and (vii) promotion of techniques that minimise the use of agrochemicals, such as crop rotation, crop associations and the use of biological pest control.

3. Screening of environmental and social risks of the project

Considering the environmental and social policies, programmes, strategies and mechanisms in place in Cuba and Panama as well as the activities defined in the project design in its three components (in terms of focus and scope of these activities), the selection of environmental and social risks that may arise from the implementation of project activities (residual risks) and external risks determined by pre-existing conditions or factors (e.g. political, environmental, climatic, economic, social, etc.) that may affect or limit the implementation of the project (inherent risks) was carried out.

It is important to note that the equivalence of the Adaptation Fund's risk categories (A, B and C) in relation to IFAD's categories are as follows:

Category A, IFAD equivalent is "high" and "substantial".
Category B, its IFAD equivalent is "moderate".
Category C, IFAD equivalent is "low".

The following table presents the results of the environmental and social risk screening of the Project.

Environmental and social safeguards screening checklist				
Environmental and social safeguards	**No, Yes**	**If yes**		**Risk rating**
		Likelihood	**Consequence**	
The following environmental and social principles assess the internal and external risks to which the target population and project activities are exposed. The "Probability" parameter determines the likelihood that a given event may occur; and "Consequence" is the level of damage or adverse impact that may be caused by that event. Thus, the combination of probability and consequence determines the level of risk. The risk levels are low, moderate, substantial, and high.				**AF category: B IFAD: Moderate**
ESP 1. Compliance with the law				
Projects/programmes supported by the Fund shall be in compliance with all applicable domestic and international law				**Low**
1.1 Could the project operate in areas where there is no environmental legal framework for the protection, conservation and/or restoration of natural resources, as well as the assessment of environmental impacts?	**No**	**Unlikely**	**Minor**	**Low**
1.2 Could the project operate in areas where there is no national authority to regulate and administer the national environmental law to comply with mandatory requirements?	**No**	**Unlikely**	**Minor**	**Low**
1.3 Does the country have no public institutions responsible for implementing environmental and social legislation?	**No**	**Unlikely**	**Minor**	**Low**
1.4 Could the project operate in areas where there is no legal framework for rural sector development?	**No**	**Unlikely**	**Minor**	**Low**
ESP 2. Access and equity				
Projects/programmes supported by the Fund shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. Projects/programmes should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable group				**Moderate**
2.1 In the project area, are there inequality factors that limit access and/or equity, such as race, gender, socio-economic status, illness, disability, land ownership, education level, among others?	**Yes**	**Likely**	**Moderate**	**Moderate**
2.2 Could the strategy for targeting potential project beneficiaries result in the exclusion of the population living within the project area?	**No**	**Unlikely**	**Minor**	**Low**
2.3 Could the legal and technical requirements for potential beneficiaries to access project resources result in them not being able to access the expected project resources and benefits?	**No**	**Unlikely**	**Minor**	**Low**
2.4 With the implementation of the project activities, is there a risk of preventing the population from accessing basic services such as land, housing, health, education, energy, drinking water, mobility (free transit), etc.?	**No**	**Unlikely**	**Minor**	**Low**
2.5 Could the implementation of project activities exacerbate existing inequalities, particularly with marginalized or vulnerable groups?	**No**	**Unlikely**	**Minor**	**Low**
ESP 3. Marginalized and vulnerable groups				

Projects/programmes supported by the Fund shall avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed project/programme, the implementing entities shall assess and consider impacts on marginalized and vulnerable groups.				**Moderate**
3.1 In the project area, are there marginalized and vulnerable groups present?	**Yes**	**Possible**	**Moderate**	**Moderate**
3.2 In the project area, are there factors that affect the vulnerability of the population such as poverty levels, extreme poverty, population with limited or no access to sources of employment, illiteracy, basic health services, access to basic education, low availability of access to land, among others?	**Yes**	**Possible**	**Moderate**	**Moderate**
3.3 Is there a legal framework in the country to protect and support the marginalized and vulnerable population?	**Yes**	**Unlikely**	**Minor**	**Low**
2.4 With the implementation of project activities, is there a risk of increasing the level of marginalization and/or vulnerability of existing population groups?	**No**	**Unlikely**	**Minor**	**Low**
ESP 4. Human rights				
Projects/programmes supported by the Fund shall respect and where applicable promote international human rights.				**Low**
4.1 Has the country (or countries) where the project will be implemented signed and ratified any international conventions or treaties related to human rights?	**Yes**	**Unlikely**	**Minor**	**Low**
4.2 Does the country (or countries) where the project will be implemented have a legal framework to enforce the human rights of the population?	**Yes**	**Unlikely**	**Minor**	**Low**
4.3 With the implementation of project activities, is there a risk that the human rights of the target population may be violated?	**No**	**Unlikely**	**Minor**	**Low**
ESP 5. Gender equity and women's empowerment				
Projects/programmes supported by the Fund shall be designed and implemented in such a way that both women and men (a) are able to participate fully and equitably; b) receive comparable social and economic benefits; and (c) do not suffer disproportionate adverse effects during the development process.				**Low**
5.1 Does the country (or countries) where the project will be implemented have a legal framework for gender equality and women's empowerment?	**Yes**	**Unlikely**	**Minor**	**Low**
5.2 In the country (or countries) where the project will be implemented, is there a public institution of the State responsible for implementing national policies related to gender equality and women's empowerment?	**Yes**	**Unlikely**	**Minor**	**Low**
5.3 Does the project design include actions, procedures, or mechanisms to ensure that women and men have equal opportunities to participate or access project resources?	**Yes**	**Unlikely**	**Minor**	**Low**
5.4 Does the project design include guidelines, procedures, or mechanisms to ensure that women and men receive comparable social and economic benefits for accessing the project?	**Yes**	**Unlikely**	**Minor**	**Low**
5.4 With the activities defined in the project, is it likely to generate disproportionate effects between women and men during project implementation?	**yes**	**Unlikely**	**Minor**	**Low**
ESP 6. Core labour rights				
Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labor Organization.				**Low**
6.1 Is the country (or countries) where the project will be implemented a member of the International Labor Organization (ILO)?	**Yes**	**Unlikely**	**Minor**	**Low**

