Mainstreaming biodiversity into mountain agricultural and pastoral landscapes of relevant ecosystems in Eastern Cuba

Part I: Project Information

GEF ID
10400

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
Mainstreaming biodiversity into mountain agricultural and pastoral landscapes of relevant ecosystems in Eastern Cuba

Countries
Cuba

Agency(ies)
FAO

Other Executing Partner(s)
Ministry of Agriculture (MINAG)

Executing Partner Type
Government

GEF Focal Area
Biodiversity

Taxonomy
Productive Landscapes, Protected Areas and Landscapes, Biodiversity, Focal Areas, Community Based Natural Resource Mngt, Crop Wild Relatives, Species, Livestock Wild Relatives, Conservation Finance,

Financial and Accounting, Conservation Trust Funds, Agriculture and agrobiodiversity, Mainstreaming, Certification -National Standards, Waste Management, Chemicals and Waste, Industrial Waste, Climate information, Climate Change Adaptation, Climate Change, Agriculture, Forestry, and Other Land Use, Climate Change Mitigation, Demonstrate innovative approache, Influencing models, Deploy innovative financial instruments, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Transform policy and regulatory environments, Civil Society, Stakeholders, Non-Governmental Organization, Partnership, Type of Engagement, Participation, Information Dissemination, Local Communities, Beneficiaries, Public Campaigns, Communications, Education, Awareness Raising, Behavior change, Gender Mainstreaming, Gender Equality, Women groups, Sex-disaggregated indicators, Food Value Chains, Food Systems, Land Use and Restoration, Integrated Programs, Integrated Landscapes, Smallholder Farming, Capacity Development, Capacity, Knowledge and Research, Targeted Research, Innovation, Knowledge Generation, Learning, Theory of change, Adaptive management, Enabling Activities, Knowledge Exchange

Sector
Mixed & Others

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 1

Climate Change Adaptation
Climate Change Adaptation 1

Submission Date
10/11/2019

Expected Implementation Start
5/1/2022

Expected Completion Date
5/1/2027

Duration
60In Months

Agency Fee($)
442,965.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
BD-1-1	Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors	GET	4,662,785.00	4,489,542.00
		Total Project Cost($)	**4,662,785.00**	**4,489,542.00**

B. Project description summary

Project Objective

To 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.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 1: Mainstreaming of BD conservation and sustainable use in mountain and pre-mountain landscapes (East Guant?namo and Sierra Maestra)	Technical Assistance	**Outcome 1.1:** Increased adoption of production practices that integrate biodiversity use and conservation and improved resource management based on people?s knowledge, skills and abilities ***GEF Core Indicator 4.1****: Areas of landscapes under improved management to benefit biodiversity* ***Baseline****: 0* ***Target****: 50,000 ha.(field work), of which 5000ha women-led.* ***Project Indicator 1:*** *Number of beneficiary producers and technicians, including training processes.* ***Baseline:****0* ***Target:*** *15,000 direct beneficiaries.* *(Contributes to GEF Core Indicator 11)* ***Project Indicator 2*****:** *Highly sensitive and important areas for BD not converted into agriculture lands (20,000 of forest hectares)* *(Target will be confirmed at*	**Output 1.1.1** Assessment and inventory of accompanying flora and fauna and their valuation in the agricultural-pastoral systems. **Output 1.1.2** Integrated landscape management (ILM) strategy developed and agreed with key stakeholders, with gender approach. **Output 1.1.3**: An updated program for biological pest and disease control (as part of the ILM strategy). **Output 1.1.4**. A capacity development program for producers and technicians on ILM, ILM best practices, and financial incentives, with a gender focus	GET	2,275,241.00	1,881,332.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 2: Strengthening governance, policy framework and capacity building	Technical Assistance	**Outcome 2.1**. Policy, legal and regulatory frameworks for agriculture production have mainstreamed biodiversity conservation and use with gender focus ***Project Indicator 4****: Number of institutions and entities with strengthened capacities.* ***Baseline****: 0* ***Target****: At least 21* ***Project Indicator 5****: Territorial coverage of programs and sectorial policy framework for BD conservation and natural resources sustainable management (in hectares).* ***Baseline****; 0* ***Target****:200,000 hectares (of which, 20,000 has are women-led)* *(Contributes to GEF Core Indicator 4)*	**Output 2.1.1** Capacity development program(s) on BD and natural resources management, control and monitoring. *Target: 4 entities*. **Output 2.1.2** Review of laws/regulations to incorporate biodiversity considerations. **Output 2.1.3** Revised legal and regulatory frameworks **Output 2.1.4** Policy Framework and 4 sectorial programs are BD-mainstreamed with gender focus **Output 2.1.5** Inter-sectorial working group to support newly created institutional capacities and inter-institutional coordination, with gender focus. **Output 2.1.6** Sectorial financing mechanism designed for BD-positive projects	GET	553,589.00	940,666.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 3: Strengthening sustainable value chains	Technical Assistance	**Outcome 3.1** BD contribution has been assessed in value chains born in selected landscapes. **Project Indicator 6:** *Number of new markets identified that are accessed with the incorporation of products resulting from good practices in agroecological/organic productions.* ***Baseline****:0* ***Target:*** *4 new markets established and connected to the value chains of coffee, cocoa, coconut and livestock production in the productive landscapes of the project intervention areas.*	**Output 3.1.1** Mountain and pre-mountain value chains in coffee, cocoa, coconut, and beef are assessed and practices along the chain are aligned to comply with identified organic markets and standards through market intelligence, market access, cost, and sustainability studies.[1] **Output 3.1.2**. Demonstrative models applied and adapted to local landscapes (BD mainstreamed in agricultural practices) **Output 3.1.3** Alternative organic certification and geographical indication schemes, designed and tested [1] 50% of the value chain workers are women	GET	1,240,316.00	1,239,969.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 4: Project knowledge management, monitoring and evaluation (M&E) with gender sensibility	Technical Assistance	**Outcome 4.1** Knowledge and lessons learned systematized and disseminated for the replication and scaling-up of successful experiences. ***Project Indicator 7:*** *At least one document systematizing experiences and knowledge in every productive branch.*	**Output 4.1.1** Information and knowledge management centres created to promote and monitor the integrated landscape management in targeted municipalities **Output 4.1.2.** Cooperation and exchange actions implemented, emphasizing South-South cooperation. **Output 4.1.3** A Monitoring and Evaluation (M&E) Plan with gender focus and Gender Action Plan, implemented. **Output 4.1.4** Manual on gender mainstreaming in sustainable production systems (including *Save and Grow* and CSL).	GET	371,604.00	213,788.00
			Sub Total ($)		**4,440,750.00**	**4,275,755.00**

Project Management Cost (PMC)

GET	222,035.00	213,787.00
Sub Total($)	**222,035.00**	**213,787.00**
Total Project Cost($)	**4,662,785.00**	**4,489,542.00**

Please provide justification

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Ministry of Agriculture	In-kind	Recurrent expenditures	156,042.00
Recipient Country Government	Ministry of Agriculture ? National Forest Development Fund (FONADEF)	In-kind	Recurrent expenditures	682,179.00
Recipient Country Government	Ministry of Agriculture ? National Program for Soil Conservation (PNCMS)	In-kind	Recurrent expenditures	223,321.00
Donor Agency	International Fund for Agricultural Development (IFAD)	Loans	Investment mobilized	3,228,000.00
GEF Agency	FAO	Grant	Investment mobilized	200,000.00
			Total Co-Financing($)	**4,489,542.00**

Describe how any "Investment Mobilized" was identified

The resources from IFAD correspond to a Loan for the implementation of the project entitled ?Cooperative Livestock Development in the Central-Eastern Region of Cuba? (https://www.ifad.org/en/web/operations/-/project/2000001199 and https://www.ifad.org/documents/38711624/40089492/Informe+de+conclusin+del+diseo_1.pdf/6f1aafd4-cebc-412d-ba6f-fd1a1f15087b?t=1611229296000). Finally the resources from FAO correspond to the implementation of the project ?Increasing the resilience of vulnerable rural households and communities through the rehabilitation of productive agroforestry landscapes in selected localities in the republic of Cuba? (IRES).

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Cuba	Biodiversity	BD STAR Allocation	4,662,785	442,965	5,105,750.00
				Total Grant Resources($)	**4,662,785.00**	**442,965.00**	**5,105,750.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

150,000

PPG Agency Fee ($)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Cuba	Biodiversity	BD STAR Allocation	150,000	14,250	**164,250.00**
				Total Project Costs($)	**150,000.00**	**14,250.00**	**164,250.00**

Core Indicators

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	700.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	200.00		

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	500.00		

Indicator 3.3 Area of natural grass and shrublands restored

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

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

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

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
250000.00	250000.00	0.00	0.00

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
200,000.00	250,000.00		

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
50,000.00			

Type/Name of Third Party Certification

TBD during PPG

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

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

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

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

Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)	10911887	10911887	0	0
Expected metric tons of CO?e (indirect)	0	0	0	0

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)	10,911,887	10,911,887		
Expected metric tons of CO?e (indirect)				
Anticipated start year of accounting	2041			
Duration of accounting		20		

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)				
Expected metric tons of CO?e (indirect)				
Anticipated start year of accounting				

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Duration of accounting				

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

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

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

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	3,960	3,324		
Male	6,040	11,676		
Total	10000	15000	0	0

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

Indicator 4: 50,000 hectares of field work and 200,000 hectares of management improvement through enhanced governance. Indicator 6. This is rough and conservative estimate made by using: Global Livestock Environmental Assessment Model (GLEAM: http://www.fao.org/gleam/en/) ? for livestock-based emissions, and EX ACT (http://www.fao.org/tc/exact/ex-act-home/en/) ? for land-use and land-use change emissions . Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided. Aichi Biodiversity Target Project Outputs Target 1 1.1.3, 1.1.4, 2.1.3, 4.1 Target 7 1.1.5, 2.1.1, 2.1.4 Target 15 3.1.1, 3.1.2 Target 19 1.1.1, 1.1.2, 1.1.3, 1.1.4,2.1.1, 2.1.5, 3.1.3

Part II. Project Justification

1a. Project Description

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

1. The Cuban archipelago covers a surface of 109,884,01 km? and is located at 19?49?and 23?16? north latitude and 74?08? and 84?57? west longitude. The maritime leverage of its tropical and seasonally humid climate prevails. The annual mean temperature is 25?C with a high relative humidity above 80%. The historical mean precipitation is 1,335 mm, with a marked seasonality. The main characteristics of the Cuban climate includes hurricanes and cold fronts (southerly winds) that significantly modify weather parameters. Cuban?s topography comprises two large geographic regions: the plains, representing 70% of the territory and characterized by slopes of 3 and less degrees and mountain areas making up 4 mountain groups: 1. Guaniguanico Mountain Range (in the west), 2. Guamuhaya Massif (in the central region), 3. Nipe-Sagua-Baracoa Massif (in the northeast) and 4. Sierra Maestra Mountain Range (in the southeast) with the highest elevation at 1,974 m above sea level. Short course and low-level rivers, the largest being R?o Cauto (343 km), form the largest watershed (9,540.20 km?).

2. Due to its insular nature, composition and geological history and climate, among other factors, Cuba has significant biodiversity with a high concentration of ecosystems, species and endemism, placing it among the top 35 hotspots on the planet. Within the Caribbean region, Cuba is the island with the largest geographical area, which, together with its proximity to the American continent, makes it a fundamental nucleus for conserving the biodiversity of the insular Caribbean. In the country, 9,117 known species of flora, 18,961 of fauna, and 5,844 fungi and lichens are reported. There are 11,954 invertebrate species and 655 vertebrate species recorded. In particular, it is considered among the most diverse island territories in terms of plants globally and is the first island with the number of species per square kilometre.[1][1]

3. In most of the groups, the Cuban biota has greater diversity than the rest of the islands in the area, as is the case of vascular plants, birds and mammals, of which Cuba has approximately half of the total species described or registered in the Antilles. In other groups, such as amphibians and reptiles, Cuban fauna is home to a quarter of all Antillean species. The high degree of endemism existing on the island is highlighted for the groups of amphibians, reptiles and vascular plants (Table 1)[2][2].

Table 1. Diversity of some groups of the Cuban biota.

	Insular Caribbean	Cuba*	Percentage of Species	Endemics of Cuba	Percentage of Cuban Endemics
Plants	10 948[3][3]	6 038[4][4]	55	3 200	53
Amphibians	201[5][5]	67	33	65	97
Reptiles	602[6][6]	153	25	131	86
Birds	759[7][7]	369	49	26	7
Mammals	73[8][8]	35	48	15	43

* Only native species are included

4. Cuba's location in the Caribbean makes the island an essential migratory corridor and wintering ground for many Neotropical migratory birds. Of the six migratory routes established for America, two affect the Cuban archipelago: the Mississippi and the Atlantic Coast[9][9], which shows the great importance of the country as a migratory corridor. Studies on raptor migration show that important species such as the Scissor-tailed hawk (Elanoides forficatus) and the Guincho or Osprey cross these routes. The migration of the Osprey along the eastern route is significant; the counting points located in Siboney-Gran Piedra, Santiago de Cuba province, have a record count for a season of more than 10 000 specimens and for a day of 604, which constitute the largest global counts.

5. Cuba is the Caribbean island reporting the highest percentage of endangered species. Regarding the flora, of the 4 627 taxa evaluated (about 66.6 percent of the Cuban flora), 46 percent have some degree of threat, 22 extinct taxa, three regional extinct, 570 critically endangered, 249 endangered and 151 vulnerable. Of the 165 species of vertebrates in Cuba that are found in the different categories of threatened species, 52 are critically endangered, 42 in danger and 63 vulnerable, where the group of amphibians and reptiles stands out. As for terrestrial invertebrates, molluscs constitute the most threatened group, with 41 vulnerable species, ten endangered and 29 critically endangered.

6. Cuba's topography comprises two large geographic regions: the plains, representing 70 percent of the territory and characterized by slopes of three and fewer degrees, and mountain areas making up four mountain groups, extending over 19 594 km?, equivalent to 18 percent of the total area of the country: 1. The Guaniguanico Mountain Range (in the west); 2. The Guamuhaya Massif (in the central region); 3. The Nipe-Sagua-Baracoa Massif (in the northeast); and 4. The Sierra Maestra Mountain Range (in the southeast) with the highest elevation at 1 974 m above sea level. Short course and low-level rivers, the largest being R?o Cauto (343 km), form the largest watershed (9 540.20 km?).

7. Cuba has a diversity of soils, most of them are of calcareous origin, given the predominance of carbonate rocks.[10][10] The soils with the most significant agricultural vocation in the mountains of Cuba are Allitic, Ferritic, Ferralitic, Fersialitic and Brown Siallitic, which occupy an area of 1 007 054 hectares, i.e. 71.37 percent of the total. These soils represent the fundamental edaphic resources for the production and cultivation of coffee, cocoa, tubers, vegetables and grains, as well as a good part of the livestock and forestry development in these regions.[11][11]

8. The Project covers two impact areas with six mountain municipalities located in the globally significant Eastern Cuba forests (Annex E), comprising the Sierra Maestra and the Nipe-Sagua-Baracoa mountain ranges, including several Key Biodiversity Areas (KBAs), among which the Turquino-La Bayamesa in Sierra Maestra and Alejandro de Humboldt in Nipe-Sagua-Baracoa stand out. A summary table is included on these two areas of impact, with the characterization of both.

9. **Area 1. Sierra Maestra**: Covers almost 80 percent of the Sierra Maestra Mountain Range and 506 300 hectares. It covers four municipalities of the Project, three of them belonging to the Granma province (Guisa, Buey Arriba, and Bartolom? Mas?) and one of them to the Santiago de Cuba province (Guam?). The main economic activities that take place in the Sierra Maestra are agriculture, represented by the cultivation of coffee, cocoa, tubers and roots, vegetables and bananas. It is the mountainous territory with the most significant area devoted to coffee, and together with Nipe-Sagua-Baracoa, stands out for its productive cocoa plantations. Livestock activity is varied and is represented by the following types of livestock: cattle, sheep, goats, pigs, horses, donkeys and mules. The silvicultural activity takes place in 0.1 percent of the total area of ??the mountain municipalities. Although the mining activity has varied in the past, only the open-pit extraction of limestone remains. The secondary sector is in general linked to the primary industry and is made up of coffee processing plants, canning industries, sawmills, bakeries, candy stores, among others. Another activity in the territory is tourism, particularly linked to the coastal area.

Table 2. Productive organizations located in the municipalities of the project in the Sierra Maestra.

Municipalities	Total organizations (agricultural /silviculture)	Total of state organizations	Total of cooperatives			Total of organizations dedicated to coffee, cocoa, coconut and livestock
			UBPC	CPA	CCS	
Guam?	51	1	14	11	25	41
Guisa	58	2	14	20	22	46
Buey Arriba	51	4	15	8	24	41
Bartolom? Mas?	67	3	19	15	30	54
Total	227	10	62	54	101	182

10. **Area 2. Macizo Nipe Sagua Baracoa**: It covers two municipalities of the Project, both in the province of Guant?namo (Baracoa and Mais?). It has a surface area of 1497.67 km?. The main economic activities in the Nipe-Sagua-Baracoa massif are agriculture (coffee and cocoa, coconut and various crops), forestry, livestock, beekeeping, mining and tourism. More than 51 percent of the national coffee production comes from this area; there are 11 coffee-producing companies, 135 pulpers, 507 dryers and 13 airing centres, and a total of 13 528 workers.

Table 3. Productive organizations located in the project municipalities within the Nipe-Sagua-Baracoa massif.

Municipalities	Total organizations (agropecultural/silviculture)	Total of state organizations	Total of cooperatives			Total of organizations dedicated to coffee, cocoa, coconut and livestock
			UBPC	CPA	CCS	
Baracoa	92	2	25	24	41	74
Mais?	61	1	16	9	35	49
Total	153	3	41	33	76	123

Table 4. Characterization of intervention areas

	Sierra Maestra	**Macizo Nipe-Sagua-Baracoa**
Surface extension	2658,54 km? (Extends to almost 80% of the Sierra Maestra mountain range)	1497,67 km?
Provinces and Municipalities within the project	Granma Province: Guisa, Buey Arriba, Bartolom? Mas? Santiago de Cuba Province: Guam?	Guant?namo Province: Baracoa and Mais?
Population	160 786 inhabitants	108 506 inhabitants

Surface for economic activities (thousands of ha)	Agricultural: 111,2 (of such, 56,1 are cultivated) Livestock: 55,1 Forestry: 134,1	Agricultural: 36,4 (of such, 30,6 are cultivated) Livestock: 6 Forestry: 106,3
Economic activities and involved organizations	Agriculture, represented by the crops of coffee, cocoa, tubers and roots, vegetables and bananas. It is a mountainous territory with the most significant area devoted to coffee. It stands out for its cocoa plantations. Livestock activity is varied and is represented by the following types of livestock: cattle, sheep, goats, pigs, horses, asses and mules. Forestry, mining (open-cast limestone extraction) and tourism. **Organizations:** There are 227 organizations dedicated to agricultural and silvicultural activities, of which 10 are from the state and 217 are cooperatives (62 UBPC, 54 CPA and 101 CCS.[12][12] Of the total number of organizations, 182 are dedicated to coffee, cocoa, coconut and livestock activities.	Agriculture, represented by coffee, cocoa, coconut and various crops. It stands out for its productive cocoa plantations. More than 51% of the national coffee production comes from this area. 80% of the national cocoa production is produced. There are large coconut plantations with their productions linked to the local industry to obtain the oil for uses in the chemical, light, and food industries, among others. Forestry, livestock, beekeeping, mining and tourism activities are also developed (natural and historical-cultural resources associated with protected areas, especially the Cuchillas del Toa Biosphere Reserve) **Organizations:** There are 153 organizations dedicated to agricultural and silvicultural activities, of which 3 are from the state and 150 are cooperatives (41 UBPC, 33 CPA y 76 CCS) (Statistic Yearbook 2018, ONEI). Of the total number of organizations, 123 are dedicated to se coffee, cocoa, coconut and livestock activities.–

Physical-geographical characteristics	It is located in the southwestern and south-central parts of the Eastern region. It limits to the north with the Cauto River basin and the Central Valley tectonic depression; to the south with the Trench of Bartlett; to the east with the Guant?namo Basin and to the west with the coastal plain that separates it from the Gulf of Guacanayabo. It is made up of the Cordillera del Turquino and the Cordillera de la Gran Piedra. The relief of the Sierra Maestra is characterized by its youth with several steps of low mountains and middle mountains. Its landscapes show steep slopes with narrow canyons and small intra-mountain valleys. Among the main heights is the Pico Turquino (1 974 m), which is the highest in the country, the Pico Cuba (1 874 m), the Pico Bayamesa (1756 m), the Pico Sweden (1 734 m) and the Pico Mart? (1 722 m).	It extends in the shape of an arc in the northern and eastern parts of the East region. It is bordered to the north and east by a narrow coastal plain that separates it from the Atlantic Ocean; to the south with the tectonic depression of the Central Valley, the Guant?namo Basin and the Caribbean Sea; and to the west with the Nipe basin. It is made up of several plateaus, and mountain ranges in the form of arches and blades such as: Altiplanicie de Nipe, Sierra del Cristal, Cuchillas de Moa, Alturas de Baracoa, Cuchillas del Toa, Meseta del Guaso, Sierra de Mariana, Cuchillas de Baracoa, Sierra del Purial, Sierra de Im?as and Meseta de Mais?. Medium mountains dominate the relief, low mountains, small foothills and to a lesser degree, the tectonic-lithological heights, whose maximum altitude is the Pico Cristal with 1 231 m, in the Sierra del Cristal. Mais?'s emerging marine terrace systems are essential to the insular Caribbean due to their size and characteristics.

Climate	This mountainous system is located in the Southeastern Caribbean subregion, characterized by trade winds with relatively rainy areas. The modified K?ppen classification corresponds to tropical climates with relatively humid summer, humid tropical with rains throughout the year, and warm temperate with showers throughout the year.[13][13] The general climatic regionalization of Cuba is identified with two types of climates: Plains and heights with relatively stable seasonal humidification, high evaporation and high temperatures (II); and Mountainous with high and stable humidification, low evaporation and cool temperatures.[14][14] In general, the maximum wind speeds in the Sierra are associated with frontal systems, extratropical low-pressure centres, local storms, cyclonic disturbances and hurricanes. Another characteristic of the wind in this territory is the development of the valley and mountain breeze regime, the circulation of strong gravitational winds and the land breeze regime in the southern coastal strip.[15][15]	This mountainous group is located in the Southeastern Caribbean subregion, characterized by trade winds with relatively rainy areas. In the modified K?ppen classification, the climates are Tropical humid with rains all year round (Sierra de Nipe, Sierra del Cristal, Cuchillas de Moa, Cuchillas del Toa and the northwestern part of the Cuchillas de Baracoa), Tropical with relatively humid summer (Meseta del Guaso, Sierra del Purial, southern and eastern part of the Cuchillas de Baracoa and Meseta de Mais?) and Tropical relatively dry, with little rainfall (middle and lower parts of the south slope of the Sierra del Purial and Sierra de Mariana). In the general climatic regionalization, it is identified with the three types of climates existing in Cuba: Plains and keys with insufficient and unstable humidification, very high evaporation and very high temperatures; Plains and heights with relatively stable seasonal humidification, increased evaporation and high temperatures; and Mountainous with high and stable humidification, low evaporation and cool temperature.[16][16] In general, maximum wind speeds are associated with frontal systems, extratropical low-pressure centres, local storms, cyclonic disturbances and hurricanes. Another characteristic of the wind in this territory is the development of the valley and mountain breeze regime, the circulation of strong gravitational winds and the land breeze regime in the north and northeast coastal strip.[17][17] The massif acts as a barrier to the trade air masses so that the entire southern macro slope, the depressions and hills, are conditioned by a hot, dry climate, with rainfall ranging between 600 and 1 200 millimetres per year.