5.2 Does the country (or countries) where the project will be implemented have a national legal framework to regulate basic labor standards?	**Yes**	**Unlikely**	**Minor**	**Low**
5.3 In the country (or countries) where the project will be implemented, is there a public institution of the State responsible for implementing national policies related to occupational safety standards?	**Yes**	**Unlikely**	**Minor**	**Low**
5.4 Does the project design include guidelines, procedures, or mechanisms to ensure compliance with ILO core labor standards?	**Yes**	**Unlikely**	**Minor**	**Low**
ESP 7. Indigenous peoples				
The Fund shall not support projects/programmes that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous people				**Moderate**
7.1 s the project sited in areas where indigenous Peoples are present? (Indigenous peoples' traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources).	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
5.2 Has the country (or countries) where the project will be implemented adopted the UN Declaration on the Rights of Indigenous Peoples?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
5.3 Does the country (or countries) where the project will be implemented have a legal framework for indigenous and/or Afro-descendant peoples?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
5.4 Does the project design include guidelines, procedures, or mechanisms to ensure compatibility with international and/or national instruments related to indigenous and/or Afro-descendant peoples?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
ESP 8. Involuntary resettlement				
Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.				**Low**
8.1 According to the activities defined in the project design, does it require the resettlement of the population in order to be implemented?	**No**	**Unlikely**	**Minor**	**Low**
8.2 If resettlement of the population is required, has the project defined the guidelines required for due process in accordance with national and international legislation?	**No**	**Unlikely**	**Minor**	**Low**
8.3 If resettlement of the population is required, has the project defined the budget to provide other social-economic alternatives or, if applicable, fair and adequate compensation?	**No**	**Unlikely**	**Minor**	**Low**
8.4 Will the project result in temporary or permanent and full or partial physical displacement (including people without legally recognizable claims to land)?	**No**	**Unlikely**	**Minor**	**Low**
8.5 Will the project result in economic displacement (e.g., loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	**No**	**Unlikely**	**Minor**	**Low**
ESP 9. Protection of natural habitats				
The Fund shall not support projects/programmes that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.				**Moderate**
9.1 Are there any protected natural areas in the project area?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**

9.2 If there are protected natural areas in the project area, are they legally declared under State protection?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
9.3 If there are protected natural areas, do they have a management plan or any other planning instrument for their management?	**Yes**	**Likely**	**Moderate**	**Moderate**
9.4 Are any of the project activities likely to be implemented in the buffer zone of the protected natural areas?	**Yes**	**Likely**	**Moderate**	**Moderate**
9.5 Could the project involve or lead to conversion or degradation of biodiversity, habitats (including modified habitat, natural habitat, and critical natural habitat) and/or ecosystems and ecosystem services?	**No**	**Unlikely**	**Minor**	**Low**
ESP 10. Conservation of biological diversity				
Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species.				**Low**
10.1 Could project activities result in significant or unfair reduction, loss, or loss of biodiversity?	**No**	**Unlikely**	**Minor**	**Low**
10.2 Could the project involve or lead to an increase in the chance of human-wildlife encounters/conflict?	**No**	**Unlikely**	**Minor**	**Low**
10.3 Could the project involve or lead to risks to endangered species (e.g., reduction, encroachment on habitat)?	**No**	**Unlikely**	**Minor**	**Low**
10.4 Could the project involve or lead to negative impacts/risks to wildlife?	**No**	**Unlikely**	**Minor**	**Low**
10.5 Could the project involve or lead to introduction or utilization of any invasive alien species of flora and fauna, whether accidental or intentional?	**No**	**Unlikely**	**Minor**	**Low**
10.6 Could the project involve or lead to the handling or utilization of genetically modified organisms?	**No**	**Unlikely**	**Minor**	**Low**
ESP 11. Climate change				
Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.				**Moderate**
11.1 In the country (or countries) where the project will be implemented, have you identified and quantified greenhouse gas emissions by sector?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
11. 2 Does the country (or countries) where the project will be implemented have GHG emission reduction targets through legal instruments (e.g., in NDCs, national plans, or other national or international instruments)?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
11. 3 Could the project activities generate greenhouse gas emissions from its implementation?	**No**	**Unlikely**	**Minor**	**Low**
11.4 Does the project contemplate any activities that may contribute to the removal/storage of some greenhouse gases?	**Yes**	**Likely**	**Minor**	**Moderate**
ESP 12. Pollution prevention and resource efficiency				
Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.				**Moderate**
12.1 Could some of the project activities contribute to reducing the consumption of raw materials in primary production processes?	**Yes**	**Possible**	**Minor**	**Low**
12.2 Could the project involve or lead to the release of pollutants to the environment (on and off farm) due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	**Yes**	**Possible**	**Moderate**	**Moderate**
12.3 Could some of the project activities contribute to reducing the production of residues and wastes in the primary production and/or processing of raw materials??	**Yes**	**Unlikely**	**Minor**	**Low**

12.4 Will the project lead to significant extraction, diversion or containment of surface or ground water? (For example, construction of dams, reservoirs, river basin developments, groundwater extraction)	**Yes**	**Possible**	**Moderate**	**Moderate**
12.5 Will the project involve the use of agrochemicals (pesticides, fertilizers, and other modifying agents) which have potential to pollute soils and water bodies or cause other negative impacts?	**Yes**	**Likely**	**Moderate**	**Moderate**
12.6 Are some of the project activities based on an agroecological approach?	**Yes**	**Unlikely**	**Minor**	**Low**
12.7 Will the project involve or lead to engagement in areas of forestry, including the harvesting of natural forests, plantation development, and/or reforestation?	**Yes**	**Unlikely**	**Minor**	**Low**
12.8 Will the project involve livestock and production of animal products (dairy, skins, meat, etc.)?	**No**	**Unlikely**	**Minor**	**Low**
12.9 Will the project involve marine or freshwater fisheries, at industrial or artisanal scale?	**Yes**	**Unlikely**	**Minor**	**Low**
12.10 Will the project involve inland or marine aquaculture?	**Yes**	**Unlikely**	**Minor**	**Low**
ESP 13. Public health				
Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health.				**Moderate**
13.1 Does the country (or countries) where the project will be implemented have public health programs?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
13. 2 Does the country (or countries) where the project will be implemented have public health protocols?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
13. Could the project activities generate potential adverse public health impacts?	**No**	**Unlikely**	**Minor**	**Low**
ESP 14. Physical and cultural heritage				
Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. Projects/programmes should also not permanently interfere with existing access and use of such physical and cultural resources.				**Moderate**
14.1 In the project area, are there physical cultural heritage values or intangible assets of high cultural value for the population and/or humanity?	**Yes**	**Very likely / Certain**	**Minor**	**Moderate**
3.1 Could the project involve or lead to adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional, or religious values or intangible forms of culture (e.g., knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	**No**	**Unlikely**	**Minor**	**Low**
3.2 Could the project involve or lead to excavations, demolitions, movement of earth, flooding or other environmental changes in an area that is considered to have archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values or intangible forms of culture (e.g. knowledge, innovations, practices) or contains features considered as critical cultural heritage? (See Annex 1 of the Cultural Heritage Guidance Note for further information)	**No**	**Unlikely**	**Minor**	**Low**
3.3 Could the project involve or lead to alterations to landscapes and natural features with cultural significance?	**No**	**Unlikely**	**Minor**	**Low**
3.4 Could the project involve or lead to utilization of tangible and/or intangible forms (e.g., practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	**No**	**Unlikely**	**Minor**	**Low**