Soils	Due to their extension, the main soil groupings are: Fersialitic, Brown, Calcimorphic Humic and Poor Evolved, although the latter is only found in association with the former. The Fersialitics correspond to the Lixivitated yellowish and are distributed in the central part of the southern macro-slope of the Sierra del Turquino and high levels of the Cordillera de la Gran Piedra. The Brown extend through the northern macro-slope and western part of the Sierra del Turquino, and in the Cordillera de la Gran Piedra, it occupies the remaining free surface of the previous grouping. The most widespread type is the Brown without carbonate, which also appears associated with the Yellowish Fersialitic Lixivitated soil on the southern macro-slope of the Sierra del Turquino. The Calcimorphic Humics are located in the northern and central part of the eastern sector of the Sierra del Turquino and its western end. Despite not constituting a predominant group, the Poor Evolved has a wide distribution associated with the previous ones and is identified with the natural skeletal. In general, these soils are under the current influence of robust erosive processes.	It is characterized by a high presence of groups: Brown, Fersialitic, Ferritic, Hydromorphic, Humic Calcimorphic, Ferralitic and Poor Evolved. The Brown constitute the most widely extended soils, located in almost the entirety of its surface. The following types are identified within this grouping: Brown without typical carbonate and Brown with typical carbonate. Sometimes they are associated with the Fersialiticos (Cuchillas de Baracoa, Sierra del Purial and Sierra del Cristal). The Fersialitics by their distribution follows in importance to the previous one, prevailing in the Sierra del Cristal, Cuchillas de Baracoa, Sierra del Purial and a small strip of the windward slope Cuchillas de Moa. They are also associated with other soils such as the Brown with carbonate typical of the Guaso Plateau and the Brown without carbonate typical of the Toa River basin. In these last two cases, they are represented by the Lixiviated Yellowish Fersialitics, while in the former are the Fersialitic reddish-brown and the ferromagnesian brownish-red Fersialitics. The Ferritics predominate in the upper part of the Sierra de Nipe, the northwestern slope of the Sierra del Cristal and Cuchillas de Moa. They are also associated with the Brown soils on the north slope of the Cuchillas de Moa and the Fersialitics on the Cuchillas del Toa. This grouping is represented only by the typical purple Ferritics. The Hydromorphs are distributed in the northern coastal plain of the Sierra del Cristal and Cuchillas de Moa, which includes the lower third of the Sagua River basin. They also extend on the north slope of the Cuchillas de Baracoa. The Calcimorphic Humics predominate in the coastal plain south of the Sierra del Purial and in the low terraces of the Mais? Plateau. They are also associated with the Ferralitic soils of this plateau's middle and upper terraces, as well as the brown carbonate-free typical of the Guaso Plateau and Sierra del Cristal. The distinctive red Ferralitics are only extended in the middle and upper terraces of the Mais? Plateau and the narrow coastal strip to the north of the Cuchillas de Baracoa. Despite being only found in association with other soils, the Poor Evolved have a wide distribution manifesting the following types: natural skeletal and typical quartzite sandy, the latter associated only with Calcimorphic Humics. In general, these soils are under the effect of current erosive processes of medium to vigorous intensity, being in the Sierra del Purial and some sectors of the Cuchillas de Baracoa strong to very strong. However, in

Water Resources	The Cauto basin is in the area and is one of the main basins of national interest and has an extension of ??8 969 km?. The Cauto River Basin contains the largest of the river and fluviomarine plains on the island. The source of the Cauto River flows in the foothills of the Sierra Maestra, on the La Estrella hill at the height of 760 m above sea level, in the province of Santiago de Cuba. The Cauto River is the largest in Cuba; its hydrological system has 29 tributaries in addition to the main river. The principal bays are those of El Mazo and Chivirico, located in the coastal municipality of Guam?, the Bay of Chivirico allows navigation of small boats and maritime communication with other points and localities in the province of Santiago de Cuba and the national territory. In the municipalities of interest of the project, 44 hydrographic basins have been identified: 9 in Bartolom? Mas?, 7 in Buey Arriba, 2 in Guisa and 26 in Guam?, comprising a total area of ??2 459.1 km?. In the Bartolom? Mas? municipality, the Yara, Jicotea, Gu and Mac?o basins stand out due to their extension, which covers approximately 90 percent of the territory. In Buey Arriba, the Buey Arriba, Guacajabo (Mabay), and Turquino basins cover about 75 percent of the territory. In Guisa, the Cauto basin stands out for its importance, covering about 89 percent of the region, followed by the Guacajabo (Mabay) basin with 9.59 percent. The fragmentation of its territory characterizes the Guam? municipality into a large number of small basins, among them the Guam? basin and Sevilla, covering each approximately a little more than 8% of the municipal territory and the Turquino basin with 7,73 percent. (Figure 1)	The Toa basin is located in this area, one of the most important and best-preserved in the country; it covers 1 053 km? and is located in the eastern region of the Nipe-Sagua-Baracoa massif. **This is the region with the highest rainfall in Cuba, contains approximately 70 percent of freshwater reserves of the island and the Insular Caribbean.** The source of the Toa river is in the Cuchillas Nipe-Sagua-Baracoa and flows into the north coast of the province of Guant?namo, northwest of the city of Baracoa. The Toa River is the largest in Cuba and is notable for its depth and thickly forested contours. The Toa receives the waters of 71 tributaries, which never stop running, not even throughout the strongest droughts. The Toa basin occupies around 70 percent of the Biosphere Reserve that bears its name "Cuchillas del Toa". It is one of the most critical regions of the country and the Insular Caribbean due to its high value in Biodiversity and **aquifer reserves**; it also constitutes the oldest refuge and speciation centre in Cuba. There is a bag-shaped bay in the area, with ideal conditions for maritime traffic, which was used for these purposes in colonial times; currently, there are depressed cabotage and a few platform fishing boats. In the municipalities of interest of the project, 26 hydrographic basins have been identified, 14 in Baracoa and 12 in Mais?, comprising 1 167.54 km?. Due to their extension in the Baracoa municipality, the following stand out: Toa basin, which covers approximately 27.86 percent of the territory, followed by the Miel basin with 15.7 percent, Duaba with 10 percent and Yumur? with 8.4 perent. In Mais?, its the Yumur? basin, covering approximately 13 percent of the municipality area, followed by the Jauco basin with 11.2 percent and Maya with 9.3 percent. (Figure 2)

Vegetation and flora	Predominating secondary vegetation, cultural vegetation, montane rain forests, submontane mesophiles, the hummock vegetation complex, evergreen aciculifolia tropical forests (Pinus maestrensis), the typical cloud forest (1 600-1 900 m high) and the sub-paramo o fresh mount (the only place in the national territory where the latter is present) Another distinctive feature of this territory is the high degree of endemism, whose number of species exceeds 150. Some of the causes of this endemism are the relatively high altitude and the presence of the conical karst. Among the most represented flora species are the families Fabaceae, Euphorbiaceae, Malvaceae, Rubiaceae, Poaceae, Apocynaceae, Boraginaceae, Sapotaceae, Moraceae. There are species of high economic and floristic value, such as the cimarron soursop (*Annona montana*), cedar (*Cedrela odorata*), *Guettarda sp*. and mahogany (*Swietenia mahagoni*), among others. Among the species categorized with some degree of threat, according to the IUCN Red List, are: sabic? de la maestra (*Abarema maestrensis*), *Pachyanthus pedicellatus* and *Solonia reflexa, Juniperus saxicola, Magnolia minor, Magnolia cubensis*, bighorn avocado (*Dendrocereus nudiflorus), Alcarrasica Begonia, Begonia cubensis*, Cross Prickly Pear *(Consolea macracantha*), Jubilla (*Sideroxylon jubilla*), White Oak (*Tabebuia shaferi Britton*), Ragweed (*Chromolaena odorata*), Male Oak (*Tabebuia hypoleuca*).	Tropical broadleaf forests predominate; among these: low-altitude mesophiles, submontane pluvial forest, low-altitude pluvial forest (the only place in the national territory where it is distributed), sub-montane mesophiles, and then there are the evergreen needle-like tropical forests (Pinus cubensis), the cultural vegetation and secondary forests. This massif is considered the most critical centre of diversification in Cuba and the main centre of evolution of Cuba's serpentine and broadleaf flora. There is a high degree of endemism, whose number of species exceeds 200, constituting the territory with the highest endemism in Cuba. Some of the causes of this endemism are the relatively high altitude (Sierra del Purial), ferritic soils on serpentinites with an abundance of metals (Nipe, Sierra del Cristal-Micara, Moa and Baracoa-Jauco), and ferralitic and fersialitic soils on serpentinites with an abundance of magnesium hydroxide. Among the most represented flora species are the families Rubiaceae, Asteraceae, Melastomataceae, Euphorbiaceae, Fabaceae, Sapotaceae, Caesalpinaceae, Meliaceae, Thelypteridaceae and Moraceae. A large number of epiphytic species are notable, among which ferns stand out, such as the genera *Polypodium,Pecluma* and *Campylon eurum*. Among its botanical jewels, five carnivorous species stand out, one of them, the only one with an epiphytic habit in Cuba: Butterworks (*Pinguicola lignicola*) and two species of the most primitive genera of the plant kingdom (*Podocarpus* and *Dracaena*). Among the species categorized with some degree of threat, according to the IUCN Red List, are: *Shafera platyphylla* of the Asteraceae family, *Manilkara valenzuelana, M. mayarensis and Magnolia minor, Protium cubense, Calophyllum utile, Podocarpus ekmanii, Manilkara mayarensis, Polita micropolis*

Fauna	Among the outstanding biological groups present in the area are birds, bats, reptiles, amphibians, molluscs and butterflies, with many endemic species among them: Molluscs- *Polymita venusta, Coryda alauda dennisoni* Amphibians- *Eleutherodactylus albipes, E. cubanus, E. glamyrus, E. rivularis, E. melacara, E. turquinensis, Eleutherodactylus tonyi.* *Reptiles- four-legged snake (Diploglossus garrioi), critically endangered (CR) according to IUCN lists. Other endemics: Anolis altitudinalis, A. clivicola, A. guazuma, A. incredulus, Sphaerodactylus cricoderus, Anolis confusus, A. guafe, A. ruibali, Chamaeleolis agueroi, Sphaerodactylus docimus, A. equestris verreonensis, A. Leiocephalus macropus phylax and A. Leiocephalus macropus phylax and the litter lizard (Cricosaura typica), an archaic species whose presence in the Caribbean area constitutes an enigma for science.* Butterflies- *Anetia cubana* and *Anetia briarea numidia*, considered nearly threatened (NT) according to IUCN lists. Other important species are the glass butterfly (*Greta cubana*) and the Gundlach butterfly (*Parides gundlachianus).* Birds- zunzuncito (*Mellisuga helenae*), camao (*Geotrygon caniceps*), nightingale (*Myadestes elisabeth*) with vulnerable threat category (VU), long-tailed hawk (*Accipiter gundlachi*), endangered (EN). Other endemic species: tocororo (*Priotelus temnurus*), jabado woodpecker (*Melanerpes superciliaris*), cotunto siju (*Gymnoglaux lawrencii)*, cartacuba (*Todus multicolored*), cutthroat (*Pheucticus ludovicianus*), chambergo (*Dolichonyx oryzivorus*), silver-colored Siju chiv? (*Vireo gundlachii*), tot? (*Dives atroviolaceus)*, red heron (*Egretta rufescens*), small curlew (*Calidris mauri*), chorizo duck (*Oxyura jamaicensis*), yellow-billed spring (*Coccyzus americanus*), yellow-tipped black-billed gull (*Sterna sandvicensis*), scissor-tailed hawk (*Elanoides forficatus*), pink gull (*Sterna dougallii*), siguapa (*Asio stygius*), hummingbird (*Archilochus colubris*) Mammals- Cuban hutia (*Capromys pilorides*)	The invertebrate fauna has 942 taxa, including 497 species of insects, 223 molluscs, and 202 arachnids. Vertebrates are represented in the massif by 260 species, of which 94 are endemic and 40 endangered. Notable biological groups include birds, bats, reptiles, amphibians, molluscs, and butterflies, with the presence of many endemic species including: Mollusks- *Polymita picta, Xenopoma hendersoni, Caracolus sagemon, Coryda sp.* Amphibians- *Eleutherodactylus tetajulia, Eleutherodactylus acmonis, E. orientalis*, Iberian frog (*E. iberia*), yumuri-mouth frog (*E. bartonsmithi*), mais? frog (*E. bresslerae*) and two toads, *Bufo peltocephalus* and *B. taladai* categorized as vulnerable (VU) according to IUCN lists. *Reptiles- Anolis fugitivus and A. inexpectata* categorized as endangered (EN), *Diloglossus nigropunctatus, A. rubribarbus* and the iguana (*Cyclura nubila*), vulnerable (VU). Other species: *Anolis cyanopleurus, A. toldo, A. baracoae, Arrhyton supernum* and maj? de Santa Mar?a (*Epicrates angulifer*). Arachnids- *Cubacanthozomas rowlandi* and dwarf scorpion *(Microtityus fundorai),* measuring only 10 mm. Butterflies- *Parides gundlachianus*. Birds - woodpecker (*Campephilus principalis bairdii)* and loggerhead hawk (*Chondrohierax wilsonii*), with a critically endangered category (CR), the long-tailed hawk (*Accipiter gundlachi*) and the giant kingbird(*Tyrannus cubensis*), endangered (EN). Other important species: tocororo (*Priotelus temnurus*), Cuban Emerald (*Chlorostilbon ricordii*), king thrush (*Turdus plumbeus*), Siju banana tree (*Glaucidium siju*), Siju cotunto (*Gymnoglaux lawrencii*), green woodpecker (*Xiphidiopicus percusciliaris superciliaris*), the great lizard cuckoo (*Coccyzus merlini*), king thrush (*Turdus plumbeus*), Cuban bullfinch (*Melophyrra nigra*), mockingbird (*Mimus polyglottos*), Smooth-billed ani (*Crotophaga ani*), juan chiv? or Cuban vireo (*Vireo gundlachii*), candelita (*Setophaga ruticilla*), yellow-faced grassquit (Tiaris olivaceus), the Cuban blackbird (*Dives atroviolaceus*), cave swallow (*Petrochelidon fulva*) and chichinguaco (*Quiscalus niger*).

Key Biodiversity Areas (KBA)	The KBAs located in Sierra Maestra occupy 48 percent, disseminated as follows: 55 percent in Guam?, Santiago de Cuba province, the remaining 45 percent distributed among the municipalities Bartolom? Mas? (12 percent), Buey Arriba (25 percent) and Guisa (9 percent). Turquino and Pico la Bayamesa stand out among them. (Table 5.)	The KBAs located in the Nipe-Sagua-Baracoa massif occupy 58 percent, all in the municipality of Baracoa, among them Alejandro de Humboldt stands out. (Table 5.)

Figure 1. Watersheds and water resources of the project intervention municipalities in the provinces of Granma and Santiago de Cuba.

Source: Prepared by experts from the Faculty of Geography of the University of Havana, hired by the project, from the cartographic base at 1:25 0000 scale

Figure 2. Watersheds and water resources of the project intervention municipalities in the province of Guant?namo.

Source: Prepared by experts from the Faculty of Geography of the University of Havana, hired by the project, from the cartographic base at 1:25 0000 scale

Table 5. KBA areas by regions and municipalities

KBA / Municipality	Santiago de Cuba	Granma			Sierra Maestra region	Guant?namo		Sagua Baracoa region
	Guama	Bartolom? Mas?	Buey Arriba	Guisa		Baracoa	Masi	
KBA area (km2)	259,8	54,45	115,81	42,03	472,09	660,04	-	660,04
Municipality area (km2)	949,84	637,54	482,06	589,52	2658,96	977,56	521,79	1499,35
%	27,34	8,54	24,02	7,13	17,75	67,52	-	44,02

Source: Prepared by the authors from the map of Anad?n-Irizarry, V. et al 2012

11. Because these intervention areas are in rural areas in the eastern part of the country, they accumulate more significant disadvantages in the living and working conditions of the resident population, with high levels of emigration. The project is expected to make a positive and sustainable impact on livelihoods in the area.

12. These areas of high vulnerability have a set of common features that condition the actions of their inhabitants. These are:

a) Rurality indices are higher than the national average, with a culture that has nature as its centre.

b) Agricultural and livestock economic base, fundamentally related to managing natural resources and agricultural activity (coffee, cocoa, livestock).

c) Greater economic, environmental and social vulnerability in the country's context, with lower levels of the Human Development Index (HDI).

d) Labor force deficit, due to the emigration of the population from rural areas, the ageing of the people, and the demotivation of young people towards agricultural work.

e) Half of the population aged 15 and over is employed in the tertiary or services sector and only slightly more than a third in the primary or agricultural sector

f) High values, above the national average, of life expectancy at birth.

g) Most unfavourable living conditions in the national context (options for employment, recreation, accessibility to secondary and higher education centres in the territories).

h) Higher proportion of the population living in precarious housing conditions (technical condition of the house, access to drinking water and sanitation services), particularly in the rural sector.

i) Strong pressure from the population on natural resources (fishing, hunting, logging) to improve the family economy.

j) Development perspectives fundamentally associated with agriculture and, in recent decades, with tourist activity.

k) Generalized perception that there are conditions to achieve a more significant insertion of communities in the management and sustainable use of natural resources.

Table 6. Summary of relevant socioeconomic dimensions of the provinces included in the project.

Provinces	Cuba	Granma	Santiago	Guant?namo
Municipalities	It has 169 municipalities and the special municipality of Isla de la Juventud	Guisa, Buey Arriba and Bartolom? Mas?	Guam?	Baracoa and Mais?

Territorial characteristics		South of the eastern region characterized by mountainous areas. Low productive soils predominate	South of the eastern region characterized by mountainous areas. Brown and not very productive soils predominate	Northwest Cuba, where mountainous areas cover more than 75% of the surface. Not very productive, brown and ferralitic soils predominate. It is one of the driest regions in the country
Economic lines of interest	Coffee, cocoa, coconut, livestock	Producer of coffee and cocoa, including livestock production	It is the largest coffee producing province in the country. There is also cocoa and livestock	The largest cocoa and coconut production in the country. There is also livestock and coffee
Population	11 193 470	819 742	1 046 635	505 854
Total growth rate	-1.4	-4	-1,7	-5
Population density (inhab / km2)	101,9	97,9	168,1	82,0
Rurality index (%)	23	39	29	36
Male ratio (men per thousand women)	988	1. 020	984	996
Total migration rate	-1.9	-6.9	-4.3	-8.4
Unemployment rate (%)	1.3	2,6	3,5	3,5
Employed in agriculture%)	17.3	24	6,9	6,9
State employment (%)	67	62	69	-
Employment in agricultural cooperatives (%)	10	4,8	5	-
Number of agricultural cooperatives	4859	503	502	368
Average monthly salary (pesos)	777	660	649	655
Territorial Human Development Index (TDHT) * in 2003		0,7209	0,7745	0,7572

Sources: Statistical Yearbook of Cuba 2020; L?pez C, 2004 (L?pez, C?ndido. "Territorial Human Development in Cuba: Methodology for its evaluation and results. In" Economics and Development Magazine ". Special edition. Faculty of Economics, University of Havana. Cuba, 2004)

Production Context:

13. Currently, coffee and cocoa productions and yields are depressed (0.2 tonnes/ha of coffee and 0.33 tonnes/ha of cocoa). Agroecosystems are highly degraded due to hurricanes, the attack of plagues and diseases, and unsustainable management. Similarly, coconut plantations have recently been affected by several hurricanes, pests and diseases, as well as unsustainable practices (monoculture). Consequently, the livelihoods of producers and their families is affected by poor yields and low incomes.

14. At the same time, producers and authorities are highly interested in increasing coffee and cocoa production through a *Development Program* aimed at increasing coffee 3.7 times and cocoa six times without increasing farming areas by sustainably improving the agroecosystem productivity. Increasing national coffee production up to 32 100 tons and cocoa to 5 042 tons would place Cuba among the leading coffee producers and exporters in the Caribbean, thus generating significant export profits, which would revive the agricultural sector and improve households? and communities? incomes in the Cuban mountains.

15. Cuba?s **livestock** sector has the largest herd in the Caribbean. Its Development Program intends to replace current imports of around 100 000 tons of powdered milk and achieve national self-sufficiency by 2030 in beef production, which now barely meets 61 percent of the demand. Granma province (with five Project municipalities) is the Eastern province with the highest livestock production. In the pre-mountain zone, significant herds are mainly devoted to municipal self-sufficiency. However, municipalities like *Jiguan?, Pil?n, Bartolom? Mas?* and *Guam?* (the four included in the Project) are able to produce beyond self-sufficiency also make significant contributions to the dairy industry and beef production. Pastoral systems are characterized by low efficiency and low milk and beef yields due to low quality and degraded pastures, insufficient water supply for animals and high soil degradation.

16. Coffee production is mainly developed in 36 municipalities of 9 provinces and the Isle of Youth, a ditinct municipality with 848 productive entities and 38 606 producers and workers. During the 1980s, production averaged 21 770 tons, and 1982 was the most productive year with 28 170 tons. In 2018, 8 667 tons were produced in 65 671 hectares. Cocoa is grown in 11 municipalities of 4 eastern provinces, 55 cooperatives are exclusively devoted to cocoa. During the last ten years, production has fluctuated between 1 400 and 1 800 tons. The Baracoa municipality is the largest producing area in the country, concentrating around 60% of the regions. Approximately 9 300 hectares are devoted to coconut crops, 91% of them located in Baracoa.

17. Cuba has a population of 11 193 470 inhabitants**[18]**[18] , of which almost 77 percent is urban. The country has more positive social development indicators than its income level predicts. It is ranked 72 in the international ranking of the HDI 2019, directly linked to the values ??achieved in Health and

Education, even though it ranks 116 in the world (out of 189 countries) by gross national income (GNI). During the last five-year period, the GDP annual growth average has not exceeded the 2 percent annual average and therefore does not meet the higher development needs demanded by the country. The confluence of the Covid pandemic and the economic sanctions the country is subject to, within a context of global crisis and readjustment of the national economy, have resulted in the year 2020 closing with a negative GDP of 11. The economy depends significantly on services, followed by industry and agriculture ?the productive sector employs the largest number of workers (902 000 persons representing 17 percent of total workers).