ESP 15. Lands and Soil conservation				
Projects/programmes supported by the Fund shall be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.				**Moderate**
4.1. Is the project sited in areas where indigenous Peoples are present? (Indigenous peoples' traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources).	**Yes**	**N/A**	**N/A**	**FPIC/FPIC Implementation Plan required**
4.2 Could the project adversely affect indigenous people's rights to traditionally owned or otherwise occupied and used lands, territories, waters, coastal seas, and other resources and/or livelihood systems?	**Yes**	**Possible**	**Moderate**	**Moderate**
4.3 Could the project result in the utilization and/or commercial development of natural resources on lands and territories inhabited by indigenous peoples?	**No**	**Unlikely**	**Minor**	**Low**

The following matrix shows the logic criteria for determining the level of risk for the project.

Parameters	**Consequence**			
Likelihood	**Minor**	**Moderate**	**Major**	**Severe**
Very likely / Certain: The event is expected to occur in most circumstances as there is a history of regular occurrence at country, similar organisations or investments.	Moderate	Moderate	Substantial	High
Likely There is a strong possibility the event will occur as there is a history of frequent occurrence at country, similar organisations or investments.	Moderate	Moderate	Substantial	Substantial
Possible The event might occur at some time as there is a history of casual occurrence at country, similar organisations or investments.	Low	Moderate	Moderate	Substantial
Unlikely Not expected, but there's a slight possibility it may occur at some time.	Low	Moderate	Moderate	Moderate

4. Environmental and social risk category of the project

Considering the results of the environmental and social risk screening (section 3), **the project category is "B"** (for IFAD the equivalent category is "Moderate"), considering that some project activities will have a moderate adverse impact on the environmental and social systems present in the project area, but that they can be mitigated so as not to increase the level of risk or, as the case may be, reduce the risk. Mitigation measures are detailed in section 5.

The following table summarises the levels of risks identified for each of the Adaptation Fund's environmental and social principles.

Principles of AF's environmental and social policy	Level of risk identified
ESP 1 Compliance with the law	Low
ESP 2 Access and equity	Moderate
ESP 3 Marginalised and vulnerable groups	Moderate
ESP 4 Human rights	Low
ESP 5	Low

Gender equality and women's empowerment	
ESP 6 **Core labour rights**	Low
ESP 7 **Indigenous people**	Moderate
ESP 8 **Involuntary resettlement**	Low
ESP 9 **Protection of natural habitats**	Moderate
ESP 10 **Conservation of biodiversity**	Low
ESP 11 **Climate change**	Moderate
ESP 12 **Pollution prevention and resource efficiency**	Moderate
ESP 13 **Human health**	Moderate
ESP 14 **Physical and cultural heritage**	Moderate
ESP 15 **Lands and soil conservation**	Moderate

5. Management of environmental and social risks of the project

5.1 Unidentified Sub-projects (USPs). For the correct identification of the USPs and the definition of the measures to be applied to ensure adequate risk mitigation, the actions to be implemented by the project executing entities are described below.

1. Identification and characterisation of the climate vulnerability of the project area, by carrying out the diagnostic studies defined in components 1 and 2 of the project: (i) a local ecosystem valuation analysis will be carried out along the target areas of intervention using existing international methodologies; (ii) a loss/gain analysis in the target areas of the vegetation of the ecosystems present with the support of geographic information tools to compare the historical evolution of vegetation cover and land use as an element to determine critical areas for conservation, rehabilitation and sustainable management; (iii) studies of coastal flood projections and analysis of damages and losses; and (iv) identification of key ecosystems for protection, conservation and sustainable management to reduce projected damages and losses due to slow onset hazards based on flood model projections.
   As part of the results of these studies, the corresponding digital mapping will be generated in a Geographic Information System (GIS) to identify the areas of greatest climatic vulnerability as well as the rural population centres within these areas.
2. Identification of the potential beneficiary population of the USPs residing within the areas of greatest environmental climate vulnerability that are organised in agricultural or fishing producers' cooperatives (or any other model of collective organisation legally recognised by the Government); small individual agricultural or fishing producers; and households made up of rural, indigenous or Afro-descendant people.
   As part of the potential beneficiary population, special attention will be paid to identify marginalised and vulnerable rural, indigenous or Afro-descendant people in communities, households and producer cooperatives, such as women, children, youth, older adults, migrants, refugees, people with disabilities and people living with HIV/AIDS.
3. Call and dissemination of the Project's support will be key to implement in the first years, with the purpose of providing information to the potential beneficiary population of the USPs, ensuring that such information is delivered directly through an open and public call through the available means of communication (e.g. social networks, traditional/digital media, radio, etc.), and that they are carried out in strategic sites of greater accessibility to the interested population, such as in the facilities of the implementing entities. e.g., social networks, traditional/digital media, radio, etc.), and that they are carried out in strategic locations of greater accessibility to the interested population, such as in the facilities of the implementing entities present in the territory (if they exist), mayors' offices, offices of producers' cooperatives, local communities, among others. Part of the key information to be disseminated will be, among others, the legal, technical and social requirements that the potential beneficiary population must comply with to access the USPs.

   The objective of providing information to the potential beneficiary population of the USPs is that they can obtain as much information as possible, that they can autonomously and freely analyse whether they meet their expectations, identify if there are barriers or restrictions that may prevent them from accessing the USPs and, finally, make the

decision whether they wish to participate in this process. Therefore, the project will ensure that the FPIC approach and methodology is implemented.

Part of this process, as indicated above, is to identify the barriers or limitations expressed by the population concerned so that they can be analysed by the executing entities and take the relevant measures to overcome these barriers (when socially, legally and economically feasible), communicating to the interested parties the reason why they can or cannot be integrated into the USPs process. In addition, the Project should indicate that in case of disagreement, there is a grievance mechanism that is publicly and freely available to present their case, providing all the necessary information for due process and resolution in this instance.

4. Integration of the file and request for support for the formulation and implementation of the USPs. The project must ensure that the population interested in requesting resources to develop and implement a sub-project (applicant) has all the necessary information to compile and organise the required documentation. The project will also provide support and technical assistance to integrate the corresponding support application dossier.
5. Review and approval of applications for support from the USPs. In accordance with the technical and legal provisions defined by the Project, the application will be reviewed by an Approval Committee, which will have the power to determine whether the applicant complies with the defined requirements. It is recommended that the Project considers a budget item so that in case the application is approved, the applicant contracts the services of technical assistance to accompany them in the process of elaborating the USPs.
6. USPs formulation process will be developed in the framework of the eligible activities that are defined in Components 2 and 3 of the Project to reduce the risks of natural disasters (of climate origin) to the sustainability of the main livelihoods (agricultural and fisheries livelihoods) and to the protection, conservation and/or restoration of coastal ecosystems. The project will ensure that in the instruments to elaborate the USPs, a specific section of the Environmental and Social Management Plan (ESMP) will be integrated to identify the specific risks that exist locally for the USPs to be implemented and to define the mitigation measures and the corresponding budget for their implementation. To formulate the USPs, the requirements and technical specifications should be developed and integrated into the Project Implementation Manual (PIM).
7. Implementation of the USPs. The beneficiary of the USPs, with the support of the contracted technical assistance services, will implement the approved activities in its sub-project, as well as the mitigation measures defined in the ESMP. Upon physical completion of the approved activities, a final report will be prepared, where the requirements and technical specifications must be developed and integrated into the PIM.
8. Systematisation and evaluation of the results achieved with the implementation of the USPs. As part of the Project's monitoring and evaluation system (M&), the methodology and procedures will be developed to systematise the activities implemented, the products generated, and the results achieved with the USPs. These actions should be integrated into the IPM. With these inputs, as far as possible, the metrics of the Logical Framework indicators will be incorporated (as appropriate) and it will also be identified whether any activities and results achieved contribute directly to the mitigation measures of the project's ESMP.
9. Progress report in the six-monthly project implementation reports. Based on the systematisation and evaluation of the results achieved with the implementation of the USPs, the progress achieved will be included in the Project's six-monthly reports, which will make it possible to document the achievements and take decisions for the management of the project (in the event that any problems are identified that need to be addressed or to continue and replicate the good practices for the following USPs to be formulated).

5.2 Environmental and Social Management Plan. This section presents the Environmental and Social Management Plan (ESMP) to mitigate the risks identified for the project in the form of a matrix. This matrix should be integrated into the Project Operations Manual and the Project Monitoring and Evaluation (M&E) system to monitor the implementation process during the life 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 of verification (Monitoring and reporting)**	**Frequency of verification**	**Cost estimate**
Social dimension						
Due to the large number of rural families residing in the project area, they may be excluded from participating and benefiting. Risk level: moderate.	*Activated environmental and social principle (Fund): Access and equity.* 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.	Annually issue the public call for the call to target groups.	Cuba: - CITMA[1](AMA[2]) Panamá: - MiAmbiente[3] FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	1. Project design document. 2. Request for bids 3. Results of bids. 4. Six-monthly progress report on the implementation of mitigation measures.	Verification every 6 months. The implementation of mitigation measures starts from year 1 until the date of completion of the Project.	USD $ 56,974 The first two mitigation measures do not require funding because they are at the level of documented processes.
Cultural factors (attitudes and behaviours) prevailing in the rural population have an impact on maintaining existing gender gaps and limiting women's empowerment, which could keep women on the margins or exclude them from accessing the project's resources. Risk level: low.	*Activated environmental and social principle (Fund): Gender equity and women's empowerment.* 1. Develop the project's Gender Strategy. 2. Elaborate and implement the Gender Plan. 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.	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	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.	Verification every 6 months. The implementation of mitigation measures starts from year 1 until the date of completion of the Project.	USD $ 202,163
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	*Activated environmental and social principle (Fund): Core Labour Rights*	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente	1 Letter of accession prohibiting child	Verification every 6 months.	Mitigation measures do not require financial resources because they are documented process-level requirements.

participation of some activities on which households depend for their subsistence. Risk level: low.	*Standard 5 activated (IFAD): Labour and working conditions.* 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 and international treaties subscribed on the matter.		FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	and adolescent labour. 2. Exclusion list. 3. Aide-memoire of the Supervision Missions 4. Six-monthly progress report on the implementation of mitigation measures.	The implementation of mitigation measures starts from year 1 until the date of completion of the Project.	
The project operates in sectors or value chains with barriers on gender inequality practices, lack of opportunities and labour migration. Risk level: moderate.	*Activated environmental and social principle (Fund): Access and equity.* *Standard 5 activated (IFAD): Labour and working conditions.* 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	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.	USD $ 10,596

	labour migration in the rural sector.					
Ignorance of indigenous peoples' ancestral knowledge for disaster risk reduction, natural resource management and agricultural and fishing practices could be excluded in the process of identifying and systematising good practices. Risk level: moderate.	*Activated environmental and social principle (Fund): Indigenous peoples and Physical and cultural heritage.* *Standards activated (IFAD): Cultural Heritage (standard 3) and Indigenous peoples (standard 4)* *Note: Mitigation measures applicable for Panama.* 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 decide for a translator for the interview process.	The process of approaching the indigenous communities identified for the systematisation of good practices will be carried out in a public manner, applying the FPIC mechanism.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	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 in the interview process, under the FPIC mechanism. 4. Six-monthly progress report on the implementation of mitigation measures. 5. Systematised good practices of indigenous peoples' document.	Verification every 6 months. The implementation of mitigation measures starts from year 1 until the date of completion of the Project.	USD $ 10,000
Transmission of the SARS-CoV-2 virus (type 2) causes severe acute respiratory syndrome (COVID-19) in the rural population and project staff. Risk level: moderate.	*Activated environmental and social principle (Fund): Public health.* *Standard 6 activated (IFAD): Community health and safety.* 1. Develop and implement a biosecurity protocol for Project staff and target groups	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU)	1. Biosecurity protocol to reduce SARS-CoV-2 virus transmission. 2. Purchasing and procurement processes for health care material.	Verification every 12 months. The implementation of mitigation measures starts from year 1 until the date of	USD $ 7,000