18. Agriculture occupies 6.3 million hectares (out of a total area of ??10.9 million hectares)**[19]**[19], of which 1.2 million hectares are devoted to seasonal crops, 1.5 million hectares to permanent crops and 3.7 million hectares to livestock. The main agricultural products include sugar cane, citrus and other fruits, rice, beans, bananas, tobacco, coffee and cocoa. The last three crops, together with forestry and livestock, constitute the main economic activities of the mountain municipalities within the Project intervention areas. (See Areas 1 and 2 above).

19. Given Cuba's climate and topography, coffee and cocoa have traditionally been shade-grown in the mountain and humid zones, mainly in the Eastern region characterized by its optimal conditions: mean temperature of 20-25 ? C and annual precipitation 1 800 ? 2 000. These production areas coincide with high-value environmental and conservation ecosystems on which coffee and cocoa production have a negative impact.

20. The selected project municipalities account for 38 percent of the national coffee production, 64 percent of the cocoa, 91 percent of coconut, and nearly 50 percent of the cattle production from eastern Cuban mountains. The municipalities selected by the project concentrate more than 90 percent of the country's coconut production, with greater participation in Baracoa (85 percent of the national total).

Project selected municipalities	Project target crops and animal species				
	coffee	cocoa	coconut	cattle	sheep
Guisa	x	x		x	x
Buey Arriba	x	x		x	x
Bartolom? Mas?	x			x	x
Guam?	x	x		x	x
Mais?	x	x		x	x
Baracoa	x	x	x		x

21. Currently, coffee and cocoa productions and yields are depressed (0.2 tonnes/ha of coffee and 0.33 tonnes/ha of cocoa). The agro-ecosystems are highly degraded due to hurricanes, the siege of plagues and diseases, and unsustainable management. Similarly, coconut plantations have recently been affected by several hurricanes, pests and diseases, as well as unsustainable practices (monoculture).

Consequently, the livelihoods of producers and their families are affected by poor yields and low incomes.

Coffee

22. The coffee production is made of two species (Coffea arabica L. and Coffea canephora Pierre ex A. Froehner); Twenty varieties for the Arabica species and 14 for the robust. It is mainly concentrated in 4 ex-situ collections for a total of 65 681 ha of plantations, located in the central coffee-growing mountain massifs: Sierra Maestra (49 percent of the total area), Nipe-Sagua-Baracoa (41 percent of the total area), Guamuhaya (7 percent of the total area) and Guaniguanico (3 percent of the total area). The investments of the coffee program are located in four zones with agroecological potential. The country's production is in the 34th position in the world ranking of coffee producers, where it has remained since the period 2014-2019 over the target of 100 000 bags of 60 Kg produced annually.

23. The productive base of coffee in Cuba is composed almost entirely by the cooperative-small farmers' sector with the participation of farmers grouped in agricultural production cooperatives (CPA), credit and service cooperatives (CCS), basic cooperative production units (UBPC).) and independent farmers. Therefore, coffee production is fundamentally in the hands of private and cooperative actors, with about 93 percent of it.

24. The State, for its part, has the monopoly of the national roasting industry and centrally carries out the industrial activities of roasting, grinding and packaging of processed coffee, including the commercialization of coffee in the national market, as well as its export. It is considered that the coffee production in Cuba has a guaranteed market, both national and international, for the expected production increases.

25. This entire production process is accompanied by the MINAG Agroforestry Research Institute (INAF), in charge of research and development related to the cultivation, genetic improvement, production and processing of coffee.

26. Cuba is an atypical coffee-growing country with high national consumption of this product, so that of the total national production, only about 10 to 15 percent is exported. Given the limitations and decline that mountain coffee production has had in the country, MINAG has recently launched a set of actions to increase cultivation and improve technology with the "Coffee Development Program to 2030". The strategic objectives of this program focus on the sustained increase in the production and quality of coffee destined for external and internal markets under the principles of sustainable development of the ecosystems in which the production chain operates.

Coconut

27. Coconut production is concentrated in the country's mountainous areas, mainly in the eastern region and the Baracoa municipality (Guant?namo province), although its cultivation has spread throughout the country. This Guantanamo territory is characterized by a significant predominance of mountainous areas with 95 percent and a slope of more than 15 percent, which gives it unique conditions to concentrate more than 85 percent of the national coconut production. At present, 23 percent of the arable area of ??the municipality is dedicated to the cultivation of coconut trees. The

historical record for the collection of coconut was reached in 1990 with 27 600 tonnes (27 000 of them in Baracoa).

28. Currently, there is a decrease in coconut production due to the economic crisis that the country experienced in the 1990s and other reasons such as climatic problems and lack of productive inputs. After the effects of Hurricane Mathew in 2016, the plantations were practically devastated. In 2018 a total of 252 tonnes was achieved.

29. To date, 84 percent of the coconut production area is in production, while climate and soil characteristics are favouring its cultivation. According to current regulations, coconut as a product is certified while there is culture and tradition for its cultivation.

30. The value chain is characterized by its notorious obsolescence. Frequent breakages and repairs to vital parts of the machinery also interfere with production. It is important to note that 53.6 percent of the workforce is female.

31. Despite these results, the country opts to develop this value chain, which is reflected in the MINAG Development Program for 2030. This venture is fundamentally based on the high demand for oil to substitute imports. Similarly, it is considered that there are potential clients for coconut and oil in the foreign market, local clients with the capacity to use coconut water to produce derivatives, among others. Additionally, there are different projects for the exploitation of coconut wood. The coconut chain acquires greater relevance by incorporating other actors that add value to raw materials that otherwise impact negativily on the environment and are currently not used due to their progressive accumulation.

Cocoa

32. Cocoa (*Theobroma cacao L.*) is grown in state and non-state production systems, the private sector being the most important. The production is sustained based on 16 varieties and national commercial hybrids.

33. This value chain is characterized by high technological obsolescence. The raw material cocoa processing is carried out with an efficiency of 78 percent, with frequent stoppages due to breakages caused by technical problems in the essential equipment: sorter-cleaners, roasters and crushers. The historical record for the collection of cocoa was reached in 1 989 with 2 240 tonnes.

34. The country projects to collect about 5 100 tonnes of cocoa in 2 030 from progressive yield growth ? from 0.06 tonnes/ha to 0.82 tonnes ha. This projection aims to maintain around 17 percent of what is collected as export while the remaining 83 percent will go to the national confectionery industry. The projected increases respond to the need to cover the demand for cocoa by the national confectionery industry to substitute imports, as well as the existence of potential clients for cocoa and its derivatives in the foreign market.

Livestock

35. The livestock sector in Cuba has the largest herd in the Caribbean and its development program intends to replace current imports of around 100 000 tonnes of powdered milk and achieve national self-sufficiency in beef production by 2030, which now barely meets 61 percent of the demand. The Granma province (with 3 Project municipalities) is the Eastern province with the highest

livestock production. In the pre-mountain zone, significant herds are mainly devoted to municipal self-sufficiency, though municipalities like *Bartolom? Mas?* and *Guam?* (both included in the Project) are able to produce beyond self-sufficiency to also make important contributions to the dairy industry and beef production. Pastoral systems are characterized by low efficiency, low milk and beef yields due to poor soil quality and degraded pastures, insufficient water supply for animals and important soil degradation.

36. Highest yields of meat production were achieved in the 1960?s, when 427 000 tonnes/ft were produced. During the 1990?s and with the economic crisis suffered by the country, an accelerated decrease in production was experienced, which went to 272 000 tonnes, turning a system of high intensity in resource use and of high productivity to one that as a result of the economic situation, is more of the pastoral based and with less input use and low productivity.**[20]**[20]

37. From 2011 to 2016 the livestock sector has stabilizedt at 4 million heads (90 percent managed by non-state companies). In the same period, cattle deliveries for slaughter have grown by 25 percent to reach 495 thousand head in 2016, with an average weight that has remained around 335 kg. This growth rate shows different trends depending on the forms of production. Despite these increases, beef production remains well below demand, and had since 1970 been replaced by other meats in the diets of the population. At present, this deficit has been accentuated, being replaced fundamentally by imported poultry meat, and to a lesser extent by other meat substitutes, also imported.

38. Currently, the government has committed to developing livestock and is financing programs and projects to promote the sector. By 2030, production is expected to increase by 52% to reach some 220 thousand tonnes , representing a significant challenge from an environmental point of view.

39. According to the projections made in the Third National Communication (2020), cattle farming will develop in an adverse climatic environment, where significant impacts of climate change will severely affect livestock productivity. These impacts are associated with a generalized decrease in feed availability due to the decline of biomass production potential in pastures, insufficient water availability for animal consumption and other technical uses, and the progressive reduction of the duration in days of the phenological phases of essential crops, such as pastures.

40. Regarding pork production, temperature increases negatively affect productivity and may cause death from heart attack. In addition, climate change could cause reproductive infertility, gastrointestinal diseases in chickens and pre-fattening animals; and decreased appetite in fattening animals and milk production in breeders.

Table 7. Socio Economic Characterization of the Project Municipalities

Province	Municipality	Area (km?)	Population	Area for Economic activities (Thousand ha)	Economic activities and involved organizations

Guant?namo	Baracoa	974,36	79 797	Agricultural: 21 (19 of them are cultivated) Livestock: 2,4 Forestry: 72,6	The main economic activities developed are agriculture, livestock, hunting, silviculture, manufacturing industry, mininig, quarrying, tourism. Coffee, cocoa and coconut production stand out. There are industries for chocolate, coconut oil and activated charcoal. **Organizations:** There are 92 organizations in total dedicated to agricultural and silvicultural activities, two of them are from the sate and 90 are cooperatives (25 UPC, 24 CPA and 41 CCS)[21][21] . Out of the total, 74 organizations are dedicated to activives involving coffee, cacao and livestock.
	Mais?	523,31	28 709	Agricultural: 15,4 (11,6 of them are cultivated) Livestock: 3,6 Forestry: 33,7	The main economic activities developed are agriculture, livestock, fisheries and silviculture. Coffee and cocoa production stand out. **Organizations:** There are 61 organizations dedicated to agricultural and silvicultural activities. One of them is from the state and 60 are cooperatives (16 UBPC, 9 CPA and 35 CCS)[22][22], 49 are dedicated to coffee, cocoa, coconut and livestock.

Santiago de Cuba	Guam?	950,53	34 152	Agricultural: 35,9 (8,9 of them are cultivated) Livestock: 27,5 Forestry: 54,6	The main economic activities are agriculture, livestock (smaller livestock, particularly sheep), forestry, fishing, mining, manufacturing industry and, to a lesser extent, tourism. Cultivation of coffee and cocoa stand out. Organizations: 51 organizations dedicated to agricultural and forestry activities, of which one is a state entity, and 50 are cooperatives (14 UBPC, 11 CPA and 25 CCS)[23][23], 41 are dedicated to coffee, cocoa, coconut and livestock.
Granma	Guisa	592,29	46 879	Agricultural: 28,7 (22,1 of them are cultivated) Livestock: 8,0 Forestry: 25,1	The main activities are agriculture, livestock (developing artificial insemination to seek greater performance of the breeds) and forestry. Coffee cultivation predominates. Meats, grains, fruit trees, vegetables and milk are produced; as well as pastures, increasing protein plants such as moringa, mulberry and tictonea. **Organizations:** 58 organizations dedicated to agricultural and forestry activities, of which two are state entities and 56 are cooperatives (14 UBPC, 20 CPA and 22 CCS)[24][24], 46 are dedicated to coffee, cocoa, coconut and livestock.

	Buey Arriba	477,79	31 319	Agricultural: 16,8 (9,2 of them are cultivated) Livestock: 7,7 Forestry: 26,5	The main economic activities are agriculture, livestock and fishing. Cultivation of coffee and cocoa predominates as well as tobacco; viands and fruits such as mango, used for the production of preserves. Crafts and blacksmithing are also developed. **Organizations**: 51 organizations dedicated to agricultural and forestry activities, of which 4 are state entities and 47 are cooperatives (15 UBPC, 8 CPA and 24 CCS)[25][25], 41 are dedicated to coffee, cocoa, coconut and livestock.
	Bartolom? Mas?	637,93	48 436	Agricultural: 29,8 (15,9 of them are cultivated) Livestock: 11,9 Forestry: 27,9	The main economic activities are agriculture, forestry, sugar industry and construction materials, tourism, and fishing, with the country's largest breeding and nursery centre. Cultivation of coffee, sugar cane, rice and fruit trees predominate. There is a poultry farm, also cattle, sheep and horse farming, as well as beekeeping. Organizations: 67 organizations dedicated to agricultural and forestry activities, of which three are state entities and 64 are cooperatives (19 UBPC, 15 CPA and 30 CCS)[26][26]. 54 are dedicated to coffee, cocoa, coconut and livestock.

Global environmental problem

41. The main environmental problem in the project area is the increasing fragility of mountain and pre-mountain ecosystems resulting from unsustainable agricultural and livestock management practices.

42. Coffee, cocoa, coconut crops, and livestock are the primary sources of environmental degradation in Cuba?s Eastern mountains. Ecosystems are affected by habitat loss, fragmentation and pollution. The situation is exacerbated since producers and authorities are increasing coffee and cocoa production through an ongoing Development Program, which aims to increase national coffee production 3.7 times and cocoa six times (coffee production up to 32 100 tonnes and cocoa up to 5 042 tonnes). As a result, this may imply a significant increase in farming areas if the agroecosystem productivity is not managed sustainably. The same applies to the livestock sector, for which a 52 percent production increase is foreseen by 2030.

43. Causes lie in unsustainable development plans in agriculture and livestock. The inadequate selection of species used as shade trees for coffee and cocoa crops has contributed to the degradation of biodiversity and ecosystems. The mono-cropping patterns have intensified the agro-ecosystem vulnerability against external factors of either biotic or abiotic nature. The use of chemicals in agriculture has harmed wildlife diversity, pollinators, beneficial soil bacteria (for fixing nitrogen in plants), and biological pest control organisms. Post-harvest management (i.e. coffee pulping) causes organic pollution, damaging watersheds, associated ecosystems and biodiversity. The inadequate management of the soil has led to accentuate the erosion processes in places with high slopes and cause effects on the edaphic fauna. Mountain forests are being cut down at an alarming rate and replaced by monoculture coffee plantations. Deforestation and monoculture have led to more significant loss of habitat and a reduction in the biodiversity of insects, animals and plants.

44. Coffee production degrades ecosystems and watersheds via improper management and poor use of waste pulp as well as the generation of high volumes of liquid waste due to the use of highly water-consuming technologies in traditional pulping plants, due to the lack of recirculation systems or the poor state of these in ecological pulpers, in addition to the existence of waste treatment systems with inadequate technical-constructive conditions. This causes pollution and impacts the biodiversity of rivers and streams, especially freshwater fauna, which is remarkably diverse in the Eastern zone. It is home to the largest number of endemic fish and amphibian species, many endangered. The wet coffee processing generates polluting effects on ecosystems and hydrographic basins due to the inadequate management of waste and the dumping of residuals without adequate treatment. Traditionally, the coffee pulp resulting from the benefit is dropped into the water currents, generating a considerable increase in the biochemical oxygen demand, an increase in the total solids load, water temperature, generation of odours, and loss of visual quality. It is a form of severe water pollution that occurs during harvest times and makes it impossible to use water for aqueducts, affects aquatic fauna and limits recreational uses. The *Coffee Development Program* (Government-funded) intends to increase production up to 32 100 tonnes by 2030. While achieving this objective, 44 960 tonnes of waste could emerge from pulping (husks and mucilage) and 11 717 tonnes of solid waste. Current practices are already inadequate regarding post-harvest waste management, and thus this increase in production would constitute an environmental hazard.

45. Cocoa cultivation produces lower pollution than coffee and causes damage due to chemical products and shade management. Though wastes associated with cocoa production are not significant, their management certainly demands improvement compared with coffee production.

46. Coconut plantations produce high amounts of residuals that are not used (outer coat, shell, stalk) and cause pollution, further accentuated by their slow decomposition. The technology for the use of copra, through the Malaysian kilns, generates polluting gas emissions into the atmosphere, mainly the burning of the biomass of the fruit, affecting its quality and commercialization; it also produces the loss of raw material that could be used in other industrial uses. The lost coconut water could be used to make wine and vinegar and for animal feed. Furthermore, coconut plantations are developed in the form of monoculture, with poor biodiversity and low natural resilience. Another environmental problem associated with this chain is the dumping of unused coconut products (outer coat, shell, stalk and coconut water) and burning the shell as biofuel. There is a risk of fires from burning coconut for dehydration. These productions are strongly affected by pests and diseases, as well as natural disasters. Problems with the workforce are also associated.

47. Livestock production has historically depended on clearing forested areas, which has caused habitat fragmentation and direct loss of biodiversity. Furthermore, livestock management is based on pasture monocultures, uncontrolled grazing of sheep to natural areas, overgrazing that affects the soil and its edaphic fauna, and the poor use of shade trees silvopastoral systems. Livestock is also a significant source of pollution in the mountains due to poor management and use of residuals.

48. Uncontrolled grazing in natural areas and overgrazing have affected the soil and its edaphic fauna. Footprint damage has intensified soil erosion, especially in more humid areas with high water saturation, where vegetation cover is easily destroyed by trampling. The deficient use of shade trees and silvopastoral systems has caused the soils in these areas to become more vulnerable to deterioration processes due to erosion or compaction, reducing their productive capacity.

49. Additionally, in these areas, biodiversity is also threatened by natural disasters, the impact of development plans from other economic sectors, pests, specific deforestation processes, forest fires and unfavourable environmental conditions worsened by climate change.

50. Future projections show a hotter, drier, and more extreme climate by the end of the 21st century. According to forecasts made in the Third National Communication (2020), it is expected that climate change will cause severe problems to Cuban agriculture. The average annual air temperature in Cuba could be higher than 1.0 ? C by 2030 and 3.5 ? C by 2070, in comparison to the reference period 1961-1990. This scenario includes a rainfall reduction by 10 percent in the rainy season, which would trigger a series of threats to agriculture and food security, such as: increasingly severe and frequent extreme weather events, pests and diseases outbreaks.**[27]**[27]

51. Overall, eastern areas of the country will be at higher exposure to river floods, urban floods, cyclones and wildfires (TH, 2020). In addition, the length of the growing cycle is likely to be reduced by 0-10 days year-1, while dry spells are expected to increase by 10-20 days year-1, particularly in eastern parts of the country (CITMA, 2015; WBC, 2020). Due to sea-level rise (1.43 mm year-1 since

1966 and 0.5-0.6 m expected rise by 2100), coastlines will continue to recede by 1.2 m year-1 (IPCC, 2014; CITMA, 2015)

Key Biodiversity Areas and Expansion of Agricultural Activities in the Sierra Maestra and Nipe-Sagua-Baracoa Regions

52. The territories declared as Key Biodiversity Areas for Conservation of Birds and Biodiversity (KBA Turquino-La Bayamesa) in the Sierra Maestra region occupying an area of 48 519.14 ha, of this total, 5 133.28 ha (10.58 percent of the KBA), are located within the municipalities of interest of the project. The land use structure in this area shows the weight of temporary crops and livestock, contributing to the degradation of ecosystems and the loss of biodiversity if sustainable management practices are not implemented (Table 8).

Table 8. Structure of land use in the municipalities of interest of the project in the Sierra Maestra region located in KBA

Concept	Land use				Total
	Livestock	Temporary crops	Permanent crops	Idle lands	
Area (ha)	2172,19	2645,75	206,14	109,21	5133,28
Percentage of KBA	4,48	5,45	0,42	0,23	10,58
Area of KBA (ha)					48519,14

Source: Prepared by the authors from: ONEI (2019). Statistical Yearbook of Cuba. Edition 2020. La Habana, and Anad?n-Irizarry, V. et al 2012

53. The land use structure in the Nipe Sagua Baracoa region concerning the coincidence space with the Alejandro de Humboldt KBA differs from that observed in the Sierra Maestra region by the predominance of permanent crops. However, the magnitudes of areas dedicated to livestock and seasonal crops are not negligible (Table 9).

Table 9. Structure of land use in the municipalities of interest of the project in the Nipe-Sagua Baracoa region located in KBA

Concept	Land use				Total
	Livestock	Temporary crops	Permanent Crops	Idle lands	
Area (ha)	49	366,02	1171,34	226,66	49
Percentage of KBA	0,07	0,52	1,66	0,32	0,07
Area of KBA (ha)					70625,98

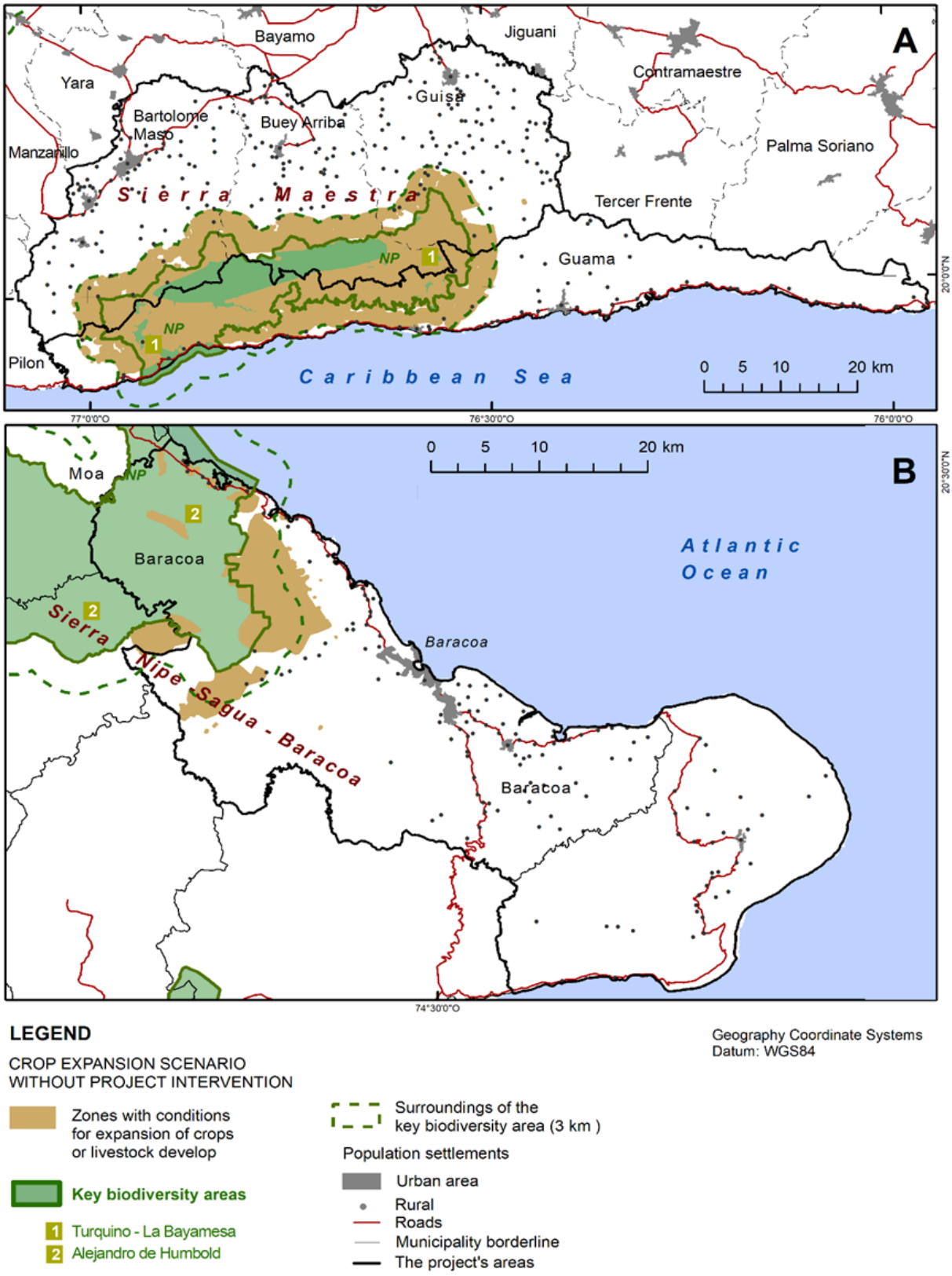
Source: Prepared by the authors from: ONEI (2019). Statistical Yearbook of Cuba. Edition 2020. La Habana, and Anad?n-Irizarry, V. et al 2012

54. The KBAs are embedded in territories that, given specific economic policies to encourage agricultural development, may experience pressures that affect these ecosystems and their biodiversity.