	approached, following national requirements.		Regional Coordination Unit (RCU)	3. Aide-memoire of the Supervision Missions 4. Six-monthly progress report on the implementation of mitigation measures.	completion of the Project.	
In the design phase, the specific areas where the project investments will be made are not fully identified, thus generating unidentified sub-projects (USP), which could result in the exclusion of part of the target population residing in areas of high climate vulnerability.	1. Identify and characterise the areas of high environmental and climate vulnerability by carrying out the following studies: a). Carry out diagnostic and characterisation studies of the territory in terms of environmental and climatic vulnerability and natural disasters. b). Establish geographic and social targeting criteria to specifically identify the territory to be intervened and locate the potential beneficiaries of the project. c). Generate digital mapping in a Geographic Information System (GIS) to identify and geographically delimit the specific areas of intervention (based on the geographic targeting criteria). d). Establish criteria for self-targeting of the target population, considering existing constraints or barriers to participation of marginalised and vulnerable groups.	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)		Verification every 6 months. The implementation of mitigation measures starts from year 1 until the date of completion of the Project.	USD $ 1,891,378
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,	*Activated environmental and social principle (Fund): Conservation of biological diversity.*	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente	1. Terms of reference. 2. Invoices or purchase documents.	Verification every 6 months.	Mitigation measures do not require financial resources because they are documented process-level requirements.

causing possible pressure on native and endemic biodiversity. Risk level: low.	*Standard 1 activated (IFAD): Biodiversity conservation.* 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. 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.		FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	3. Final report on the procurement of the required services. 4. Six-monthly progress report on the implementation of mitigation measures.	The implementation of mitigation measures starts from year 1 until the date of completion of the Project.	
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. Risk level: moderate.	*Activated environmental and social principle (Fund): Pollution Prevention and Resource Efficiency.* *Standard 2 activated (IFAD): Resource efficiency and pollution prevention.* 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.	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	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	Verification every 6 months. The implementation of mitigation measures starts from year 2 until the date of completion of the Project.	USD $ 1,268,418

	4. Management of waste from primary activities and in the processing of agricultural and fishery products.			implementation of mitigation measures.		
Climate dimension						
Flooding in coastal areas and sea level rise, causing damage and economic losses to the rural population and their livelihoods. Risk level: moderate.	*Standard 9 activated (IFAD): Climate change.* 1. Implementation of Ecosystem-based Adaptation (EbA) practices with community participation and leadership and based on good practices to enhance coastal resilience. 2. Develop baseline studies on key coastal ecosystems to improve resilience and food security, while targeting priority interventions. 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. 4. Adoption of climate-friendly agricultural and fisheries production technologies by local producers through the Farmer Field School (FFS) approach.	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	1. Baseline study reports. 2. Legal constitution of agricultural and fisheries cooperatives. 3. Farmer Field School Reports. 4. Aide-memoire of the Supervision Missions. 5. Biannual progress report of the Project Management Unit. 6. 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.	USD $ 1,054,724
Limited knowledge of climate change impacts and climate change adaptation options. Level of risk: moderate.	*Standard 9 activated (IFAD): Climate change.* 1. FFS will support local training and implementation of EbA, including restoration and sustainable management of critical ecosystems. 2. Establishment of a binational community at various scales (local, sectoral, productive, national and civil associations) through exchange missions, capacity building and	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	1. Farmer Field School Reports. 2. Binational community activities report. 3. Disaster and Loss Information System (DLIS).	Verification every 6 months. The implementation of mitigation measures starts from year 2 until the date of completion of the Project.	USD $1,194,130

	implementation of FFS in the project target sites. 3. Strengthening institutional technical capacity and regional coordination for the implementation of the Disaster and Loss Information System (DPIS) and data processing. 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. 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.			4. FAO's Damage and Loss Assessment (DLA) Reports. 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. Risk level: moderate.	*Standard 9 activated (IFAD): Climate change.* 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. 2. Elaboration and implementation of Participatory Adaptation Plans (PAPs) prepared at the municipal level, identifying priority adaptation actions to improve food productivity and resilience linked to agricultural and/or fisheries chains.	Mitigation measures do not require public consultation.	Cuba: - CITMA (AMA) Panamá: - MiAmbiente FAO Project Management Unit (PMU) Regional Coordination Unit (RCU)	1. Participatory Risk Management Plans (PRMPs). 2. Participatory Adaptation Plans (PAPs). 3. Biannual progress report of the Project Management Unit. 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.	USD $ 512,513

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.	*Standard 9 activated (IFAD): Climate change.* 1. Development and implementation of a systematic and comparable Disaster and Loss Information System (DLIS) 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.	USD $ 674,803

[1] Ministry of Science, Technology and Environment of Cuba
[2] Environment Agency
[3] Ministry of Environment of Panamá

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

The outlined computation method for the DLA 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 DLA 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 DLA 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 DLA 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 DLA 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 DLA 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

5.1 Situational analysis

5.1.1 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 areas[97] . 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)[98] . 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 region[99] . Infant mortality for the same year was 11.94 children (1000nv), showing a steady decline during the last two decades[100] .

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 0.743[101] , 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 Comarca[102] . 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)[103] .

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 education[104] . 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,[105] including the Professional and Agricultural Technical Institutes.

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

[97] Revista Novedades de Población vol.11 no.22 Havana July-Dec. 2015. Based on data from the 2010 National Population and Housing Census.
[98] OPS. Portal of basic indicators. Published on September 26, 2022. https://opendata.paho.org/es/indicadores-basicos.
[99] Ministry of Health. Directorate of Health. Sexual and Reproductive Health Section. *Maternal Death Situation Report 2021.*Panama.
[100] OPS. Portal of basic indicators. Published on September 26, 2022. https://opendata.paho.org/es/indicadores-basicos.
[101] WEF. *Global Gender Gap Report 2022*
[102] INEC. *Multidimensional Poverty Index 2018*
[103] Cited in MiAmbiente. *National Gender and Climate Change Plan.* Panama. 2021
[104] Calculated based on information from INE. *Agricultural Census 2010*. Volume VII. Gender Focus. Table 22.
[105] 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

obtained in the 2014 elections[106] . At the municipal level, women represent only 14.8% of the mayoral positions (2021)[107] . These results are in contrast with those obtained from the National Survey conducted in 2021[108] , 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 year[109] .

Women and work. The Economically Active Population (EAP)[110] 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 14[111] . 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.[112]

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 title[113] . 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 men[114] . 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.