The conflict of interest represented by the approved land-use changes in the National Scheme of Territorial Organization to 2030 for KBA conservation, with proposals to expand the coffee, cocoa and coconut crops, and livestock towards the mountainous massifs of the project's regions of interest, show the need to take actions aimed to prevent damage to these fragile ecosystems biodiversity.

55. As shown in Figure 3, without the project's intervention, key biodiversity areas for conservation would be affected by the expansion of agricultural activities in the Popular Councils of the municipalities of Bartolom? Maso, Buey Arriba, Guisa, Guama and Baracoa.

56. **Figure 3.** Scenarios of impacts over KBAs due to the expansion of agricultural activity, without the project's intervention in the municipalities of the eastern region of Cuba.



Source: Prepared by the authors from Sentinel 2 images of the year 2020

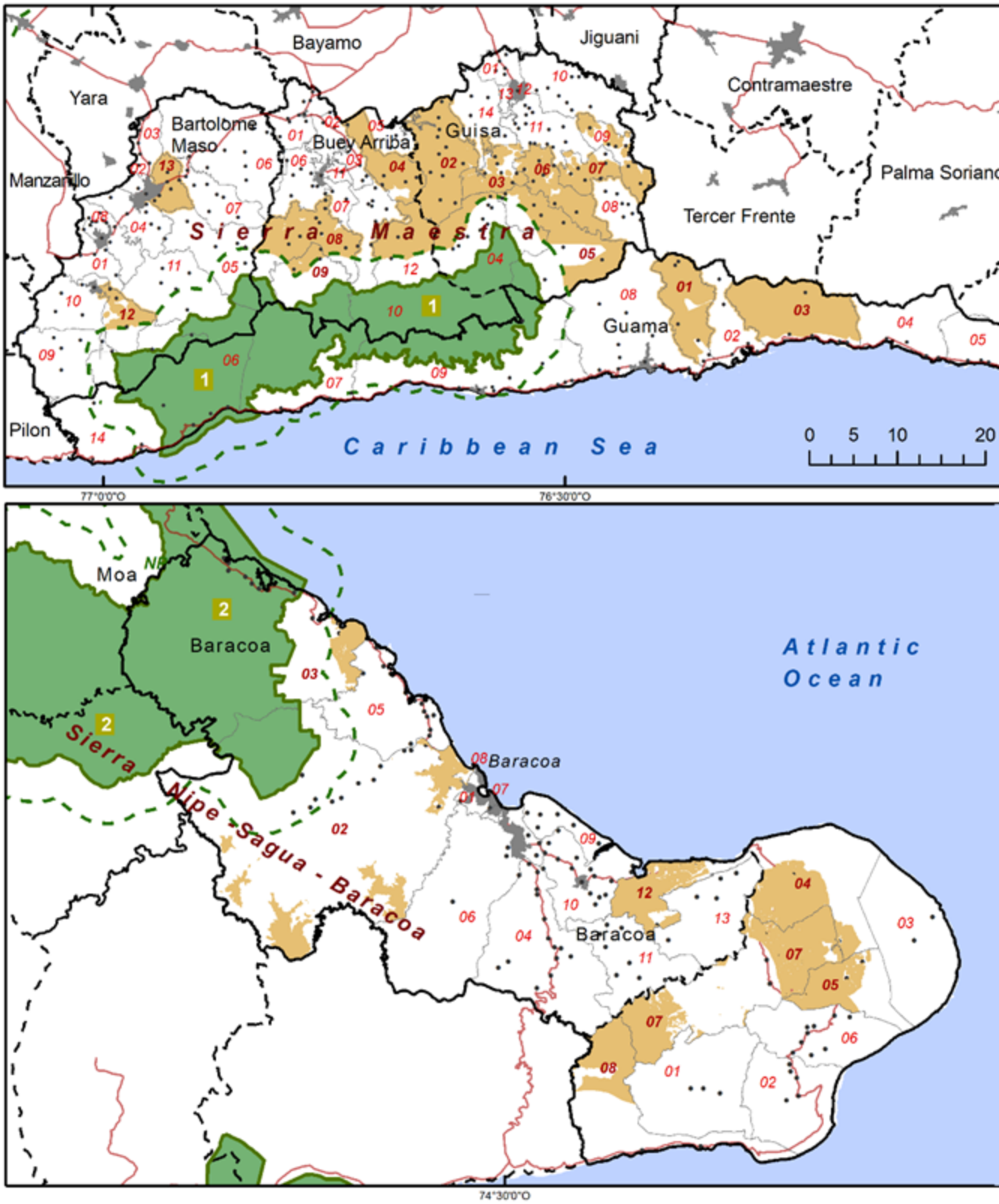
57. The situation can be overcome, considering the proposal in Figure 4. where a territorial scenario is proposed based on the analysis of the existing possibilities of expanding the proposed agricultural activities (according to the Government programs) without affecting KBAS. This approach considers the agricultural productivity conditions of the soils and the agrotechnical requirement of crops, the availability of water resources, the location in less rugged terrain, and the existence of idle lands, which are positive factors present in a unique environment that requires actions to reduce its socioeconomic deterioration due to its complex demographic dynamics. Assessing these conditions and processes can contribute to the preservation of the KBAs and, at the same time, improve the living and working conditions in both regions.

58. As for the studied municipalities, ? the "Code" column comprises detailed recomendations based on the assessment of the requirements mentioned above and the conditions of the areas that can contribute to the development of agricultural production in both regions without affecting KBAs.

59. Figure 4 shows suitable areas for coffee and cocoa crops and livestock expansion in territories located in the north and central part of the Bartolom? Mas? and Buey Arriba municipalities. In the popular councils Loma de Piedra and Valle Grande, located in the north of the Guisa municipality, there are similar conditions for developing these agricultural activities. In the Guam? municipality, these favourable conditions are found in four popular councils located in its eastern portion.

60. In the Nipe Sagua Baracoa region, said favourable conditions are present along the entire coast of the Baracoa municipality, in its central and eastern portion and towards the interior of the territory of the popular Cayo Guin, La Asunci?n, La Reforma, 30 Aniversario, Mandinga, Jamal and Cabac? councils. In the Mais? municipality, favourable conditions for the expansion of coffee, cocoa and coconut crops, and livestock, without affecting the KBA, are found in the northern portion of the La Tinta, Cantillo and La Asunci?n popular councils, reversing their present economic and social deterioration condition.

Figure 4. Crop expansion scenario with Project intervention in the municipalities of the eastern region of Cuba.



LEGEND

CROP EXPANSION SCENARIO WITH PROJECT INTERVENTION

Zones with conditions for expansion of crops or livestock develop

Key biodiversity areas

Surroundings of the key biodiversity area (3 km)

Population settlements

Urban area

Rural

Roads

Municipality borderline

Geography Coordinate S
Datum: WGS84

Source: Prepared by experts from the Faculty of Geography of the University of Havana using Sentinel 2 images from 2020

61. Despite the efforts made by the Government of Cuba and development partners, barriers still hinder the sustainable management of mountain landscapes in the country:

62. **Barrier # 1: Production policies and practices are not environmentally friendly.** Production priorities are rarely aligned with biodiversity conservation and sustainable use of natural resources in Cuba. Unsustainable agricultural practices are predominant and affect soil functions, accelerating the degradation processes (e.g. erosion), reducing the edaphic fauna, and reducing land productivity. Riverbanks are not completely forested in mountain agro-livestock systems, increasing run-off and sedimentation and affecting water quality and water biodiversity. Pollinators and natural controllers are affected by largely unsustainable agricultural practices. The country does not have management programs that could guarantee the successful integration of pollinators in agro-ecosystems and experiences of reproduction and controlled management of some species. The Integrated Pest and Disease Management programs - and their chapters of biological controllers - fall short of incorporating the potential of living species and are outdated. The overexploitation of land use capacity and unsustainable management practices in livestock and conventional agriculture have led to a robust natural depletion of soil, water and forest resources. Ecosystems are affected by fragmentation, soil degradation, loss of forest cover and biological diversity, and soil and water contamination. In the mountainous areas of Cuba, where there is high ecological fragility and intense agricultural activity, inadequate management methods have caused severe environmental alterations, accentuating erosion processes. Unsustainable farming practices are main the cause of pests and diseases. The country does not have management programs that could guarantee the successful integration of pollinators in agro-ecosystems and experiences of reproduction and controlled management of some species. The Integrated Pest and Disease Management programs - and their chapters of biological controllers - fall short of incorporating the potential of living species and are outdated

63. **Barrier # 2: Local technical capacities are limited.** The National Network of Laboratories has developed new production lines with biological control methods. However, both local government officers and producers have low to zero capacities to apply these methods at the field level. In addition, sustainable production models have not been downscaled. Consequently, BD mainstreaming and natural resources practices have not been replicated nor upscaled, nor have they been included in the training of small-scale farmers. Local capacities on tree, plant and associated species management are also limited. This limitation tends to diminish biodiversity, negatively affects the functioning of agroecosystems, and binds the functions of pollinators, biological control, and soil conservation. The technical and productive components predominate in the design and implementation of agricultural development strategies, without the necessary articulation with the social dimension that considers the potentialities, limitations and expectations of those in charge of launching and advancing any proposal of change.

64. **Barrier # 3**: **Low institutional capacities and deficient inter-institutional coordination.** The governmental agencies responsible for regulating, monitoring, and assessing natural resources management have limited technical capabilities. There is a lack of inter-institutional management, and there is no harmonization between the production and the conservation-oriented objectives and interests. There are no inter-sectorial mechanisms that mainstream integrated landscape management /

sustainable agriculture practices / social development in the fragile mountain and pre-mountain areas. Furthermore, sectorial rules and regulations are not updated, and there are non-sectorial norms to protect biodiversity in agricultural and livestock production areas.

65. Barrier # 4: Sustainable agricultural practices are not valued/appreciated by producers and are not considered commercially viable. Value chain assessments are insufficient, and there are no incentives to develop new products in existing value chains or develop sustainable value chains. There are neither certification systems nor denomination (s) of origin in place or traceability systems. Consequently, producers have no direct interest and incentive to invest in sustainable management practices, and the industry has no incentive to invest in sustainable value chains. Therefore, producers are affected by the loss of income and low market prices, diminishing their trade and commercialization potential. The producers are not aware that the benefits derived from applying sustainable practices in agriculture and livestock go beyond the improvement of environmental quality and the guarantee of conservation of the natural environment, leading to substantial economic benefits and production systems more resilient to climate change. Similarly, the competitive advantage in marketing a quality product with an environmental protection component that could confer added value to production is not appreciated.

66. **Barrier # 5: Updated information is lacking, and the science/policy/production interface is weak**. In general, biodiversity has been deeply studied in Cuba, with critical results in a wide variety of species. However, many plant taxon and animal breeds have not been assessed. This lack of information prevents these species from being protected through integrated landscape management. Knowledge gaps are related to ecological groups, their trophic chains, and inter-specific relations. There are neither inventories nor assessments of the accompanying flora and fauna, the state of soils, edaphic fauna, and water resources. Small-scale farmers do not have access to forest restoration methodologies applicable in productive landscapes. Consequently, the associated species/breeds are not valued, recovered, or supported by the fragile mountain and pre-mountain agroecosystems. The articulation of knowledge and the logic of action between producers, technicians and managers is weak.

The baseline scenario and any associated baseline projects.

67. The mountains of eastern Cuba are the main niches for coffee, cocoa and coconut production in Cuba. These agricultural productions, along with local livestock, significantly affect biodiversity by directly contributing to soil degradation, the loss of biological biodiversity, and the decrease in the services provided by ecosystems in these mountainous massifs. A situation that can worsen if current production practices are maintained in the growth scenarios planned to promote said productive lines in the short and medium-term. Cuba is the Caribbean island reporting the highest percentage of endangered species. Regarding flora, of 4 627 taxa evaluated (around 66.6 percent of the Cuban flora), 46 percent face some degree of threat, 22 extinct taxa, three regional extinct, 570 critically endangered, 249 endangered, and 151 are vulnerable. Of the 165 species of vertebrates in Cuba found in the different categories of threatened species, 52 are critically endangered, 42 endangered and 63 vulnerable, where the group of amphibians and reptiles stands out. As for terrestrial invertebrates, molluscs constitute the most threatened group, with 41 vulnerable species, ten endangered and 29 critically endangered (6th Cuba Report to CBD, 2019).

68. The mountainous massifs where the project intervenes: The Nipe-Sagua-Baracoa and Sierra Maestra are considered among the most critical diversification centres in Cuba and the insular Caribbean due to their exceptional value and important biological groups hosting both flora and fauna, with a very high level of endemism. They are also home to the principal water reserves in the country. In these areas, there are ten designated KBAs. The project areas are also part of an important biological corridor (Caribbean Biological Corridor). The land is devoted to conservation; forestry activities and livestock, coffee, cocoa and coconut production; other crops like fruits, bananas, tubers and vegetables mainly for self-consumption and local distribution. There is a high potential for the integration of agro-ecosystems into natural ecosystems and gene-flow, connectivity improvement, and ecosystem services.

69. The Cuban government has shown political will and makes great efforts to ensure that the agricultural and livestock sector development occurs sustainably. To this end, significant investments support projects and programs to promote the sector while adapting the legal and regulatory framework for this purpose. However, both programs and investments still do not fully consider issues related to the conservation of biodiversity. In that sense, additional efforts are required, including investments in institutional capacities, human capital and economic provisions, for its most effective implementation, with the broad participation of coastal communities, especially women and youth.

Legal basis and existing regulatory framework

70. Cuba has a significant legal and regulatory framework regarding the environment. Some of the most relevant Cuban laws include Law No. 81/1997 on Environment, which provides the principles that govern environmental policy and the basic rules for the conservation of biological diversity, and agricultural and forest soils. It fosters the development of integrated management systems of cultivated ecosystems to ensure agricultural sustainability. Forestry Law No. 85/1998 provides the general principles and regulations for the protection, increase, and sustainable development of forest heritage. Decree-Law No. 179/1993 on Soil Protection, Use and Conservation, the primary legislation in this matter, establishes the priority for the agricultural use of soils with this vocation and control over the protection, use, and conservation, improvement and rehabilitation of soils.

71. Other relevant legal norms are Law No. 124/2017 of terrestrial waters, which provides the basic principles that govern the integrated and sustainable management of terrestrial waters, the protection, security and conservation of hydraulic infrastructure, the management of basins, hydrographic data, the rational use of water and its reuse, the prevention and reduction of water pollution, the treatment of wastewater, as well as the granting of concessions and authorizations related to the management of terrestrial waters; Decree No. 337/2017, Regulation of Law No. 124 on terrestrial waters, which establishes the rules for the application of Law No. 124 ?On Terrestrial Waters?, Decree-Law 201/1999 on ?The National System of Protected Areas ?that provides the basic objectives of the National System of Protected Areas (SNAP), the SNAP legal framework, the categories of protected areas, proposal and declaration requirements, the protection regime and licensing requirements to authorize activities in said areas; Decree No. 329/2015, on the Commissions of the Turquino Plan, which regulates the care of fragile mountain ecosystems by linking environmental criteria under an economic-social development scheme, and Decree Law 200/1999, on Environmental Contraventions Environment, which establishes the acts or conducts that constitute environmental violations.

Environmental baseline and its connection with agriculture

National level:

72. National Strategy on Biological Diversity (ENBIO, 1999). The version set out in the ENBIO Action Plan (2006-2010) and the current version set out in the National Program on Biodiversity (2016-2020) follow the Strategic Plan for Biodiversity 2011-2020 adopted by the Convention on Biological Diversity (CBD) and is in line with the 20 Aichi Biodiversity Targets. The National Environmental Strategy constitutes an essential tool for implementing Cuban environmental policy and a general framework that includes the definition of the main environmental problems of the country, the strategic objectives and the main goals for 2020. The main environmental problems have defined the loss of biological diversity and the deterioration of ecosystems. In this sense, five specific strategic objectives are projected to halting the rate of loss of Cuban biodiversity. The main objectives include addressing the underlying causes of biodiversity loss, controlling biodiversity threats, and promoting sustainable use.

Local level:

73. The 15 provinces and Isla de la Juventud special municipality have their own Territorial Environmental Strategies at the local level. In all cases, biodiversity loss, soil degradation processes, and forest cover impact constitute identifiable environmental problems for which specific objectives, targets, and actions need to be defined and further addressed. At the territorial level, main needs include strengthening diagnostic efforts, agreeing upon conservation and biodiversity use approaches, and reinforcing local mechanisms for their application.

74. Cuba has developed a National System of Protected Areas Plan and specific Management Plans for these areas. As a general rule, monitoring tools are developed within the scope of each institution and are not necessarily shared in a platform that facilitates decision-making.

75. The main baseline initiatives funded by the Cuban government aimed at countering biodiversity loss and the conservation and sustainable management of natural resources, especially soil, are as follows:

- ? The National Plan for Food Sovereignty and Nutrition Education (SAN Plan). Aimed at achieving work management of the Cuban State that facilitates the organization of local, sovereign and sustainable food systems that integrate the production, transformation, commercialization and sustainable consumption of food and promote a food culture and nutritional education.

- ? The State Plan to confront climate change (Life Task) constitutes a comprehensive proposal. The first identification of prioritized areas and places, their effects and the actions to be undertaken. In strategic efforts and the tasks of the State Plan, adaptation is prioritized, and attention is given to vulnerable ecosystems. It requires designing and executing a progressive investment program, short (2020), medium (2030), long (2050) and very long term (2100).

- ? The Turquino Plan is conceived as a program for the sustainable development of the mountainous territories of Cuba, which promotes economic and social development and the protection of the environment and natural resources of the mountain territories, based on self-sustainability as a development principle. Through it, the Ministry of Science,

Technology and Environment promotes practices for sustainable use of natural resources, the protection of forests, soil conservation, waste recycling, and the application of agrosilvopastoral techniques to increase food production and achieve sustainability of local communities. The socio-economic development achieved in the mountainous territories of Cuba is mainly due to the program developed by this Plan.

? National Forestry Development Program. Seeks to foster the development of new forest areas, the restoration of watersheds and vegetative buffer strips of streams and reservoirs, forest management and wildlife conservation, enabling the implementation of the National System of Protected Areas key conservation programs. This program also promotes planting trees in agroecosystems to increase wildlife reserves, as connectivity elements, windbreaks for the protection of crops, sources of timber and other purposes. Its main result is that it has contributed to increasing the country?s reforestation index from less than 15 percent in 1959 to 31.39 percent up today. The National Forestry Development Fund is the financing tool of the program; it has a national scope and allocates an annual average of 170 million USD.

? National Soil Conservation and Improvement Program (NSCIP) is implemented nationwide since 2000. It finances soil improvement and conservation actions carried out by farmers through a certification system. As of 2018, the program has benefitted a little over 900 000 ha (310 million USD), prioritizing the most degraded areas, fragile ecosystems and watersheds. This program advocates for compost to improve soil properties, the creation of soil erosion barriers, and integration with water and forest protection measures, among others. During the last nine (9) years, the PNCMS has focused its efforts on the system of soil, water and forest testing grounds as its main demonstration and training platform for the introduction and validation of new management technologies of these resources in municipalities and provinces, establishing farms as basic management units and watersheds as the physical-geographic space to be protected. Currently, there are 15 provincial testing grounds (one in each province) and one per municipality (some already operational and others still in the project stage). The program's annual budget exceeds 60 million USD.

? Coffee, cocoa and coconut development programs, with established subprograms for each crop, plan investments to increase production by boosting productivity significantly. The coffee development plan includes investments in infrastructure and the improvement of production and upgrade of equipment that will be self-financed by the sector revenues and national and international credits to increase production from 8 667 in 2018 up to 30 000 tonnes 2030. The cocoa development program seeks to increase production from an annual average of 1 578 tonnes during the last decade up to 5 548.6 tonnes by 2030. PROCAFE, a coffee investment project financed by the International Fund for Agricultural Development (IFAD), is currently in its preparation and approval phase for implementation in around 300 coffee-producing cooperatives in Eastern Cuba.

? The "Coffee Development Program 2030" of MINAG: many of the long-term policies or actions to be developed in this chain are included. This program aims to steadily increase the production and quality of coffee destined for external and internal markets under the

principles of sustainable development of the ecosystems in which the production chain operates.

? MINAG's Cocoa Development Program 2030: its general objective is to guarantee the sustainability of the cocoa production chain to increase national production. This program aims to: satisfy the demands of the national market and increase exports in a competitive way, consolidate the image of Cuban cocoa, improve the quality of the product delivered, contribute to the improvement of the producers' living conditions, counteract the erosive phenomenon of the soils in cocoa areas, rescue and strengthen the Cuban cocoa culture, among others. The fundamental actions included in this program are associated with a sustained increase in production, an increase in the technological level, a decrease in production costs, an increase in agricultural yield, an increase in the existing balance of areas, rescue of technical discipline throughout the chain, comprehensive work in quality management, genetic improvement work, and integrated pest management.

? Livestock has two Programs by 2030 for the development of the activity in the country: The Livestock Control Program, which seeks an individual identification that accompanies the animal throughout its life, and thereby guarantee the productive, reproductive, sanitary control and achieve traceability, a critical aspect in the management of foods of animal origin and, The Genetic Program, which contemplates the completion of the capacities defined in females for each breed, the improvement of the efficiency indicators in the breeds and species under improvement programs, as well as the contribution of the stallions demanded by the different herds and contribute with breeding stock to livestock development.