[106] Association of Women Electoral Magistrates of the Americas. IIDH. UN Women. Participation and political representation of women in Panama. n.d.
[107] ECLAC. *Gender Equality Observatory.* Data 2021. https://oig.cepal.org/es/paises/18/profile
[108] 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
[109] Ministry of Public Security. Republic of Panama. *Informative Bulletin Violence against Women.* March 2023. No 3.
[110] INEC. Telephone Labor Market Survey. June 2021
[111] ECLAC. Care in Latin America. Selected texts 2007-2018. ECLAC Selected Pages. 2018
[112] ECLAC (2020) Fourteenth Regional Conference on Women in Latin America and the Caribbean, Santiago, January 27-31, 2020.
[113] INEC. *Agricultural Census 2010.* Volume VII. Gender Focus. Panama
[114] INEC. *Agricultural Census 2010.* Volume VII. Gender Focus. Panama

Women in agriculture, aquaculture and fishing**.** According to World Bank estimates, by 2022 the rural population will represent 31% of Panama's total population[115] **.** 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.[116] 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.[117]

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"[118] . 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 ANAM, 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 credit[119] . 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.

5.1.2 Cuba

Demographics. By 2022, the Cuban population reached 11,089,511, with a slight female majority, with a ratio of 101.6 women for every 100 men[120] . The birth rate in Cuba was -2.1%[121] 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,

[115] https://datos.bancomundial.org/indicator/SP.RUR.TOTL.ZS?locations=PA
[116] Martinez, 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)".
[117] ibidem
[118] MyEnvironment. UNDP. *Gender and Climate Change Plan*. 2021
[119] Ibid.
[120] PAHO. Health in the Americas. *Country Profile. Cuba.* https://hia.paho.org/es/paises-2022/perfil-cuba
[121] ONEI. (2022). ONEI Statistical Yearbook of Cuba 2022.

being that of women 4.78 years higher than that of men[122] . 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 2000[123] . "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" [124]

Performance according to international gender equality index. In 2021, Cuba ranked seventh on the Gender Gap Index[125] 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 women[126] . 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 nationwide[127] . 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-making[128] .

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. 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, the representation of women in the Cuban Parliament in the last election was of 55.47% and that of the Council of State, its representative body, was 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 than 25%. In the Municipal Assemblies of People's Power, the representation of women is low, 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 reported[129]

[122] OPS. Portal of basic indicators. Published on September 26, 2022. https://opendata.paho.org/es/indicadores-basicos.
[123] PAHO. Health in the Americas. *Country Profile. Cuba.* https://hia.paho.org/es/paises-2022/perfil-cuba
[124] Ibid
[125] WEF Global Gender Gap Report 2021
[126] 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*
[127] Ibid
[128] 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)".
[129] Estudios del Desarrollo Social: Cuba y América Latina Estudios del Desarrollo Social vol.9 no.2 Havana May-Aug. 2021 Epub 01-Jul-2021

. 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"[130] .

Women and work. At country level, the total number of women employed in the economy remains around 38.2%, with differences between the State Sector (49.3%) 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 (71%) 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 jobs[131] .

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. [132]

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.[133] .

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%[134] . 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. [135]

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

[130] 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.

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

[132] 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)".

[133] 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

[134] 52.37% declared by men and 74.07% declared by women according to data in the 2016 National Survey on Gender Equality.

[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)".

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 cities[136] .

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.

5.1.3 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 and take measures to cope with climate variations and implement mitigation and adaptation actions and disaster risk reduction[137] .

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.

5.1.4 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.

[136] 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)".
[137] Ministry of Environment. Panama. *National Gender and Climate Change Plan of Panama*. September 2021

More recently, the National Program and Action Plan for the Advancement of Women (PAM)[138], 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 scenario[139] 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 System[140] 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"[141]. 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.

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. [142], 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 Plan[143]. 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

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

[139] 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

[140] 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

[141] Speech by Teresa Amarelle, Secretary General of the FMC at the UN. March 2022

[142] INAMU. 2012. *Public Policy on Equal Opportunities for Women*. Panama

[143] 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

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 Policy[144] , 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.
- 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 2022[145] , 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.

[144] 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

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

5.2 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".

It is formulated based on the policy and strategy guidelines of the participating governments, the commitments of both countries with international agreements, the information obtained through documents obtained on the web and provided by the institutions involved, as well as the results of consultations (see Annex II) carried out with the population of the project areas in both countries, including a consultation with the indigenous population in Panama

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.
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:

- Giive 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.

5.2.1 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.

5.2.1.1. 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 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.

5.2.1.2. 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 PAPs and PRMPs 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.

5.2.1.3. 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 EbA 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.

5.2.1.4. 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.

5.2.1.5 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.

5.2.1.6. 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.

5.2.1.7. 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.

5.2.1.8. 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.

5.2.1.9 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.

5.3 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: 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.					
Activities	**Indicators**	**Target**	**timeline**	**Institution Responsible**	**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 Fundación Iris. MINAG	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 Fundación Iris. MINAG	
Output 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.					
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 Fundación Iris. MINAG	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 Fundación Iris. MINAG	
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 development activities provided by FAO to operationalize the DLIS	% Women of the total number of people trained	At least 50%		CITMA MiAMBIENTE Fundación Iris. MINAG	21,600
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 Fundación Iris. MINAG	
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 Fundación Iris. MINAG	
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**	**Institution Responsible**	**Costs**
Participation of local women in consultations for the selection of priority interventions	% of people consulted are women	50%		CITMA MiAMBIENTE Fundación Iris. MINAG	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 Fundación Iris. MINAG	
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 Fundación Iris. MINAG	
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 Fundación Iris. MINAG	
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 Fundación Iris. MINAG	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**	**Institution Responsible**	**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 Fundación Iris. MINAG	
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 Fundación Iris. MINAG	
	% of women in women associations created and/or strengthened	90%		CITMA MiAMBIENTE Fundación Iris. MINAG	
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 Fundación Iris. MINAG	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 Fundación Iris. MINAG	
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**	**Institution Responsible**	**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 Fundación Iris. MINAG	
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 Fundación Iris. MINAG	
	% of women in women-oriented associations aimed at implementing diversified livelihoods compatible with EbA.	80%		CITMA MiAMBIENTE Fundación Iris. MINAG	
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 Fundación Iris. MINAG	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 Fundación Iris. MINAG	

PMU and development of institutional capacities on gender					
Activities	**Indicators**	**Targets**	**Timeline**	**Institution Responsible**	**Costs**
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 Fundación Iris. MINAG	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 Fundación	30,000

				Iris. MINAG	
	# virtual Exchange spaces permanently installed and working (e.g. Whatsapp, facebook and others)			CITMA MiAMBIENTE Fundación Iris. MINAG	
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 Fundación Iris. MINAG	138,000
	Operational resources			CITMA MiAMBIENTE Fundación Iris. MINAG	

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 cuentan 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 opportunitie.