76. Other government initiatives with external financing:

? In partnership with the European Union and SDC, the Cuban government is implementing the "Environmental Bases for Local Food Sustainability Project" (BASAL), with funding of EUR 8.35 million from the European Union and CHF 5 million from SDC. UNDP is implementing it since 2013 with the participation of sixty national and local institutions. Its results include the diagnosis of water, soil and agricultural practices used, application of agricultural practices adapted to local conditions, optimization of energy and water use and strengthening of support services, the production of biofertilizers, integrated pest and waste management and establishment of mini-industries.

? Project: "Genetic improvement of dairy cattle in Cuba as a supplementary means of increasing the potential of milk production", with the participation of Belgium and financed by Vlaamse Interuniveritaire Raad- University Development Cooperation (VLIR-USO). The main objective of this project is to ensure capacity for the production of embryos using a combination of OPU-IVF techniques for the conservation of plant genetic resources. Financing of EUR 271 016 and co-financing of USD 500 000 (2016-2020).

? GEF 6 COBIMAS: The project's objective is to contribute to in situ conservation of a group of species, local races, and globally and nationally important varieties for food production and their wild relatives and the ecosystems that house them. It will be

implemented in three (3) areas of the Matanzas, Sancti Spiritus and Granma provinces -- given their value and importance for agriculture and natural biodiversity ? linked to four (4) protected areas. Conservation in situ will be done by using sustainable agricultural practices under the Save and Grow principle promoted by FAO that focuses on soil, which is of great interest for this Project.

? Project "Increasing the resilience of vulnerable rural households and communities through the rehabilitation of productive agroforestry landscapes in selected localities of the Republic of Cuba." (IRES). It aims to increase the climate resilience of agricultural production and guarantee food security through improved ecosystem services from landscape management by using agroforestry, silvopastoral systems, reforestation and assisted forest regeneration in seven municipalities vulnerable to climate change.

? Project "Landscape approach to the conservation of threatened mountain ecosystems" (EPMA-Cuba) This project is implemented from 2016 to 2022 and involves production entities and institutions of the agricultural sector mainly located in mountain areas and covers other aspects of biodiversity integration based on strengthening connectivity between landscapes and protected areas. It will contribute with significant experiences, especially those derived from Outcome 3: Production systems compatible with conservation and connectivity.

? Country Partnership Programme (OP-15) Supporting Implementation of the Cuban National Programme to Combat Desertification and Drought (NAP). Period: 2008 ? 2018. Training in the productive base on climate change threats expected for Cuba and the various soil erosion levels. This project is currently being implemented and is the third of five (5) projects that constitute the Country Pilot Partnership (CPP) of Cuba in support of Sustainable Land Management. It operates in the province of Villa Clara and is expected to continue until 2024. It will contribute with significant experiences in sustainable land management.

The proposed alternative scenario with a brief description of expected outcomes and components of the project and the project?s Theory of Change.

77. **Project Objective:** To reduce pressures on the 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.

78. **Project Strategy:** The Project will implement an integrated landscape management approach that will focus on rehabilitating key ecosystems that contribute to the resilience of agroecosystems and communities and diversifying production for self-consumption and local markets to increase socioeconomic resilience and reduce vulnerabilities. It will be based on FAO's work in two sectors: agriculture and livestock production. The project will benefit globally in important key biodiversity areas (KBA), currently under pressure from farming landscapes. It will involve local actors, especially

producers, from the design and throughout all the phases to guarantee its sustainability. The project intervention areas will cover the Sierra Maestra and East Guantanamo mountain ranges.

79. This project focuses on incorporating sustainable agricultural practices by articulating economic-productive, environmental and social interests in agroecosystems with high ecological vulnerability. Given the national strategy for the country's development lines for 2030, aiming to increase coffee, cocoa, coconut and livestock production, the project pursues an anticipated positioning in fragile ecosystems in six (6) eastern Cuban municipalities dedicated to these activities. The purpose is to apply and disseminate knowledge and valid practices for the sustainable management of natural resources, allowing for safeguarding the rich biological diversity existing in these areas.

80. Access to productive resources and knowledge in the sustainable management of natural resources; the articulated work of producers, technicians and decision-makers in the implementation strategy of the "Save and Grow" and "Climate-Smart Livestock Management" approaches promoted by FAO; and the establishment/strengthening of value chains with a sustainability approach, make up the strategy that will enable the project for the improvement of productive, environmental indicators and the living and working conditions of producers and local people, as main actors and beneficiaries of the change, with the consequent strengthening of local and national policies related to agricultural development and necessary to achieve greater sustainability in Cuban environmental management.

81. The participatory and social equity approaches in all phases of the project will promote the awareness of the different key actors, establish permanent dialogue spaces between them and the direct involvement of local populations in the joint construction of regional agendas for sustainable development management. It is also present on implementing the State Plan to Confront Climate Change - Life Task, the Food and Nutritional Sovereignty Plan (SAN Plan) approved in 2020, and the 2030 Agenda, by contributing directly and indirectly to the achievement of the Sustainable Development Goals (SDG).

The project strategy will adapt to the national context:

82. The FAO?s *Save and Grow* ecosystem-based approach, launched in 2011[28][28]. Sustainable crop production intensification provides opportunities for optimizing crop production per unit area, considering the range of sustainability aspects, including potential and/or real social, political, economic and environmental impacts. Recent trends would indicate that incorporating scientific principles of ecosystem management into farming practices can enhance crop production (yield). With a particular focus on environmental sustainability and an ecosystem approach, sustainable crop production intensification aims to maximize options for crop production intensification through the management of biodiversity and ecosystem services. The *Save and Grow* approach helps smallholder producers to boost yields, improve their incomes and livelihoods, conserve natural resources, reduce negative impacts on the environment, build resilience to climate change, and facilitate market access. *Save and Grow* is a collection of practices, many of which are organic.

83. Based on the *Save and Grow* approach, the project will promote ecosystem-based agriculture production that build on, and strengthen ecosystem services such as pollination, soil fertility, and

ecological management of pests and weeds, so as to reduce the environmental pressures of agriculture. Similarly, degraded landscape restoration processes will be supported.. Validated approaches and principles will be incorporated into the regulatory framework, policies and programs, training processes, and will contribute to strengthen governance and institutional capacities. Value chains impacting biodiversity and natural resources will be chosen and the that mitigate those design of innovative financial incentives and solutions impacts and incorporate an ecosystem-based approach, will be promoted. The exchange of knowledge and experiences resulting from implementation actions will contribute to the adoption of best practices for agriculture that mainstream biodiversity conservation and sustainable use of biodiversity and its ecosystem services.

84. The FAO?s Climate-Smart Livestock (CSL)[29][29] approach is based on two basic principles: (i) increased efficiency in the use of resources; and (ii) increased resilience and risk management at farm and systemic levels. Climate-smart methods and technologies offer solutions for mitigation and adaptation to climate change while achieving more sustainable productivity. Climate-smart livestock management investments improve productivity and incomes for producers and their value chains while decreasing greenhouse gas emissions from livestock and associated land use, improving management of ecosystem services and increasing the resilience of productive systems. They are based on increasing output while maintaining the same or even lower amounts of inputs per unit, enhancing the environmental impact and building resilience to climate change and other production threats. Typical examples include: improved grazing management e.g. decreasing stocking levels and rotational grazing; the use of improved pasture and agroforestry species, and the use of nutritious diet supplements particularly during periods of scarcity e.g. by-products, hay, or silage. Similarly, interventions aimed at improving animal health, such as appropriate disease management, vaccination programs and the use of more disease-resistant animals, will also improve animal productivity, and resilience. Other key measures include management of herd size and age structure, managed animal breeding: e.g. fertility diagnosis, early or temporary weaning; classification of animals by body condition; feeding levels aligned to body condition and requirements, grazing management. Through the use of all these, the livestock sector can make major contributions to food supply, reducing GHG emissions**[30]**[30], and preventing the expansion of the agro-livestock frontier into natural habitats. During full project preparation, the FAO?s *Principles for the assessment of Livestock Impacts on Biodiversity**[31]***[31] will be applied to further assess the baseline scenario and target specific actions for the project intervention areas. Kindly see Annex E for more details. actions for the project intervention areas. Kindly see Annex E for more details.

85. Focused on the goals agreed in the 2021-2030 United Nations Decade on Ecosystem Restoration led by FAO and UNEP, restoration actions will be promoted in natural and productive mountain and pre-mountain ecosystems, reinforcing resilience, reducing vulnerability and increasing the capacity of systems to adapt to daily threats and extreme events.

86. The project definition of restoration is based on FAO?s normative work (please refer to Position paper on ?Ecosystem Restoration? of production ecosystems, in the context of the UN Decade of Ecosystem Restoration 2021-2030? *https://www.fao.org/publications/card/en/c/ND425EN/*). In this line, specific guidance on the concept, needs and priorities for ecosystem restoration for forest landscapes, farming, and livestock-producing ecosystems, as the focus, scale, priorities and trade-offs of restoration interventions will differ between them. The restoration of producing ecosystems should primarily contribute to restoring these ecosystems to a healthy and stable state, so that they are able to support human needs for sustainable food production and livelihoods. The ultimate objective of these restorative efforts should be to reverse the trend in many unsustainable agricultural systems, optimizing the ecological interactions between plants, animals, humans and the environment, while leaving no-one behind.

87. From the social perspective, it tends to articulate goals for conserving the ABD, productive and socio-economic development of local populations, making them guardians and not threats to the ABD. These actions constitute essential components for the execution and sustainability of the project, the participation of the beneficiary populations (taking into account different roles, needs and expectations of men and women) in the construction of strategies to be implemented in each scenario throughout all phases of the project. It will focus on articulating key actors, Popular Education methodologies, and the social equity approach.

88. The project will overcome Barriers # 1-5 by implementing integrated landscape management - including policy planning and capacity development, sustainable intensification of agriculture production, and climate-smart livestock management. Project direct intervention area will be 50 000 hectares of pre-and mountain areas where coffee, cocoa and cattle are produced. The project will reduce the pressures generated by inefficient production over frontier natural habitats, restore ecosystem services in the agricultural/pastoral landscapes, and contribute to landscape restoration and improved ecosystem connectivity.

89. The strengthening of governance, legal framework, policies and programs will impact 200 000 ha and at least 21 institutions and entities. Fifteen thousand people will benefit directly from capacity development processes. In the Cuban tourism sector, there is potential demand for locally-produced, high-quality and environmentally-friendly food products. In this line, there is also an emerging food private sector business (restaurants and bars) that works as a developing market for organic/premium prices products. In addition, coffee and cocoa are export products that can be routed to the international organic market by upgrading their value chains and promoting environmentally-friendly value chains. The project will also address potential environmentally-friendly value chains. The local population, the leading workforce and responsible for implementing, monitoring, and evaluating the project strategy, will benefit in terms of employment, income, access to productive resources, knowledge and skills, for higher levels of social sustainability, economic and environmental.

90. The project will be organized into four (4) components:

91. Component 1: Mainstreaming BD conservation and sustainable use in mountain and pre-mountain landscapes (East Guant?namo and Sierra Maestra). Component 1 will address Barriers # 1, # 4 and # 5 above. Biodiversity mainstreaming good practices will initially cover 50 000 ha, and the restoration of 700 ha key natural and agro-ecosystems in pre-mountain and mountain increasing socio-

ecological resilience. Implementing this component will make it possible to improve the management of agricultural and livestock systems by promoting sustainable practices for the conservation of biodiversity and natural resources, proper soil management, reduction of pollution, improvement of ecosystem connectivity, and restoration of natural resources productive ecosystems. The project will undertake initial inventories and assessments of the accompanying flora and fauna of agricultural and pastoral ecosystems, emphasizing soil conditions, edaphic fauna, and water resources while identifying existing species and their interrelations, repopulation needs, and the connection of agricultural practices in each selected site. Biodiversity mainstreaming good practices will be developed, increasing biological pest and disease controls, mainly using native taxa, which will reduce adverse impacts in crop quality and losses and contribute to the increase of productions. This will, in turn, lead to the update of biological pest and disease control programs for coffee, cocoa and associated crops and pastures, incorporating native species and new production lines, requiring the expansion of local production capacities of said biological controls as well as opportunities for application in the field. In response to the need for increasing biodiversity in productive systems, a higher number of seedlings will be required for reforestation, species enrichment, windbreak development, the establishment of silvopastoral systems for livestock, restoration and enrichment with native species that can be shade-grown and intercropped with coffee and cocoa, among other actions. To that end, supporting the strengthening of local production capacities will be critical.

92. The project will analyze the water footprint and solutions for the sustainable management of available water, including localized irrigation and new technologies and management principles (mainly from livestock and wet coffee processing, two of the most important focuses in project target areas). This will be vital to the development of innovative and sustainable solution proposals for the management of livestock and crop residues, including the production of cultural goods from coconut and livestock, as well as the promotion of innovative incentives for new product development, appellations of origin certification, and other sustainable natural resources management practices in selected sites. The processing of coffee residues and the elaboration of other derived products and handicrafts can mean an important source of employment for women.

93. The development of good practices for the recovery of agricultural and livestock waste will be promoted to increase the efficiency of production systems and contribute to the protection of the environment. The use of residues from coffee, cocoa and coconut harvest, and temporary and permanent shade as ground cover and weed control will be favoured; livestock residues (manure) and the benefit of crops for compost production and in vermiculture will be used as biofertilizers. The use of residues from the benefit of coffee (pulp/mucilage/husk, coffee grounds and stems) and cocoa (pulp/husk) will be promoted for the production of tea, infusions, liqueurs, ethyl alcohol, energy drinks as a substrate in the cultivation of edible mushrooms, obtaining pectins and for the processing of animal feed. Likewise, the use of residues from the harvest and benefit of coconut (fibre/husk/shell/wood/water) as raw material for the manufacture of handicrafts, construction material and household utensils will be encouraged, from coconut leaves and wood, activated carbon, production of wine, vinegar and for the production of liquid feed for animal consumption, as well as twine and cordage.

94. Likewise, the approaches promoted by the project[32][32] will be incorporated to the system of technical assistance and rural extension for communities, farmers and extension workers, which is expected to benefit 15 000 people through training processes, including decision-makers. Among the training beneficiaries, special attention will be given to children, teenagers and youth by developing a dedicated learning module for sustainable natural resource management, focusing on value chains. Women constitute another essential group to consider, given their actual weight in the economically active rural population not linked to paid work and their recognized capacity for managing and caring for genetic resources. The project will also carry out additional environmental education activities.

95. Component 1 will also lead to the design of farms, led also by women, with the *Save and Grow* and Climate-Smart livestock management approach in mountains areas. These farms will work as basic units for the implementation of integrated landscape management. This model will be extended to all project areas. Vegetative buffer strips will be reforested, and improve practices will be implemented for forest restoration in productive landscapes. The Municipal Water, Soil and Forest Conservation Centres management will be strengthened by extending sustainable soil management practices, farmers contributions and co-financing by the National Forest Development Fund (FONADEF) and the National Soil Conservation and Improvement Program (PNCMS). Integrated Pest Management will be used in areas where pests and diseases are likely to invade under changing climatic conditions. These biological control approaches will be linked and integrated into existing national networks of EWS. Other biological control approaches may be considered, as well as other agro-ecological practices. Climate-smart livestock management practices will support mitigation in the livestock sector.

96. Under the project, climate-smart livestock management practices will consider solutions that fall into the three main categories of climate change mitigation on the livestock sector: efficiency, management, and recycling. For efficiency, practices embracing better animal feeding, better grassland management and diversification of pastureland (mixture of grasses and legumes that fix nitrogen from the atmosphere) will be considered. Pasture management will be employed to improve soil carbon sequestration, reduce the spatio-temporal pressure of grazing, and improve the mobility of animals (establishment of transhumance corridors). Finally, closing carbon and nutrients cycles will be promoted by better integrating manure and by-products.

97. Outcome 1.1: Increased adoption of production practices that integrate biodiversity use and conservation and improved resource management based on people's knowledge, skills and abilities.

98. Under Outcome 1.1., the project will support farmers through training, access to technologies and equipment. Producers will benefit from new coffee and cocoa nurseries, seed banks and the development of agricultural fairs to facilitate experience-sharing. Knowledge management centers will host clearinghouse mechanisms for producers. Tthe introduction or adoption of productive practices will be promoted by integrating the use and conservation of biodiversity and the implementation of good practices. Outcome 1.1. will lead to improve the management of agricultural and livestock systems while promoting proper management of soils, pollution reduction, improvement of ecosystem connectivity and the restoration of natural and productive ecosystems.

99. **GEF Core Indicator 4**: Areas of landscapes under improved management

Baseline: 0

Target: 50 000 ha (field work), of which 5 000 ha are women-led

100. **Project Indicator 1:** Number of beneficiary producers and technicians trained disaggregated by sex

Baseline:0

Target: 15 000 direct beneficiaries (22% are women)

101. **Project Indicator 2**: Highly sensitive and important areas for BD not converted into agriculture lands (20 000 ha of forest)

102. **Indicator CC-6:GHG** emissions mitigated: 10 911 887 tonnes CO_2 eq (in 5 project years plus 15 years of capitalization ? as calculated by EX ACT and GLEAM tools)

103. ***Project Indicator 3:*** Farms applying *Save and Grow* and Climate-Smart Livestock (CSL) practices in mountains areas: work will be done in farms with the Save and Grow and Climate-Smart Livestock (CSL) approach. # of farms *Save and Grow* and Climate-Smart Livestock (CSL) practices in mountains areas (http://www.fao.org/3/i8324en/i8324en.pdf, The exact number of farms will be determined during the first year of the project implementation). Target: 10,000 farms, 10% of the farms women-led.

104. Project indicator 3 is aimed at introducing best practices and, at the same time, in farms owned by women. These farms will work in basic units under integrated landscape management, which will apply to the project areas. New and innovative sustainable practices will be implemented in intervention areas. The project will monitor the percentage of acceptance and commitment of male and female producers to the results of the new practices

105. **Output 1.1.1**: Assessment and inventory of accompanying flora and fauna and their valuation in the agricultural-pastoral systems: the main actions are aimed at carrying out diagnostic evaluations and inventories that allow knowing the conditions on biodiversity in the intervention sites from the point of view of the soil conditions, edaphic fauna and water resources, identifying existing species, their interrelations, repopulation needs and connection with agricultural practices in each selected site.

106. **Indicator**: Number of diagnoses and inventories of flora and fauna in agricultural systems.

107. **Output 1.1.2:** Integrated landscape management (ILM) strategy developed and agreed with key stakeholders, with gender approach: It refers to the development of integrated landscape management strategies in the intervention sites, based on information related to the health status of the ecosystems and their connectivity for each area of impact of the project, with a gender perspective and in agreement with the main entities involved.

108. Indicators:

a) Number of ILM strategies developed for the implementation zones, considering the gender perspective, presented to key environmental local government and sectoral stakeholders.

b) Percentage of acceptance of ILM strategies by stakeholders in each intervention area.

c) Number of female producers and technicians surveyed for the development of integrated landscape management strategies.

109. **Output 1.1.3:** An updated program for biological pest and disease control (as part of the ILM strategy): The use of more and new biological controls will, in turn, lead to the update of biological pest and disease control programs for coffee, cocoa and associated crops and pastures, incorporating native species and new production lines.

110. Indicator: Number of specific programs designed to control pests and diseases in each area of intervention.

111. **Output 1.1.4:** A capacity development program for producers and technicians on ILM best practices and financial incentives, with a gender focus: capacities will be developed through training programs in terms of integrated landscape management best practices, monetary incentives, with which it is pursued to reach 15 000 beneficiaries, broken down into 3 324 women and 11 676 men, including decision-makers. Special attention will be given to young people and children in the sustainable management of natural resources, emphasising the value chain. The project will also give women an important role given their more significant weight in the economically active rural population not linked to paid work and their recognised capacity for managing and caring for genetic resources. Capacity development also includes environmental education activities.

112. Indicators:

a) Number of technicians and producers trained in practice to assess ABD and facilitate sustainable management and implementation of Save and Grow and Climate Smart Livestock (CSL) approaches

b) Percentage of producers that include new management practices and conservation technologies based on the training received

c) Number of field schools established to train producers and technicians in good integrated landscape management practices, including financial incentives and gender equality.

113. Component 1 will also focus on rehabilitating agricultural and natural ecosystems in the mountain and pre-mountain landscapes through sustainable participatory management and increasing socio-ecological resilience. For this purpose, productive mixed forests agroecosystems will be implemented as an alternative model usually practiced in the areas. In addition, a good agricultural practices manual for sensitive and natural pre-mountain agroecosystems will be produced. It will include an appendix for risk and disaster mitigation to increase the resilience of the implemented agroecosystems; and a participatory toolbox for the design of productive spaces that maximize the environmental services they report. The manual will be complemented by a community program to rehabilitate critical ecosystems that contribute to the resilience of the agroecosystems and communities participating in the project.

114. Outcome 1.2: Key natural and agroecosystems in the mountain and pre-mountain areas have been restored through sustainable participatory management, with gender focus, increasing socio-ecological resilience.

115. **GEF Core Indicator 3.1**: Area of degraded agricultural lands restored

Baseline:0

Target: 200 ha of forests of mixed uses.

116. **GEF Core Indicator 3.2**: Area of forest and forest land restored

Baseline:0

Target: 500 ha of restored forests

117. The project team will partner with the Antonio N??ez Jim?nez Foundation (FANJ) to execute outcome 1.2. FAJN have been very active for the last 25 years in ecosystems restoration processes, especially on mountain areas and protected areas, but also in agricultural land located in these environments, FANJ have also worked extensively with Cuban agriculturalists in different scenarios, wild, rural and urban to promote bests practices and restore agroecosystems and neighboring ecosystems using Permaculture, Agroecology and other sustainable agriculture techniques and a participatory approach of learning by doing and rescuing the best of traditional techniques to mixed with current scientific findings. FAJN has a national coverage and has developed working relations in the project area.

118. Output 1.2.1: Participatory field actions implemented to restore 500 ha of protective ecosystems in agricultural and pre-mountain community-based areas: The intention is to implement participatory actions to restore productive ecosystems to maximize resilience and ecosystem functions and, at the same time, achieve diverse productions that generate more income contributing to self-consumption.

The sites will be selected to diminish pressures over protected areas. The sites will be chosen in protective ecosystems such as water regulation strips, high slopes zones, mountain drainages and farm borders. The project will support the restoration of natural habitats (i.e. gallery forests and riverine areas) to enhance biodiversity connectivity, pest management and physical barriers to soil erosion.

The project definition of restoration is based on FAO?s normative work (please refer to *Position paper on ?Ecosystem Restoration? of production ecosystems, in the context of the UN Decade of Ecosystem Restoration 2021-2030? https://www.fao.org/publications/card/en/c/ND425EN/).* In this line, specific guidance on the concept, needs and priorities for ecosystem restoration for forest landscapes, farming, and livestock-producing ecosystems, as the focus, scale, priorities and trade-offs of restoration interventions will differ between them. The restoration of producing ecosystems should primarily contribute to restoring these ecosystems to a healthy and stable state, so that they are able to support human needs for sustainable food production and livelihoods. The ultimate objective of these restorative efforts should be to reverse the trend in many unsustainable agricultural systems, optimizing the ecological interactions between plants, animals, humans and the environment, while leaving no-one behind. Following this definition, the project will divide the restoration work in 2 actions: one to restore the ecosystems inside the farms that support and protect the agricultural function and enhances

its resilience (200 hectares), and the other one to promote a mixed productive forest approach as to compare with the traditional productive plantation (in 500 hectares).

119. **Indicator:** Number of hectares of rehabilitated protective ecosystems.

120. Output 1.2.2: Capacity development program for young people, women and communities to support restoration actions, family farming and strengthen ties with the local territory: The development of a skills program conceived and implemented by the youth of the territory themselves is pursued. The formation of leadership skills should also respond to interests defined by these young people. The permanence of young people in the region is essential to guarantee the resilience of productive landscapes.

121. **Indicator**: Number of capacity-building programs designed with a gender perspective.

122. **Output 1.2.3:** Community-based toolbox to design, implement, rehabilitate and monitor field actions in natural and agro-ecosystems. A participatory toolbox will be created (including good practices and techniques) in consultation with national institutions and local communities. FAO will provide technical support, creating capacities in the use of GLEAM (https://www.fao.org/gleam/en/) and TAPE (https://www.fao.org/agroecology/tools-tape/en/). The toolbox will also include a set of Guidelines that will help the project team walk the producers through the best practices in an illustrative way. After project closure, the manual will be a useful tool for national institutions to scale up the project?s approach throughout the country in other mountain ecosystems. The Guidelines will avoid the introduction of agricultural practices applied in flat areas, which could be pervasive in steep slopes. A manual of good agricultural practices for sensitive and natural pre-mountain agroecosystems will be produced, including an appendix for risk and disaster mitigation to increase the resilience of the implemented agroecosystems. This manual will serve as a basic illustration for productive associations in the intervention areas and the associated communities to adopt practices that improve their standard of living and increase their resilience. The good practices identified will be taken as case studies within the project.

123. Indicator:

a) Number of tools designed.

b) Technical Manual of good agricultural practices adapted to local pre-mountain conditions with gender focus.

124. **Component 2**: **Strengthening Governance, the Policy Framework and Capacity Building**. Component 2 will address Barrier # 3. Capacities will be strengthened in at least 21 key government institutions and organizations of the mountain and pre-mountain agricultural areas, including scientific and innovation organizations and their technical staff specialized in the selected crops, livestock, research and biodiversity management, natural resources and production chains, plant and animal health, forestry, as well as leading local land, environmental, soil and water management institutions. In particular, capacity strengthening will bolster key regulatory agencies in the monitoring, controlling, and assessing biodiversity and natural resources management processes with gender considerations.

125. An essential previous step will be improving the synergy among institutions and entities. Therefore, an inter-sectoral information system will be created and will include critical integrated landscape and agricultural and pastoral environmental management-related issues (web-mapping tool). Through this component, the sustainable biodiversity and natural resource management approach will be mainstreamed in the selected sectors' regulatory framework, policies, and programs. Sectorial guidelines, rules and regulations will be assessed, and new sectoral rules will be drawn up considering sustainability approaches.

126. Capacity building of national authorities will consider training on MOSAICC (Modelling System for Agricultural Impacts of Climate Change), including: statistical downscaling for climate data, hydrological modelling with STREAM, crop modelling with AquaCrop, Forest LANDIS-II model. Participatory Integrated Climate Services for Agriculture (PICSA) will also be considered as part of the capacity building of smallholder farmers on climate related aspects.

127. **Outcome 2.1:** Policy, legal and regulatory frameworks for agriculture production have mainstreamed biodiversity conservation and use with a gender focus. The policies and regulatory framework for agriculture and livestock must respond and be aligned with the integration of biodiversity and its conservation and sustainable use. This translates into the review of the legal and regulatory framework and the policies established to influence the achievement of the corresponding link between the sustainable production practices generated in the project and its support in policies and regulatory framework, with a gender perspective.

128. **Project Indicator 4**: Number of institutions and entities with strengthened capacities.

Baseline: 0

Target: At least 21

129. **Project Indicator 5**: Territorial coverage of programs and sectorial policy framework for BD conservation and natural resources sustainable management (in hectares).

Baseline: 0

Target: 200 000 hectares (of which, 20 000 are women-led)

130. **Output 2.1.1:** Capacity development program(s) on BD and natural resources management, control and monitoring: The project will ensure that, in development programs, the perspective of biodiversity conservation, the sustainable use of natural resources and gender equality approaches are integrated, both at the local government level and the entity level, including all the institutions involved.

131. **Indicator:** Number of entities that integrate the perspective of biodiversity conservation, sustainable use of natural resources and a gender equality approach in their development programs.

132. **Output 2.1.2:** Review of laws/regulations to incorporate biodiversity considerations: Several legal documents will be reviewed to identify those that lack the biodiversity mainstreaming approach.

133. Indicators:

a) Percentage of documents of the sectoral legal and regulatory framework reviewed.

b) Diagnosis of legal gaps in the current sectoral regulatory framework related to biodiversity.

134. **Output 2.1.3**: Revised legal and regulatory frameworks: Documents of the legal and regulatory framework of the sector will be identified, with proposals for incorporating aspects of biodiversity conservation and the sustainable use of natural resources.

135. **Indicator:** Percentage of documents identified from the sector's legal and regulatory framework with proposals to incorporate aspects of biodiversity conservation and the sustainable use of natural resources.

136. **Output 2.1.4**: Policy Framework and four (4) sectorial programs are BD-mainstreamed with gender focus: the four sectorial programs (coffee, cocoa, coconut, livestock) should be reviewed in order to prepare a proposal for each one with the proper integration of biodiversity with a gender approach, within the framework of its policies.

137. **Indicator:** Number of sectoral policies and programs incorporating aspects of biodiversity conservation and the sustainable use of natural resources with a gender perspective.

138. **Output 2.1.5**: Intersectoral working group to support newly created institutional capacities and inter-institutional coordination, incorporating a gender approach: An essential previous step will be improving the synergy among institutions and entities. Therefore, the project will create an inter-sectoral information system including key integrated landscape and agricultural and pastoral environmental management-related issues (web-mapping tool). Sectorial guidelines, rules and regulations will be assessed, and new sectoral rules will be drawn up considering sustainability approaches, incorporating the gender approach in all cases. In this sense, the plan is to create intersectoral working groups in the municipalities of intervention.

139. Indicators:

a) Number of intersectoral working groups created for inter-institutional coordination with a gender perspective.

b) Percentage of key stakeholders that recognize improvements in inter-institutional coordination.

140. **Output 2.1.6**: Sectorial financing mechanism designed for BD-positive projects: The aim is to work on sectoral financial mechanisms designed for biodiversity conservation projects, which would permeate the agriculture and livestock sectors. They would generate possibilities of achieving higher yields in production, impacting the income of the community.

141. Indicator: Number of financial mechanisms designed to promote biodiversity conservation projects.

142. **Component 3**: **Strengthening sustainable value chains.** Component 3 will address Barrier #2. The implementation of this component will allow for the characterization of some of the main agricultural and livestock value chains in the mountain and pre-mountain productive systems (i.e. coffee, cocoa, milk and beef) and make proposals to ensure they function within an integrated ecosystem approach, considering standards related to ecosystems, natural resources and biodiversity, as well as evaluating proposals for the mitigation of adverse environmental impacts, which will also

contribute to increasing the productivity and efficiency of agricultural and livestock systems in the intervention sites. Diverse mechanisms to ensure organic and denomination of origin quality attributes in the coffee and cocoa value chains will be established, including the custody of chain (inspection, internal control systems, certification) to facilitate market access opportunities in the domestic and international markets. The project will identify how, and up to what extent, natural hazards, including climate risk, are affecting the food value chain. Climate services will be integrated for strengthening the food value chain. For reinforcing the value chain, key aspects will be identified related to identifying key climate risks in the value chain, choosing the most effective climate interventions, targeting those most vulnerable to climate risks, and reaching scale with climate interventions (IFAD, 2015). All phases of the value chain will be addressed to achieve the proposed development objectives equitably, from the individual producer to the final market, considering the problems and limitations that hinder the inclusion of men and women throughout the chain.

143. **Outcome 3.1: BD contribution has been assessed in value chains in selected landscapes:** Relevant studies will be carried out for each value chain and its characteristics in each mountain and pre-mountain productive system. Based on these results, proposals can be prepared to achieve an integrated value chain with an integrated ecosystem approach, considering the standards related to ecosystems, biodiversity and natural resources. In addition, proposals for mitigating adverse environmental impacts will be evaluated, which will also contribute to increasing the productivity and efficiency of the agricultural and livestock systems in the intervention sites. All phases of the value chain will be addressed, from the individual producer to the final market, considering the problems and limitations that hinder the inclusion of men and women throughout the chain.

Project Indicator 6: Number of new markets identified and accessed with the incorporation of products resulting from good practices in agroecological/organic productions.

Baseline: 0

Target: 4 new markets established and connected to the value chains of coffee, cocoa, coconut and livestock production in the productive landscapes of the project intervention areas.

144. **Output 3.1.1**: Mountain and pre-mountain value chains in coffee, cocoa, coconut, and livestock are assessed. Practices along the chain are aligned to comply with identified organic markets and standards through market intelligence, market access, cost, and sustainability studies: the aim is to evaluate and agree with the entities involved, several strategies, one for each item, to create/strengthen value chains in productive mountain and pre-mountain landscapes, including the requirements for the certification of new products and access to new markets. For which the studies and diagnostics of the value chain are the starting element to be able to elaborate the strategies above.

145. Indicators:

a) Number of studies prepared where the value chains of coffee, cocoa, coconut and livestock are evaluated.

b) Number of strategies developed for the creation/strengthening of value chains for coffee, cocoa, coconut and livestock in the project implementation areas.

146. **Output 3.1.2**: Demonstrative models applied and adapted to local landscapes (BD mainstreamed in agricultural practices): advanced studies will be carried out to foster mini-industries, new products and points of commercialization. In this sense, the aim is to establish mini-industries where coffee, coconut and milk-derived residues could be used and also where some of these products are organic or with a protected geographical indication. Likewise, the intention is that people in the selected production and commercialization chains receive training and economic benefits, focusing on gender equality. At the same time, there will be access to newly identified markets with the incorporation of products resulting from good practices in agroecological/organic productions.

147. Indicators:

a) Number of established production and marketing chains.

b) Number of people, disaggregated by sex, in the selected production and marketing chains who receive training and economic benefits.

148. **Output 3.1.3**: **Alternative organic certification and geographical indication schemes, designed and tested:** technical guides will be prepared for organic/agroecological certification and protected geographical indication schemes of coffee, cocoa, coconut and livestock productions, for which it is pertinent to diagnose the conditions in the areas of intervention for certification based on the evaluation of organic/agroecological technical requirements/procedures. It is also intended to achieve products with potential for organic certifications and geographical indication schemes.

149. Indicators:

a) Number of technical guides prepared for organic/agroecological certification and protected geographical indication schemes for coffee, cocoa, coconut and livestock production.

b) Number of hectares of productive landscapes, differentiating those attended by men and those attended by women, that integrate the conservation and sustainable use of biodiversity are evaluated and meet the requirements for agroecological certification.

c) Number of products with potential for organic certifications, including geographical indication schemes.

As suggested by the GEF Secretariat, STAP guidance document has been considered and adapted to the specific Cuban context, as follows:

a) Higher prices are expected to be paid by the tourism sector and restaurants, which have the hard currency availability to cover the premium prices, as well as the consumers? awareness to support sustainability strategies. Private businesses associated are expanding and new markets are arising. The Government is also interested in such productions for export. There is also an ongoing governmental comprehensive program, which has introduced new incentives for producers, including direct export and import facilities, higher prices for agricultural and livestock products, agriculture by contract, among others measures.

b) The project will promote Participatory Guarantee Systems for Organic Agriculture (see FAO?s normative work: https://www.fao.org/family-farming/detail/es/c/1263907/) in conjunction with the

methodology developed by one of the key stakeholders (the NGO FANJ) through a collaboration with The Nature Trust of British Columbia known as *The Environmental Farm Plan*, which is a certification methodology used nationally in Canada.

c) The Canadian methodology will be adapted to agroforestry (i.e. coconut, tropical almond, *Hicaco*, grape trees and other fruit species), and silvopastoral systems (i.e. coconut, fruit trees and cattle). In the case of beef, specific guidelines will be prepared. A certification board for each product will be established in PY2 and PY3 in targeted municipalities.

150. **Component 4**: **Knowledge Management, Monitoring and Evaluation (M&E).** Component 4 will systematize project knowledge and lessons learned. It will also disseminate successful experiences through the creation of an information and knowledge management platform, including documentation and dissemination of producers? best practices. Agro-climatic information services would be integrated for the dissemination of best practices in the agricultural and livestock sectors. Agro-climatic services are aimed at reducing the uncertainties surrounding crop planning and crop management, particularly in regions with a high rainfall variability. EWS for pests and diseases will be used for predicting disease outbreaks and diminishing the impact on crop and livestock systems. The delivery of agro-climatic services may be tailored to end-user needs. The mainstreaming of climate services will employ communication means that smallholder farmers have access to radio, TV, phone incorporating the gender focus.

151. This will be achieved through informed dialogue, training, awareness-raising, communication and visibility of the project's results, in addition to agreements with the community and with central and local authorities. It is expected to establish capacity development mechanisms and spaces for dialogue between the participants (technicians, productive entities, communities, managers, local governments) to achieve a consensual vision of the sustainable use of natural resources, incentives, and good practices/technologies.

152. The training process will strengthen capacities to incorporate a gender equality perspective and gender-sensitive value chain methodologies. A communication strategy for the project with a gender perspective will also be developed to make visible the contribution of women and disseminate the results of the project. The communications will highlight the practices of integrating the gender perspective in the project and the differentiated impact on the quality of life of women and men. This is expected to help guide its replication in other country areas, sharing experiences through audiovisual products and materials for different audiences and in different formats and media. The project will also promote the participation of women in capacity development processes to facilitate their access to technical advice.

153. This platform will be supported by the preparation of bulletins, the creation of databases and the use of web sites of research centres and the AGRINFOR system of the Ministry of Agriculture. It will manage the new knowledge produced and systematized in programs, manuals, methodological guidelines and other documents resulting mainly from the implementation of Component 1. Similarly, it will guarantee and inform the preparation and implementation of a Monitoring and Evaluation Plan (M&E) and Gender Action Plan (GAP) to ascertain the impacts of project actions and activities as well

as a manual on gender mainstreaming in sustainable production systems (including Save and Grow, and CSL).

154. Outcome 4.1: Knowledge and lessons learned systematized with gender focus and disseminated for the replication and scaling-up of successful experiences: Seeks to disseminate successful experiences through the creation of an information and knowledge management platform, including documentation and dissemination of producers? best practices.

155. **Project Indicator 7**: At least one document systematizing experiences and knowledge with gender focus in every productive branch

156. **Output 4.1.1**: Information and knowledge management centres created to promote and monitor the integrated landscape management in targeted municipalities: it is intended that knowledge management centres be created in each municipality of intervention of the project, on a National Platform, for the integrated management of biodiversity in the productive mountain and pre-mountain landscapes with a gender perspective; while creating local networks that promote sustainable practices of biodiversity, made up of producers, managers and technicians.

157. The knowledge management (KM) centres will generate media content, bulletins, provide data for the project?s website, and support the Project Team in monitoring the field work. With regards to sustainability, there is a platform already existent at municipal level, in the framework of the National Food Security Program (SAN municipal commissions). The project will support these commissions and enhance them through knowledge management centres. The objective of the KM centres is to promote the ILM in mountain and pre-mountain landscape. The KM centres will work in coordination with local/civil society networks already in place. They will also include clearinghouse mechanisms, involving producers, managers and technicians. The KM centres will be hosted by the existing structure, will not create additional bureaucracy, and are part of a win-win solution. This institutional arrangements will allow for the sustainability of the centres after project closure.

158. Indicators:

a) Number of territorial knowledge management centres created (within the National Platform) for the integrated management of biodiversity in the productive mountain and pre-mountain landscapes with a gender perspective.

b) Number of local networks supported.

159. **Output 4.1.2**: Cooperation and exchange actions implemented, emphasizing South-South cooperation: Cooperation and exchange events will organized with countries of the Geater Caribbean region to exchange experiences and be able to evaluate if some of them can be assimilated into the national context. These meetings must also have a percentage of participation of women.

160. Indicator: Number of events to exchange knowledge with countries of the Greater Caribbean region through South-South exchanges, conferences and participation in global events

161. A series of international events for each crop or product are now proposed as part of output 4.1.2. Kindly see the Project Results Framework (Annex A1). Cacao and coffee can pose great

opportunities for knowledge-sharing. Nicaragua, Panama, Dominican Republic, Honduras and the Greater Caribbean region (islands) are potential countries for South-South cooperation, with FAO?s support.

162. **Output 4.1.3**: A Monitoring and Evaluation (M&E) Plan with a gender perspective and Gender Action Plan, implemented: this output seeks to implement the project's monitoring and evaluation plan with a gender perspective, to provide systematic information on the project's progress; as well as implementing the Gender Action Plan. Additionally, a communication and visualization strategy for the project's actions with a gender perspective must be developed and implemented.

163. Indicators:

a) Implementation of the monitoring and evaluation plan with a gender perspective to provide systematic information on the project's progress.

b) Gender Action Plan implemented.

c) The communication and visualization strategy of the project actions with a gender perspective has been prepared and implemented.

164. **Output 4.1.4**: Manual on gender mainstreaming in sustainable production systems (including *Save and Grow* and CSL): The aim is to develop a manual to incorporate the gender perspective in sustainable production systems, which systemizes practices and learning.

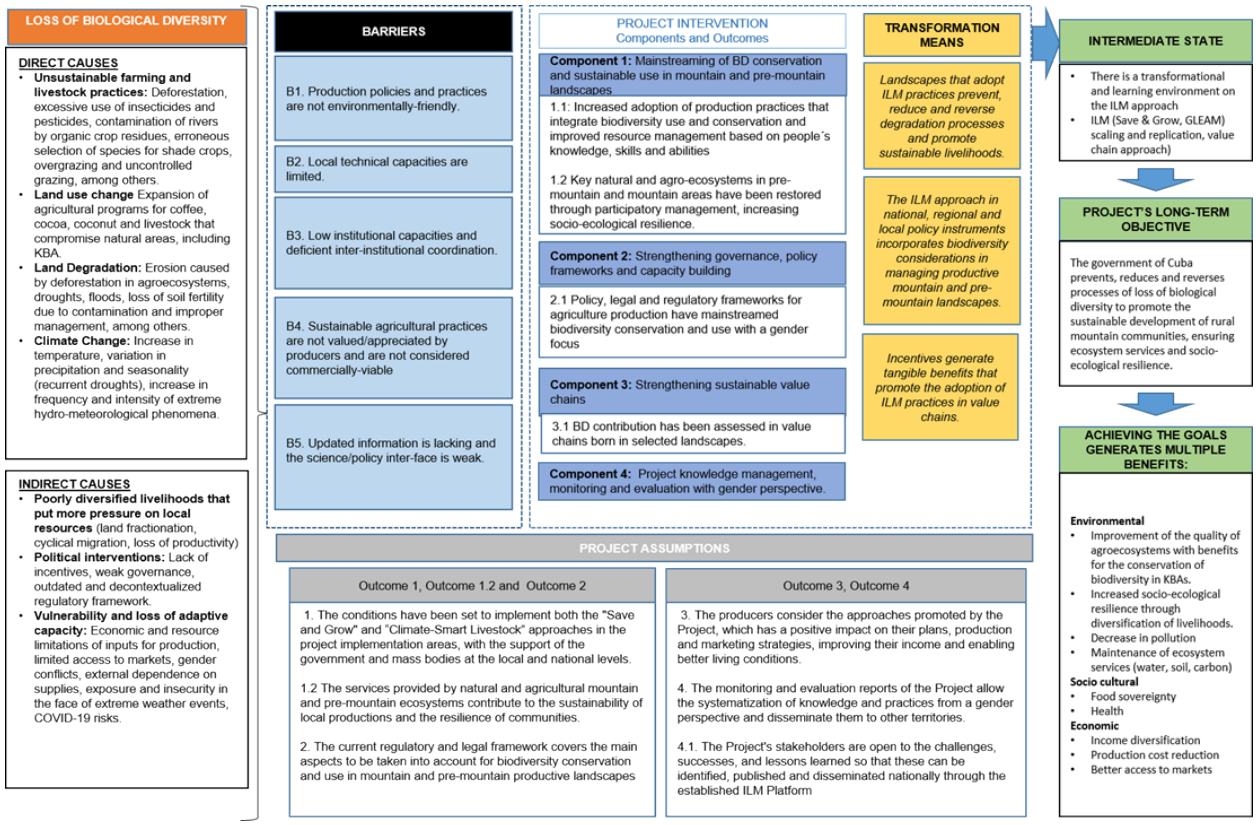
165. **Indicator:** Manual prepared to incorporate the gender perspective in sustainable production systems, systematizing practices and learning.

166. Theory of Change

167. This project adresses the problem of increasing fragility of the mountain and pre-mountain ecosystems due to unsustainable agricultural and livestock management practices.

168. To reverse the situation, stakeholders participating in the project have defined the **expected Change** as: "reduce pressures on the key fragile mountain and pre-mountain ecosystems of Eastern Cuba, through mainstreaming biodiversity in agriculture/livestock production and implementing integrated landscape management (ILM) and planning".

Figure 5. Cuba Coffee Cocoa Project?s **Theory of Change**



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

169. The Project is aligned with the BD Focal Area (BD 1-1: Mainstreaming biodiversity across sectors as well as landscapes and seascapes through BD mainstreaming in priority areas), through project outcomes 1.1, 2.1, 3.1 and 4.1.

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

170. The agricultural production of coffee, cocoa and coconut, together with local livestock, has significantly affected the biodiversity of the mountain massifs where the Project intervenes, compromising the biodiversity values ??of these ecosystems, which are of global importance.

171. The development programs approved by the government for coffee, cocoa, coconut and livestock production at the national level for the short and medium-term have very ambitious production goals, which if implemented under current production schemes, would represent a critical worsening of existing problems and would necessarily imply the conversion of areas currently conserved into new productive areas.

172. The Project will introduce management models that combine institutional action with community activities, allowing the joint efforts of the government and civil society to be applied to this urgent situation.

173. Under the alternative scenario, the proposed Project will allow the development for the first time in Cuba of:

174. a) A better understanding of the ecological conditions of the accompanying flora and fauna and their valuation in the agricultural-pastoral systems, as a basis for more sustainable management and use of mountain and pre-mountain productive landscapes, which will contribute to the conservation of biodiversity.