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.

Due to the specific situation of national politics in Cuba, the following elements apply to the social part:

Component	Planned Results	MainTasks	Participating entities
1 Reduce the vulnerability and strengthen the adaptive capacities of nine coastal municipalities in Cuba and Panama to climate change impacts	R1. Foundations for the Implementation of the Methodology for Agricultural and Fishery Productivity Loss and Damage in 5 Target Coastal Municipalities Facing Slowly Evolving Climate Impacts	1. Determination of the baseline of the municipalities and selection of intervention areas.	All entities
		2. Development, approval, and dissemination of participatory risk management plans	IGA, IGT, IAGRIC, INSMET, EMNDC, OLPP, DT-CITMA, CEDEL, CNAP, CIMAC, CITMA LP, IES
		3. Identification of adaptation measures, development, and dissemination of the PMACC (Municipal Adaptation Plans for Climate Change) for the EDM (Disaster Risk Management).	IGT, CIMAC, IAgric, CSASS, FLACSO, UPSA, ECOVIDA, DT-CITMA y MINAG, INSMET, INCA, IGranos, INSMET, IES

		4. Analysis of damage and losses established in the FAO Methodology for the 5 municipalities. National and regional contextualization. Preparation of the report on the general foundations for the implementation of the methodology, which serves as a tool for territorial management.	OSDE GAF and municipal agroforestry enterprises IAgric, IGT, CIP, IS, Municipal Cooperatives
	R2- Loss and damage information system of agricultural and fishery sectors implemented	1.2.2 Strengthening of technical, institutional and regional capacities for the effective operationalization of the SIDP and data processing.	IGT, IAGRIC, CIP, DT-CITMA y MINAG, ECOVIDA, UPSA, CSASS, IS
		1.2.1 Design, operation and validation of the Damage and Loss Information System 1.2.3.	IGT, IAGRIC, DT-CITMA y MINAG, ECOVIDA, UPSA, CSASS, IGA
		1.2.3 Establishment of bi-national mechanisms to facilitate continuous dialogue and operationalization of the design of the SIDP methodology.	IGT, IAgric, CIP
	R3-Best practices and lessons learned in assessing loss and damage methodologies for systematized slow onset hazards as a tool for adaptation planning and risk management for food security and livelihoods based on agriculture and fisheries.	1.3.1 Establishment of binational dialogues through exchange at different scales and exchange of missions, capacity building and implementation of CE in the different sites.	IAGRIC, CIP, IGT, DT-CITMA Y MINAG, ECOVIDA, UPSA, CSASS
		1.3.2 Baseline and recommendations for the development of lessons learned for the implementation of the SIDP in sites with similar contexts	IAGRIC, CIP, IGT, DT-CITMA Y MINAG, ECOVIDA, UPSA, CSASS, IS, IES, CubaEnergia
2. Ecosystem-based adaptation (EBA) measures implemented and shared in key ecosystems to protect local food production and promote resilience and food security in 5 municipalities	R4. Management of coastal protection ecosystems for local food security..	2.4.1 Baseline in key coastal ecosystems for resilient change and food security in priority intervention sites.	IGT, CIMAC, CSASS ECOVIDA, OTU, DT CITMA y MINAG, OLPP, CNAP, ICIMAR, IES, CubaEnergia
		2.4.2Baseline in key coastal ecosystems for resilient change and food security in priority intervention sites.	ERMA, IAGRIC, IGT, DT-CITMA y MINAG, ECOVIDA, UPSA, CSASS, Cooperatives of the 5 municipalities, municipal agroforestry enterprises, CubaEnergia
		2.4.3 Environmental impact assessment of intervention sites. Selection and implementation of measures in key ecosystems with good agricultural and fishing practices based on ecosystem resilience.	Icimar, IS, INIFAT, IGT, IAgric, CIP, Dirección Servicio Estatal Forestal, GAF, IES, Cooperatives of the 5 municipalities, municipal agroforestry enterprises, CubaEnergia
3. Coastal communities in 5 municipalities in Cuba adopt and share sustainable practices and develop resilient value chains to increase food security and livelihood resilience	R.5Climate-smart agricultural and fisheries production technologies and methods adopted by local producers to improve the long-term sustainability and productivity of traditional livelihoods in the face of climate impacts.	3.5.1 Strengthen agricultural and fishery cooperatives for climate-smart production taking into account gender and vulnerable population of the selected areas.	IGT, IAGRIC, DT-CITMA y MINAG, ECOVIDA, UPSA, CSASS, CIP, FMC, FLACSO, INCA, CITMA LP, ANAP, FMC, CubaEnergia
		3.5.2community enterprises in function of local training using the implementation of sustainable and resilient production practices.	INSMET, INIFAT, IAGRIC, DT MINAG y CITMA, ECOVIDA, UPSA, CSASS, CIP,

			CITMA LP, IGT, IES, IS, CubaEnergia
		3.5.1 Climate-smart agriculture and fisheries technologies in the 5 municipalities in the community enterprises	IAGRIC (Suelos, Ganadería) INIFAT, CIP, DT MINAG y CITMA, ECOVIDA, UPSA, CSASS, CNAP, INCA
	R6. Diversified EBA-compatible livelihoods identified and supported for agriculture and fishery dependent households.	3.6.1-Strengthen food production cooperatives in their capacity to diversify livelihoods compatible with NbS.	IGT, IAGRIC, DT MINAG y CITMA, ECOVIDA, UPSA, CSASS, ANAP, Empresas agrícolas, CEDEL, MINTUR, IS, Cooperativas de los 5 municipios
		3.6.2-Establishment of community enterprises in the key ecosystems in the 5 municipalities	IAGRIC, FLACSO, DT-CITMA y DT-CITMA y MINAG, ECOVIDA, UPSA, CSASS, IES, IGT
		3.6.3 Diversification and adaptation measures based on ecosystems and good practices in the 5 municipalities	CIP, FLACSO IGT, CIMAC, IAgric, CSASS, FLACSO, UPSA, ECOVIDA, DT-CITMA y MINAG, INSMET, INCA, IGranos, IS, IES

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 redress 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
	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 and (+53) 78397549, 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. 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; and by direct telephone assistance: (+39) 06 5459 2525, 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 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 hide 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 A7.1. Baracoa flooding under 0.5m scenario