175. b) Incorporation of Integrated Landscape Management (ILM), introducing participatory governance for the sustainable management of natural resources in the mountain and pre-mountain productive landscapes, using the FAO *Save and Grow* approach to agriculture and Climate-Smart Livestock (CSL) practices in mountains areas, and also increasing socio-ecological resilience and local sustainability through sustainable participatory management and rehabilitation of agricultural and natural ecosystems.

176. c) New demonstrative models applied and adapted to local landscapes to diversify livelihoods to reduce the pressure concentrated on ecosystems by developing new and better market opportunities for products based on sustainable practices in the value chains of coffee, cocoa, coconut and livestock. This will contribute to the protection of biological diversity and also stimulate the sustainable production of other crops in the eastern mountains of Cuba,

177. d) Strengthening the regulatory framework and the capacities of institutions and producers to allow joint participation in co-management of productive landscapes, including a new inter-sectorial institutional coordination mechanism and a sectorial financing mechanism designed for BD-positive projects.

178. As a whole, the actions proposed in the Project will allow achieving a state of improved balance in ecosystem services, contributing to globally connected environmental objectives. They will also improve the living conditions of the local population. Continuing the Business as Usual scenario will only lead to the more rapid deterioration of the ecosystems and the livelihoods that depend on them.

179. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF).

Current practices (baseline)	**Alternative proposed by the Project**	**Anticipated GEBs**

Unsustainable agricultural and pastoral practices adversely impact natural resources conditions, diminish biodiversity, reduce connectivity, make mountain and pre-mountain ecosystems more fragile and compound negative impacts in watersheds and protected areas, especially KBAs	Improved agricultural and pastoral systems management through mainstreamed biodiversity and sustainable natural resources management, restored soils, residues valorization, reduced contamination and impacts on aquatic biodiversity, improved ecosystem connectivity, and the local population's well-being.	Direct impacts: 50 700 ha of agricultural and pastoral productive landscapes under improved management with biodiversity benefits. 10, 911,887 tons CO2 eq will be mitigated. 15 000 direct beneficiaries, disaggregated by gender: 3 324 women and 11 676 men. Indirect impact: 200,000 ha of agricultural and pastoral productive landscapes. 60 000 indirect beneficiaries (at a rate of 4 members per family nucleus): 29,400 women (49%), and 30,600 men
The regulatory framework, sectorial policies and governance are weak.	Strengthened regulatory framework, policies and governance. Biodiversity and natural resource conservation and sustainable use objectives are strengthened.	
Value chains of mountain and pre-mountain agricultural and livestock productions lack an ecosystem approach.	Value chains are enhanced to include an ecosystem approach to improve biodiversity and natural resources management while increasing their efficiency and effectiveness, as well as benefits to producers and local population.	
Limited institutional capacities of key landscape governance entities given their role in the regulation, monitoring, control and evaluation of biodiversity and natural resources management processes.	Institutional capacities are strengthened in key landscape governance entities on their role in the regulation, monitoring, control and evaluation of biodiversity and natural resources management.	

Innovativeness, sustainability, potential for scaling up and capacity development. ?

Innovation

180. The innovative nature of this Project lies in the use of a conservationist-productive social and ecosystem-based approach for the sustainable management of agricultural and pastoral productive systems through enhanced biodiversity mainstreaming and the sustainable management of natural resources, especially the soil and social development by improving the knowledge and living and working conditions of residents. In addition to its inherent benefits, through conservation, important crop and livestock productions are increased, in contrast with the prevailing model that pays little importance to biodiversity mainstreaming and almost no importance to native biota potentials and conservation needs. This approach of seeking higher agricultural productivity in a sustainable manner

ensures the vitality of the trophic chains and the sustainability of the incorporated biota. It applies conservation measures for soil and its edaphic fauna.

181. With a participatory approach, the project will increase productivity in the mountain and pre-mountain agro-ecosystems (coffee, cocoa and livestock) through improved management of natural resources and BD mainstreaming to achieve the production levels expected by the Development Program described in the Baseline in Section 2. Moreover, it will help restore degraded areas and avoid further deforestation due to expansion into new regions and the settlement of the rural population and the workforce by improving the well-being of families and communities.

182. Some of the innovative outputs expected from the Project include: management of new native biological controls not taken into account before; updating of the Integrated Pest Management/Control programs; model farms with *Save and Grow* and CSL approach, sustainable value chains with certification/labelling, and declaration of advanced communities for the sustainable management (economic, environmental and social) of natural resources.

Sustainability

183. The project includes considerations that promote the continued achievement of its objectives and outcomes long after implementation. Several key principles that ensure sustainability include:

a) Country ownership, which will include improved governance, mainstreamed biodiversity and sustainable management of natural resources in value chains are included in development policies;

b) Supporting interventions that reinforce government plans and activities, that can be integrated into government policies making project interventions and consequences more relevant to government institutions;

c) Alignment with government plans and priorities to increase agricultural production within the country and strengthening the equity approach in the development of capacities and opportunities for disadvantaged groups, particularly youth and women.

d) Partnering with public institutions including national, regional and local governments and structures, supporting institutional developments technical and institutional capacities (productive bases and scientific and research staff of national institutes). This capacity building will serve as long-term support beyond project duration and will allow the inclusion of native biota into agrosystems, evaluation of productive chains, the performance of agroecosystems and the status of natural resources. It will also suggest management proposals to producers, extension workers and communities for their implementation, strengthening participatory and equity approaches in capacity development.

e) Finally, working with community-based organizations, associations and communities, and supporting them to establish their own effective management structures during implementation will also ensure long-term support beyond the project.

Long-term sustainability

184. The project will support implementing the financial incentives that are being assessed through the ECOVALOR project (GEF/UNDP project, GEF ID 9429). In addition, the project will use the national platform of BIOFIN, which finances BD conservation actions. It will work based along with the National Program for Soil Conservation and Enhancement (PNCMS) and the National Fund for Forest Development (FONADEF) - which are being merged into the Landscape Resilience Fund (LRF). LRF is supported by the Increased resilience of rural households and communities through rehabilitation of production landscapes in selected localities of Cuba (IRES) GCF project

Scaling-up

185. The scaling-up potential (replicability) extends to the agricultural and pastoral systems in the mountain and pre-mountain areas covering around 1 000 000 ha, including 85 000 ha for growing coffee and cocoa. The technical documents, lists, manuals and guidelines to be developed by the Project will be the means for replicating best practices. Adequate dissemination of information and best practices, together with the involvement of decision-makers and a wide range of regulating and R&D institutions, will enhance replication and the scope of the Project. The success of Component 2 on governance and regulatory and policy framework will be a crucial factor since it will favour the replication of the outcomes in other parts of the country. Likewise, developing a conceptual framework for creating mechanisms to finance projects for the sustainable management of biodiversity and natural resources in the mountain and pre-mountain areas will promote new financing projects that will benefit other areas and production in the country.

Summary of changes in alignment with the project design with the original PIF

186. The project design at the PIF phase had the composition of four (4) components with the corresponding Outcomes responding to the priorities and objectives foreseen for each of them. For component 1, an Outcome aimed at increasing production practices based on ILM was established, however during the PPG phase, and after reviewing the logical framework with the involved stakeholders, the inclusion of a new Outcome 1.2 was considered.

187. Component one includes an additional outcome with four related outputs. An Outcome 1.2 is added to rehabilitate agricultural and natural ecosystems in the mountain and pre-mountain landscapes through sustainable participatory management and the increase of socio-ecological resilience. It includes a participatory toolbox for the design of productive spaces that integrate biodiversity into their management and maximize their report's environmental services. It includes a community program for the rehabilitation of key ecosystems that contribute to the resilience of the agroecosystems and communities of the project. These changes do not represent a change in the project objective or scope. Hectares targeted are also increased in 250 700.

188. This component aims at addressing barriers 2, 3, 4 and 5 identified in the project.

189. Additionally, in the PIF phase, ten (109 municipalities were identified as potential specific intervention sites; however, to achieve greater effectiveness in the project's objective and given the significant advance of the effects of the pandemic derived from COVID-19, the selection of municipalities was adjusted to six (6). Such reduction does not affect the established indicators in the project's logical framework.

190. The CEO Endorsement Request has change as follows:

Component	**PIF**	**CEO Endorsement**

Component 1: Mainstreaming of BD conservation and sustainable use in mountain and pre-mountain landscapes (East Guant?namo and Sierra Maestra)	Outcome 1.1: Increased adoption of production practices that integrate biodiversity use and conservation and improved resource management based on people?s knowledge, skills and abilities Output 1.1.1: Assessment and inventory of accompanying flora and fauna and their valuation in the agricultural-pastoral systems. Output 1.1.2: Integrated landscape management (ILM) strategy developed and agreed with key stakeholders, with gender approach. Output 1.1.3: An updated program for biological pest and disease control (as part of the ILM strategy). Output 1.1.4: A capacity development program for producers and technicians on ILM best practices and financial incentives, with a gender focus	Outcome 1.1: Increased adoption of production practices that integrate biodiversity use and conservation and improved resource management based on people?s knowledge, skills and abilities Output 1.1.1: Assessment and inventory of accompanying flora and fauna and their valuation in the agricultural-pastoral systems. Output 1.1.2: Integrated landscape management (ILM) strategy developed and agreed with key stakeholders, with gender approach. Output 1.1.3: An updated program for biological pest and disease control (as part of the ILM strategy). Output 1.1.4: A capacity development program for producers and technicians on ILM best practices and financial incentives, with a gender focus **Added:** Outcome 1.2: Key natural and agro-ecosystems in the pre-mountain and mountain areas have been restored through participatory management, increasing socio-ecological resilience Output 1.2.1: Participatory field actions implemented to restore 500 ha of protective ecosystems in agricultural and pre-mountain community-based areas. Output 1.2.2 Capacity development program for young people, women and communities to support restoration actions, family farming and strengthen ties with the local territory. Output 1.2.3: Community-based toolbox to design, implement, rehabilitate and monitor field actions in natural and agroecosystems areas.

The GEF indicators were adjusted in the logical framework, according to the goal to be achieved.		**GEF Core Indicator 3.1:** Area of degraded agricultural lands restored: 200 ha of forests of mixed uses. **GEF Core Indicator 3.2:** Area of forest and forest land restored: 500 ha of restored forests
GEF CORE Indicators	The logical framework responds to four GEF Core Indicators for 250, 000 hectares.	The logical framework responds to 4 GEF Core Indicators for 250,700 hectares.
Co-financing	The committed co-financing amount for this project at the PIF stage (Approved during the 57th GEF Council Meeting (held on December 17-19, 2019) was 28,905,000 USD. Up to December 2020, the exchange rate was equivalent to 1 USD = 1 CUP (see history on the UN Operational Rates of exchange). In January 2021, the Government of Cuba eliminated the convertible currency and the CUP was devaluated. As of 1 January 2021, the exchange rate CUP/USD is 1 USD = 24 CUP. Nevertheless, as described on the co-financing letter, the Ministry of agriculture will still commit to co-finance the GEF project with the considerable amount of 25,477,000 CUP. This amount is deemed sufficient to successfully execute the project, in terms of domestic costs, and complete the project activities as described on the CEO Endorsement Request to deliver Global Environment Benefits.	

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[17] Boytell, F. 1989. Vientos locales. En Nuevo Atlas Nacional de Cuba. Eds. Instituto de Geograf?a de la Academia de Ciencias de Cuba, Instituto Cubano de Geodesia y Cartograf?a e Instituto Geogr?fico Nacional (Espa?a). Espa?a VI. 2. 3: 12.

[18] Statistical Yearbook of Cuba 2020. National Office of Statistics and Information, ONEI. Cuba

[19] Cuba Statistical Yearbook 2019 and 2020, National Office of Statistics and Information, ONEI. Cuba

13. **[20]**The beef chain in Cuba. Study of its situation in six municipalities in the provinces of Granma and Santiago de Cuba, Agrocadenas Project, UNDP, 2017.

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[25] Statistical Yearbook 2018, ONEI

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[27] CITMA 2020. Third National Communication to the United Nations Framework Convention on Climate Change, Havana, Cuba.

[28] http://www.fao.org/ag/save-and-grow/en/index.html

[29] http://www.fao.org/climate-smart-agriculture-sourcebook/production-resources/module-b2-livestock/chapter-b2-3/en/

[30] The AFOLU sector is the second in importance of emissions in the country (Third National Communication 2020). The main influences of livestock on these emissions occur as a result of enteric fermentation in livestock activities (CH4) and the direct deposition of animal manure and urine on soils (N20)

[31] http://www.fao.org/3/a-i6492e.pdf

[32]Mountain partnership.: http://www.fao.org/mountain-partnership/en/ and Incentives for Ecosystem Services (IES) ? A financing mechanism for landscape management (pag 38 or 44(pdf)).

1b. Project Map and Coordinates

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

191. The project will be implemented in two large massifs in eastern Cuba: Sierra Maestra and Nipe-Sagua-Baracoa, involving three provinces that are known for having significant indicators in the production of coffee, cocoa, coconut and livestock: Granma (Bartolom? Mas?, Guisa, Buey Arriba), Santiago de Cuba (Guam?) and Guant?namo (Baracoa, Mais?), whose selected municipalities are the most representative in these productive areas.

192. The figures below shows the location of the project intervention areas, reflecting the physical and geographic characteristics, and from the landscape point of view.

193. A more detailed description of the intervention sites is provided in Annex E below.

Figure 6. Location of the project intervention areas

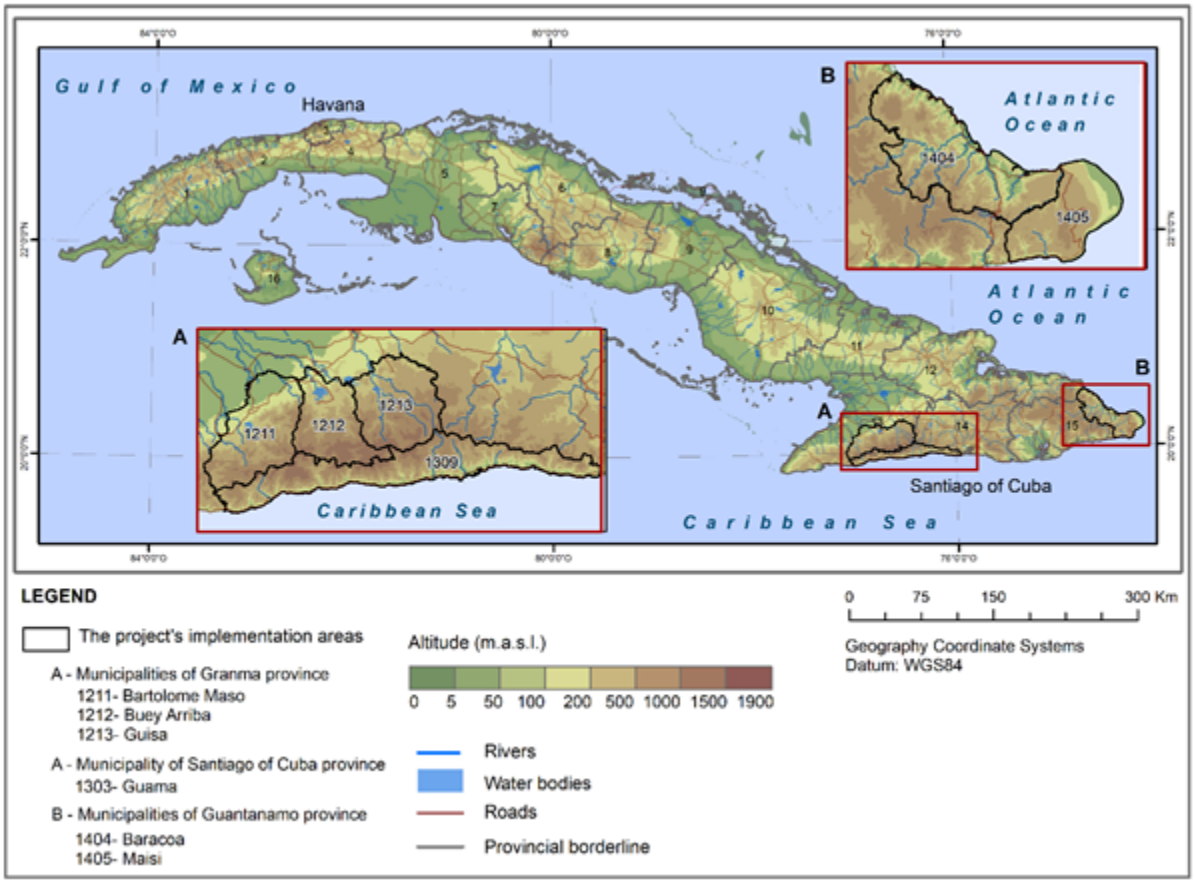
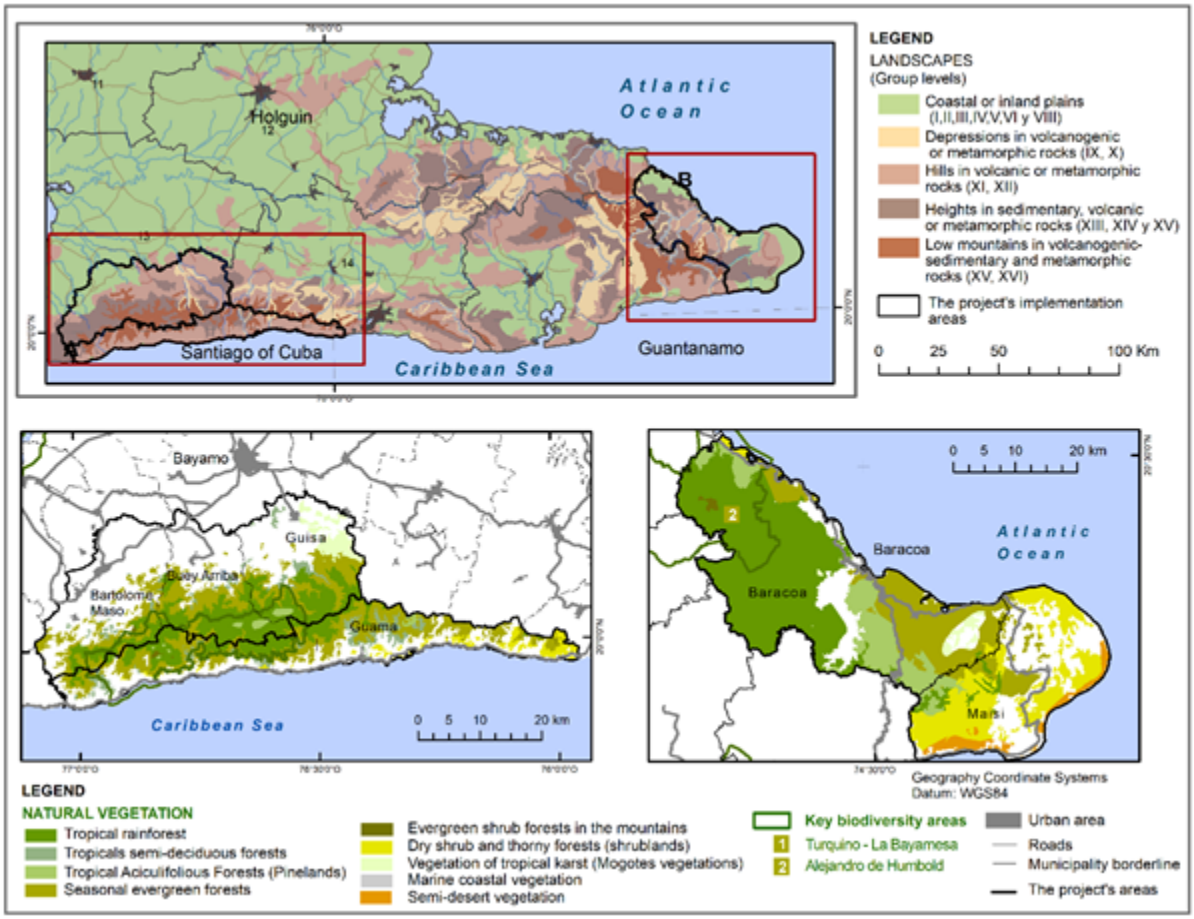


Figure 7. Landscape of the project intervention areas



1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

2. Stakeholders

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

Civil Society Organizations Yes

Indigenous Peoples and Local Communities

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

194. The project will ensure a strong participation of the entities involved during its execution. Outcomes and outputs of Component 1 will necessarily require the participation of the entities involved, as they will introduce new sustainable good practices into different areas by integrating

biodiversity through the conservation and sustainable use of natural resources, which will further impact improving agricultural production and livestock systems management. Likewise, the project will address the proper soil management, the reduction of pollution, the improvement of connectivity of the ecosystem and the restoration of natural and productive ecosystems, all through integrated landscape management. To achieve this, the substantial involvement of a diversity of stakeholders, both national entities and NGOs and the community in general, will be required, incorporating the gender perspective during execution.

195. The review and proposals for possible modifications to the legal and regulatory framework, as well as programs and established policies, demand the attention of key entities to provide different perspectives in the political and management sphere, aimed at ensuring policy and legal instruments that will allow and project biodiversity mainstreaming, by supporting the actions of productive sectors while ensuring effective decision-making.

196. Component 3 requires a high integration of the entities involved, including the decision-making process, as it is the illustrative component of the project, by establishing mini-industries to obtain products of adequate quality that may have the certifications. Access to new markets and the possibilities for local communities to generate new income requires a strategy or involvement plan for the entities in the trade, tourism and production sectors that can identify the needs and market opportunities that will contribute to obtaining positive impacts in the agricultural sector and livestock production process.

197. The participation of the entities involved is also essential as part of component 4, by establishing a national platform for knowledge management, establishing territorial centres for knowledge management, and the integrated management of biodiversity in productive pre-mountain and mountain landscapes, as well as the creation of promoting networks for these issues.

198. Institutional Arrangement and Coordination. The decision-making mechanism of the project is reflected in Section 6. Representatives of the Government and FAO form the Project Steering Committee. In addition, a Technical Committee, with broad participation of all interested parties, including the private sector and NGO representatives, has been proposed to discuss the technical aspects of the annual operating plans and the progress of the project's execution.

199. A preliminary stakeholder engagement plan is detailed below, which will be further discussed and updated at the start of the project.