Figure A7.2. Baracoa flooding under 1m scenario

Figure A7.3. Baracoa flooding under 2m scenario

Figure A7.4. Baracoa flooding under 3m scenario

Figure A7.5. Baracoa flooding under 4m scenario

(ii) La Sierpe

Figure A7.6. La Sierpe flooding under 0.5m scenario

Figure A7.7. La Sierpe flooding under 1m scenario

Figure A7.8. La Sierpe flooding under 2m scenario

Figure A7.9. La Sierpe flooding under 3m scenario

Figure A7.10. La Sierpe flooding under 4m scenario

(iii) Batabano

Figure A7.11. Batabano flooding under 0.5m scenario

Figure A7.12. Batabano flooding under 1m scenario

Figure A7.13. Batabano flooding under 2m scenario

Figure A7.14. Batabano flooding under 3m scenario

Figure A7.15. Batabano flooding under 4m scenario

(iv) San Cristobal

Figure A7.16. San Cristobal flooding under 0.5m scenario

Figure A7.17. San Cristobal flooding under 1m scenario

Figure A7.18. San Cristobal flooding under 2m scenario

Figure A7.19. San Cristobal flooding under 3m scenario

Figure A7.20. San Cristobal flooding under 4m scenario

(v) Consolación del Sur

Figure A7.21. Consolación del Sur flooding under 0.5m scenario

Figure A7.22. Consolación del Sur flooding under 1m scenario

Figure A7.23. Consolación del Sur flooding under 2m scenario

Figure A7.24. Consolación del Sur flooding under 3m scenario

Figure A7.25. Consolación del Sur flooding under 4m scenario

PANAMA

(vi) Donoso

Figure A7.26. Donoso flooding under 0.5m scenario

Figure A7.27. Donoso flooding under 1m scenario

Figure A7.28. Donoso flooding under 2m scenario

Figure A7.29. Donoso flooding under 3m scenario

Figure A7.30. Donoso flooding under 4m scenario

(vii) Portobelo

Figure A7.31. Portobelo flooding under 0.5m scenario

Figure A7.32. Portobelo flooding under 1m scenario

Figure A7.33. Portobelo flooding under 2m scenario

Figure A7.34. Portobelo flooding under 3m scenario

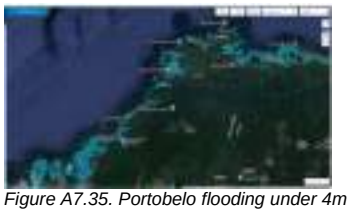


Figure A7.35. Portobelo flooding under 4m scenario

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 MiINAG

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)

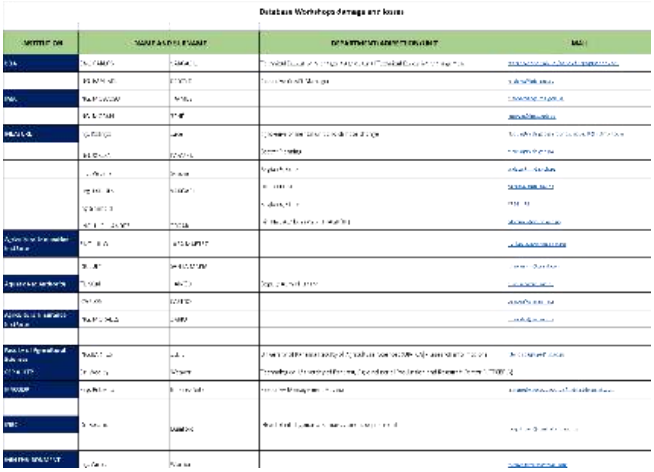
National Statistics Office of Cuba (ONEI)

- Center For Management Of Economic, Social And Environmental Information.

Institution and participants	**Ministry**
Institute of Tropical Geography (IGT) ➢ 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) ➢ 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) ➢ Dr. C. Yamilka Jourbert Martínez, Director	Ministry of Science, Technology and Environment
➢ 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. ➢ Dra. Gloria Gómez País. Directora de la Dirección de Recursos Naturales, Biodiversidad y Cambio Climático, de la DGMA. CITMA.	Ministry of Science, Technology and Environment
Spiritus Environmental Services Center (CSASS) ➢ Msc. Leonardo Cruz Quiñones, Director ➢ Dr. Rosabel Pérez Gutiérrez	Ministry of Science, Technology and Environment
CITMA Consolación del Sur Delegation ➢ Roberto Rodriguez	Ministry of Science, Technology and Environment
Delegation of the CITMA municipality of San Cristóbal ➢ Engineer Miracles of Charity Ben Flores, Specialist	Ministry of Science, Technology and Environment

Agricultural Research Institute (Iagric) ➢ 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
INCA National ➢ Dr. C Alexander Miranda Caballero, Director ➢ Dr. C. Elein Terri Alonso, Researcher	Ministry of Agriculture
Minag Science and Technology Directorate ➢ MSc. Yamile Lamothe. Minag, Subd . of Science, Innovation and Environment	Ministry of Agriculture
Department of Planning and Statistics ➢ Lic. Caridad Moraima Salgueiro de la Torre. ➢ Técnico Medio Leticia de la Caridad Lobaina Mackenzi. ➢ Ing. Amauri Labañino Medina.	Ministry of Agriculture
Agriculture Delegation of the La Sierpe municipality ➢ Lic Geyser Osvaldo Gómez Alonso., Delegate	Ministry of Agriculture
Provincial Delegation of Agriculture Guantanamo ➢ Ing. Malvis Betancourt Betancourt , J. Dept. of Science	Ministry of Agriculture
INCA Consolación del Sur ➢ Dr. C. Lázaro Maqueira, Researcher	Ministry of Agriculture
Fisheries Research Center (CIP) ➢ MSc. Mercedes Isla Molleda, Science Director of the Fisheries Research Center ➢ Dr. C. Abel Betanzos Vega, Specialist	Ministry of Food Industry
Latin American Faculty of Social Sciences (FLACSO) ➢ Dr. C. José Alfredo Carballo Concepción, Researcher	Ministry of Higher Education, University of Havana
CITMA Batabanó ➢ Lic. Elaines Quiñones Echeverría, Head of the section	Municipal Administration Council
Center for Management of economic, social and environmental information. ➢ Lic. Guillermo Legañoa Martinez. ➢ Tec.M. Greter Vidal Medina. Disaster Specialist	National Statistics Office of Cuba

II. PANAMA



III.

Portobelo

Santa Isabel (Palenque)

Miguel de la Borda **El Guasimo**

Donoso (Gobea)

Chagres (Palmas Bellas)

Chagres (Salud-Gondona)

Consultations in Municipalities:

Rio_Palm.pdf

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