Table 10. Stakeholders Engagement Plan

Event	Participants	Execution period	Objective
Dissemination Activities	Project consulting team, national project coordinating entity	Previous to inception workshop	Dissemination of project information

Inception workshop	Associations, producers organizations, women organizations, cooperative, representatives of government entities, NGOs, etc.	3 month after the first disbursement	Define and validate methodologies to be used during Project implementation, M&E and evaluation. Confirm institutional roles of project stakeholders. Define local and national focal points for project implementation. Define a participatory consultation and complaint mechanism for project beneficiaries.
SLM annual forum	Associations, producers organizations, women organizations, cooperative, national government entities, scientific institutions, local entities, NGOs, etc.	Before the end/ year of Project execution	Share experiences, advances and knowledge on CSL, Save and Grow, and the implementation of good practices mainstreaming biodiversity based on integrated landscape management. This forum also helps to identify weaknesses to be addressed and increase the effectiveness of the Project. It will be a public forum.
Final workshop	Co executing partners, cooperatives, women?s associations, community leaders, NGOs, national government entities, scientific institutions, local entities etc.	3 months before Project closure	Dissemination of the project results and discussion of lessons learned for future projects. Share success stories with and within beneficiary organizations and other stakeholders in the national livestock sector, which will be input for the project closure report.
Event to share the final evaluation results	FAO Officials, Project consulting team, national coordinating entity, government representatives at national and local level	At the end of the financial execution of the project	Share the final evaluation results, consult with co-executing partners, and identify weaknesses and strengths at the institutional and operational level (local and national. Share experiences.
Publication of the final evaluation	MINAG, FAO	After the end of the project	Public disclosure. The final evaluation, approved by FAO, will be published on FAO and MINAG Disclosure Portal.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

Stakeholders	Role in project implementation
Ministry of Agriculture (MINAG)	Project executing partner. Co-financier. Cochair of the Project Steering Committee. Responsible for implementing baseline initiatives and guiding project activities according to sectorial policies at municipal, provincial and national levels. It will act as a link between state organizations involved in the project, carrying out actions for the purpose of meeting the schedule. It will support all project components.
Agroforestry Group (GAF)	Entity responsible for implementing and supervising development activities.
Agroforestry Research Institute (INAF)	Leading research centre and technical partner. Secretariat of the Project Steering Committee. Its mission is to contribute to the solution of political, scientific and technical problems and challenges associated with the forest industry and its resources and the country's environment. It also provides the scientific and technical base of the productive chains linked to the forest program, prioritizing the improvement of forestry and developing new options for the diversification of forest products and services. Responsible for implementing and supervising research and development activities through the contribution of specialists and researchers on forests, coffee and cocoa-related topics.
Antonio Nu?ez Jim?nez Foundation (FANJ)	Technical Partner: Non-governmental, non-profit civil organization, based on the research and development of programs and actions that form values towards a culture of nature at the local, national and international levels. Reponsible for the technical implementation of Outcome 1.2
Research Centre for Tropical Agriculture Animal Improvement (CIMAGT)	Participating research center and technical partner. Member of the Project Steering Committee. Co-financier. Responsible for implementing and supervising research and development tasks in the components as well as compiling collected data and enhancing capacity-building activities through the contribution of animal production specialists and researchers.
Ministry of Food Industry (MINAL)	Member of the Steering Committee. Responsible for guiding on food production and marketing regulations, policies and programmes and the promotion of value chains related to the project target commodities.

Soil Institute	Its fundamental mission is to provide the technical-scientific basis for the correct use, management, conservation, and improvement of the country?s soil fund and control. Its main functions are: -Generate and execute R + D + I projects that respond to the demands of the programs. -Perform research of institutional interest that allows its development and the provision of technical services of high added value. -Generate and transfer technologies that protect the soil and act against degrading agents. -Cartography and classification of soils, geographic information systems of soils, comprehensive technologies for the use, improvement and recovery of soils. -Management of fertilization by crops and agro-productive evaluations of land. -Diagnostics of soil limiting factors. -Technical assistance for the production and application of organic fertilizers and biofertilizers. -Analysis of soils, water, plants, fruits and chemical, organic and biological fertilizers. -Technical and postgraduate training.
Flora and Fauna Business Group	Its mission is to conserve and manage the natural resources of protected areas and the equine genetic fund with a sustainable use strategy, contributing to the environmental development of rural areas.
Livestock Business Group (GEGAN)	Satisfy society's growing demand for meat, eggs, dairy and animal feed in a sustainable way.
Jorge Dimitrov Agricultural Research Institute	Its mission is to generate and transfer agricultural and environmental knowledge, technologies, products and services for sustainable development in tropical ecosystems.

Ministry of Science, Technology and Environment (CITMA)	Member of the Steering Committee. Responsible for implementing baseline initiatives and guiding state environmental policies. Methodological guide for biodiversity conservation. It has the mission of directing, executing and controlling the policy of the State and Government in matters of science, technology, and the environment; the use of nuclear energy, standardization, metrology and quality control, promoting the coherent integration of these to contribute to the sustainable development of the country. Is responsible for: -Propose and validate the best practices in integrated landscape management to achieve sustainable use of natural resources. Provide information on the impacts of climate change in the country's mountainous regions that favour the adoption of adaptation measures. -Promote the adoption of legal norms that incorporate the sustainable use of biological diversity in the agricultural and livestock sector. Its Provincial Delegations (DP-CITMA) represent CITMA before the territorial authorities, the organisms, associations, organizations and institutions of the territory. It implements and controls the tasks of the State Plan at the territorial level. Supervises and controls the actions of the Project in support of the territorial implementation of the Life Task.
Environment Agency	CITMA Senior Management Organization that proposes and designs strategies related to the environment and natural sciences within the scope of its corporate purpose. It manages and executes programs and projects of scientific research and technological innovation, participates in the elaboration of national and international policies and strategies on environmental matters, and elaborates on legal documents related to environmental issues. It directs, controls and coordinates the entities that are subordinate to it to fulfil its mission.
Institute of Ecology and Systematics	Expand knowledge about biodiversity through systematic and comprehensive ecological studies, promoting its conservation and sustainable use in natural and replacement ecosystems, increasing the contribution to the scientific and socio-economic development of Cuba and the Caribbean area.
National Centre for Protected Areas	Governing centre for the planning and integral management of the National System of Protected Areas, guaranteeing its direction, control and optimal operation.
Ministry of Foreign Trade and Foreign Investment (MINCEX)	Member of the Steering Committee. MINCEX is the governing body and coordinator of international cooperation, responsible for defining national priorities for cooperation and evaluating and monitoring its achievements concerning the defined objectives.

Ministry of the Interior (MININT) through the Ranger Corps	The Ministry of the Interior is the body in charge of directing, executing, and controlling the application of State and Government policy regarding State security and the country's internal order. The Guadabosques Corps's mission is to guarantee the vigilance and protection of the nation's natural resources within the framework of its competence and following policies established by the Ministry of Science, Technology and Environment and Agriculture, and other related organizations. It also coordinates the National Forest Fire Protection System, preserving the geographical environment in the interest of defence, security and internal order.
Institute of Physical Planning (IPF)	Member of the Steering Committee. The Institute of Physical Planning is in charge of directing State and Government policy application in matters of land use planning, urban planning, design and architecture, and the cadastre. Municipal Directorate for Physical Planning (DM-IPF). Prepares and controls the territorial ordering of the IPF. It is an important stakeholder for the authorization of micro-locations and permits for territorial and sectoral development activities.
Ministry of Higher Education (MES)	It is the body in charge of directing, proposing, executing and controlling State and government policy regarding higher education. As part of their structure, the Municipal University Centers (CUM) develop undergraduate and graduate studies with a markedly local character in coordination with the productive sector. They also have a group of Research Institutes and Experimental Stations, several of them of significant national and international prestige and provide essential support to the activity of MINAG. They play an active role in capacity building and the operation of networks and working groups on gender equality issues in all territories.
National Institute of Hydraulic Resources (INRH)	INRH is the rector of land water management. It is in charge of directing, executing and controlling the application of State and Government policy regarding activities of hydraulic resources in the country, for which it organizes and leads, in coordination with the competent bodies, the protection of terrestrial waters, basins, natural channels, hydraulic works and installations against contamination hazards, siltation and other forms of degradation and deterioration, as well as the systematic control of water quality. It also determines with the corresponding agencies, the necessary regulations for the protection of economic and social objectives and the natural environment from the harmful effects that terrestrial waters could cause, establishing the organization, assurance and control actions that guarantee the safety and correct operation of hydraulic installations, flood protection works, underground drainage and the capacity to conduct natural or artificial channels.

Local government (people?s power bodies at community, municipal and provincial level).	Local decision-making body. Provides spaces for exchange and cooperation among institutional stakeholders. Mediates in case of possible conflicts of interest among participating stakeholders. Provides certain types of logistical support. It represents the State; its fundamental mission is the economic and social development of the territory, following the country's general objectives. Coordinator between the central structures of the State and the municipalities, contributing to the harmonization of the interests of the provinces and its municipalities. Exercises the powers and functions recognized in the Constitution and the laws. Supports and controls the implementation of the actions of the Project at the provincial level. Its Municipal Administration Council (CAM) has as an essential objective to satisfy, among others, the needs of the economy, health, welfare, educational, cultural, sports and recreational activities of the community of the territory to which its jurisdiction extends, as well as carry out tasks related to prevention and social care. Supports and controls the implementation of the actions of the Project at the Municipal level.
National Association of Small Farmers (ANAP) (Municipal, Provincial and National)	Top non-governmental organization (NGO)representing the interests of farmers organized into farmers? cooperatives participating in the project. Shall play a significant role in agricultural extension work through its organizations.
Cuban Association of Agricultural and Forestry Engineers (ACTAF) (Municipal, Provincial and National)	NGO.Entity that shall facilitate capacity-building in the various topics covered by the project (agroecology, organic certification, extension work, etc.).
Cuban Association for Animal Production (ACPA) (Municipal, Provincial and National)	NGO.Entity that shall facilitate capacity building in topics relating to pastoral activities and support stockbreeding expansion actions.
Cuban Women?s Federation	NGO. It shall promote women to have a leading role in production and marketing activities linked to project tasks. It will contribute to ensure that employment is distributed in a gender-sensitive manner.
Centre for Women's Studies (CEM)	Conduct research on the situation of women and gender relations in different spheres of Cuban society in order, with them, to contribute to the development of policies and programs aimed at women.
Media	Local radio, local television and the local written press. Contribute to the visibility and dissemination of the results and lessons learned from the Project.
FAO	Cochair of the Steering Committee Provides technical assistance for the preparation and implementation of the Project. Controls Project implementation and its correspondence with national and GEF priorities.
UNESCO	It supports environmental education and technical assistance activities. Provides experiences in the rescue of cultural assets and traditions related to agricultural production, mainly in cocoa production.

Beneficiaries

Direct beneficiaries of the Project:

200. It is estimated that the Project will directly benefit 15 000 people, 3 324 women (22 percent) and 11 676 men. The workers belonging to the agro productive units (CCS, CPA, UBPC, UEB) and other key stakeholders of all six (6) municipalities in Granma, Santiago de Cuba and Guant?namo provinces are considered direct beneficiaries of the Project. Agriculture workers, the scientific and educational institutions related to the Project are also regarded as direct beneficiaries as they will benefit from the institutional strengthening.

201. At the Project design stage, these figures are preliminary. Still, they will be more specific during execution to know precisely the number of people who may benefit from these actions.

202. Table 11. Direct beneficiaries of the Project

Provinces/Municipalities	Beneficiaries			
	Total	Women	Men	% Women
Santiago de Cuba	**533**	**139**	**394**	**26**
Guam?	533	139	394	26
Granma	**11 549**	**2 310**	**9 239**	**20**
Guisa	4 243	849	3 394	20
Buey Arriba	2 883	577	2 307	20
Bartolom?Mas?	4 423	885	3 538	20
Guant?namo	**2 917**	**875**	**2 042**	**30**
Mais?	776	233	543	30
Baracoa	2141	642	1 499	30
TOTAL BENEFICIARIES	**15 000**	**3 324**	**11 676**	**22**

203. It is estimated that the project will indirectly benefit 60,000 residents (at a rate of 4 members per family nucleus), of which 29,400 (49%) are women, and 30,600 are men.

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor; No

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

204. The project strategy must enable that while important natural resources are conserved and regenerated and productive goals are achieved, social problems are confronted with an equity approach. Areas included in communities with a certain level of social and economic vulnerability should be included and prioritize women and young people among the beneficiaries so that they have access to training actions and income-generating productive resources.

205. Women represent 39 percent of the country's population, and 17 percent are in the agricultural sector (123 thousand nine hundred, according to the Statistical Yearbook of Cuba 2020). Although a long history in pursuit of gender equality in policies is recognized, as well as the work of organizations, particularly the FMC and MINAG, the project activities and of the women themselves, the guiding documents for conservation and development strategies of the territories do not include reflections, evaluations or proposals related to gender equality.

206. In the project intervention areas, women are members of cooperatives, communities and institutions. According to the preliminary information analyzed, women represent around 13 percent of the members of small producer cooperatives. They have a significant weight in livestock activity with 13 percent, 10 percent in coffee, 9.8 percent in coconut, and only 7 percent in cocoa.

207. In the agricultural institutions and the productive bases included in the project, they do not exceed 9 percent of the managerial positions; they are generally involved in administrative controls rather than in positions associated with decision-making. The need to develop actions that lead to greater empowerment of women is evident, such as strengthening their participation in the discussion and design of development proposals, technical training actions, and access to employment and productive resources. Training and communication strategies should be implemented to contribute to changes in social imaginations and practices in the women themselves, managers and families, achieve greater awareness of gender equality, reconcile the work-family life and promote joint responsibility in care tasks.

208. In the community consultations and the different interaction spaces for the construction of the proposal, there was a participation of 25 percentage of women. In this diagnostic phase, relevant information was obtained for the gender analysis, the identification of equity gaps and the formulation of the corresponding Gender Action Plan (GAP) (Annex 8)

209. The GAP guarantees the inclusion of the gender issue in all components and products of the Project to reduce the gaps in access to socio-economic benefits and other development actions, with a breakdown of indicators and budget amounts.

210. A key to the Project is that the proportion of beneficiary women exceeds 17%, which is the actual weight in the structure of employment in the sector, in training actions and in access to productive resources to conserve and increase plant genetic diversity and obtaining products with added value. They constitute affirmative actions to favour this group located in a disadvantaged position.

211. The challenge in terms of gender equality lies in an adequate understanding of gender relations in the contexts in which it is inserted and especially in identifying the possibilities to progress in the area of ??gender equality.

212. The Project gives priority to gender equality and the empowerment of women in line with national policies and priorities and the Gender Strategy of the Ministry of Agriculture. More opportunities along diverse value chains offer more potential jobs for women?s employment. The Project will facilitate the inclusion of women to ensure that they obtain benefits of value chain development and in other implemented actions.

213. Given that women have low participation in primary activities (agricultural production) but play critical roles throughout the value chain (e.g. marketing activities), gender-sensitive and income-generating activities are designed to address the key VC stages (Component 3). Women will be included as small-business leaders and through local/direct market networks. The Project will also invest in VCs that are demonstrably more gender-inclusive. Component 1 will support women empowerment through decision-making (ILM planning) . and training to introduce new management practices and technologies in the areas managed by them. Women will be active in policy formulation processes and public consultations. Women will be key players in project information-sharing (Component 4), especially at the community levels. Local-level women?s groups and informal female networks will disseminate information on biodiversity protection (Component 1). These groups have been engaged during the full project preparation.

214. Preliminarily, the project considers the following elements in the logical framework and in the entire strategy:

- Strengthen capacities and opportunities for disadvantaged groups, particularly young people and women. Priority in access to benefits generated by the project (productive resources, jobs generated, income, social services and living conditions, training actions, exchange, decision-making spaces).

- Establishment of goals that guarantee preferential access for women to productive resources and jobs generated by the project, from the position of placing disadvantaged groups in better conditions to enhance their development.

- Inclusion of gender sensitization processes in the personnel in charge of the project and its recipients. Permanent training processes aimed at gender equality in each institution and the establishment of multi-stakeholder workspaces where women and men interact in conditions of equality.

- Establishment of specific indicators to evaluate transformations in gender relations.

- Creation of a unit in charge of monitoring and assessing the gender dimension with local experts.

- Inclusion of communication actions to make visible the contributions of women.

- Processing and analysis of information disaggregated by gender for the differentiated evaluation of the project's impacts.

215. In the six municipalities of the selected sites, the participation of people aged 15 years and over who declare household chores as their activity, generally performed by women, average is 25 percent, which is higher than the average for the three provinces and the average for Cuba (20.06 percent). This may indicate lower participation of women in paid economic activities within these territories (Report prepared by experts from the Faculty of Geography of the University of Havana).

216. The gender analysis carried out in the project areas revealed the occupational structure in the productive units involved:

217. The Gender Analysis conducted during PPG identified the following gender gaps:

? Fewer possibilities for women to take advantage of opportunities for training, employment, and access to technologies and productive resources.
? Under-representation of women in political or administrative leadership spaces associated with decision-making.
? The invisibility of women's work and its contribution to production.

218. Factors associated with the existence of gaps and that guide project actions to reduce them are:

? The overload of women with domestic and care responsibilities and overrepresentation of these in unpaid work.
? Weak support infrastructure for carrying out family reproduction activity (living conditions).
? Poor working conditions and institutional culture for reconciling domestic-family and work performance.
? Weak preparation of stakeholders and beneficiaries on gender issues and their link with BD management.
? Non-existent statistics disaggregated by sex in basic dimensions for analyzing the situation and the contributions of men and women.
? Rooting of sexist patterns in the subjectivity of men and women in all spaces of performance and social coexistence.

In addition, the gender imbalance is due to the low presence of women in the agriculture sector of Cuba (17%). Women have a high education level (more than 85% of women of working age have a high-school education or higher). This factor contributes to their greater insertion in other economic activities. The project is aimed to incorporate women as 22% of the total number of beneficiaries, i.e., 5% above their real weight in the rural structure. The project is intended to benefit women in a greater scale, but without losing sight that in rural areas women are mainly employed in the education, health and commerce sectors. The project actions will be focused on women linked to the agricultural activity and those who do not study or engage in paid work.

Main gender gaps identified and required actions:

Identified Gaps	Actions

Double invisibility of the contribution of women (their productive role together with the male representatives of the household or in backyard agricultural activities and those of the home for the reproduction of the workforce)	? Promote the disaggregation of statistical information by gender and age. ? Gather information and incorporate it into the Project Information System. ? Capture and analysis of information on the time devoted by men and women to reproductive and productive activities. ? Communicative products with case studies and life stories that make visible the role of women in agricultural production and project activities. ? Training and awareness-raising actions for key local actors to gather information on the differentiated contributions of women and men in productive, reproductive and community spaces.
Fewer possibilities for women, in relation to men, of access to training spaces, technologies, leadership positions of greater complexity and salary remuneration	? The indicators of the Project's logical framework are disaggregated by gender whenever possible. ? Favor the presence of women in training spaces, South-South exchanges, in generated jobs (mini industries, value chains, artisanal production) and access to productive resources. ? Promote actions that increase and diversify the supply of pre-prepared foods and others services to lighten the work of family reproduction ? Promote income-generating women's economic initiatives which facilitate the empowerment of women. ? Ensure that the times and places of the project activities consider the domestic and family overload of women to facilitate their participation. ? Awareness and training for beneficiaries and key stakeholders on gender equality issues.

Insufficient presence of women in managerial positions	? Promote gender awareness in stakeholders to increase the incorporation of women into management positions. ? Promote the articulated work of key stakeholders at the local level with academic institutions and specialists in gender equality issues ? Identification and inclusion of women and young people with local leadership in the actions of the project to strengthen their technical and productive capacities

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

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project?s results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

219. The participation of mountain and pre-mountain agricultural and stockbreeding cooperatives and independent farmers will be essential for achieving the Project objectives. Preliminary consultations have been held with the national representatives of producers (National Association of Small Farmers - ANAP). These consultations will continue during the implementation phases of the Project in order to establish the participation commitments that will be included in the Parties Commitment Plan (PCP).

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Section A: Risks to the project

Risk	Classification	Probability of occurence	Risk Mitigation Strategy	Responsible party

Risk	Classification	Probability of occurence	Risk Mitigation Strategy	Responsible party
Risks for biodiversity: Conflicts between productive interests and environmental and conservation interests	Medium	Medium Possible lack of compatibility between conservation actions, needs of communities and productive sectors may have an impact on natural ecosystems and protected areas.	The project design's participatory nature will be guaranteed with the involvement of producers and communities and consultations and consensus for decision-making based on common interests. The Project will guarantee coordination mechanisms to reach a consensus between the productive sector and the Project coordinators on mutually agreed actions, as well as the spaces for settling and reducing controversies. Interests will be balanced in the design of actions and activities. Training and education actions will help to prevent this type of conflict by stressing the advantages of combining both interests and ensuring synergies that will lead to the best results.	Project coordination team
Inter-institutional disagreements due to different visions and approaches	Low	**Low** Implementation of activities and decision-making processes may be affected, particularly concerning national co-financing implementation mechanisms, affecting the motivation of producers and local stakeholders.	Regular coordination mechanisms and inter-institutional cooperation will be foreseen. Participating institutions will be consulted during the design phase and throughout the Project?s life cycle, ensuring that their visions and approaches are considered, respecting the powers and functions established.	Project coordination team

Risk	Classification	Probability of occurence	Risk Mitigation Strategy	Responsible party
Severe climate events such as droughts, strong winds, hurricanes (including climate change impacts) Changes in climate patterns	Medium	**Medium** Damage to the productive infrastructures of cooperatives and producers that affect their performance; acute water scarcity prevents certain crops from growing. Changing patterns can affect the implementation of good agricultural practices in project intervention areas.	During the design and evaluation of agroecosystem and biodiversity management models, the project will consider resilience to the impact of severe weather events, including those caused by climate change. The project will consider the results and recommendations of the Hazard, Vulnerability and Risk Studies available to each project intervention area. The project will work closely with the Municipal Centers of Risk Prevention and Management. The project will support local risk mapping and monitoring systems of climatic conditions. The project will include the agro-meteorological bulletins as key tools for work planning, crop and livestock production activities. Agroclimatic information services will be integrated to disseminate best practices in the agricultural and livestock sectors.	Project coordination team

Risk	Classification	Probability of occurence	Risk Mitigation Strategy	Responsible party
Social risk. Poor involvement and lack of commitment by communities, producers and key local entities**.**	Low	**Low** Producers and local stakeholders do not perceive the benefits of applying the approaches proposed by the project, nor of its possibilities to favor women and young people.	The inclusion of all local stakeholders and the involvement of women and youth will be promoted under the principle of collective benefit, mainly in value chains. Local experiences will be taken into consideration and there will be ongoing consultations with the communities and key stakeholders. Incentives for the development of new productions, value chains, market spaces, incentives systems, and sources of income and employment that contribute to enhancing the living standards of producers and communities. Direct awareness to producers, involved entities and communities about the potential benefits of the project.	Project coordination team

Risk	Classification	Probability of occurence	Risk Mitigation Strategy	Responsible party
Pandemic Risk. Adverse and differentiated impacts of the COVID-19 pandemic	Medium	**Medium** The possibility of contagion, health impacts and the socio-economically differentiated effects of the pandemic influence the possibilities and disposition of the different stakeholders for the execution of the project, affecting the fulfilment of the activities programmed in the established time..	Ensure strict compliance with the established standards of behaviour, all sanitary hygiene measures and other indications issued by the country's authorities for each stage of the pandemic. Carry out differentiated analyses for men and women and ensure a plan of measures that consider the multiple needs and limitations of women as producers, processors, entrepreneurs, and guardians of food and family health. Permanently monitor the status and effects of the pandemic in the project implementation areas for the timely adoption of the appropriate measures.	Project coordination team

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

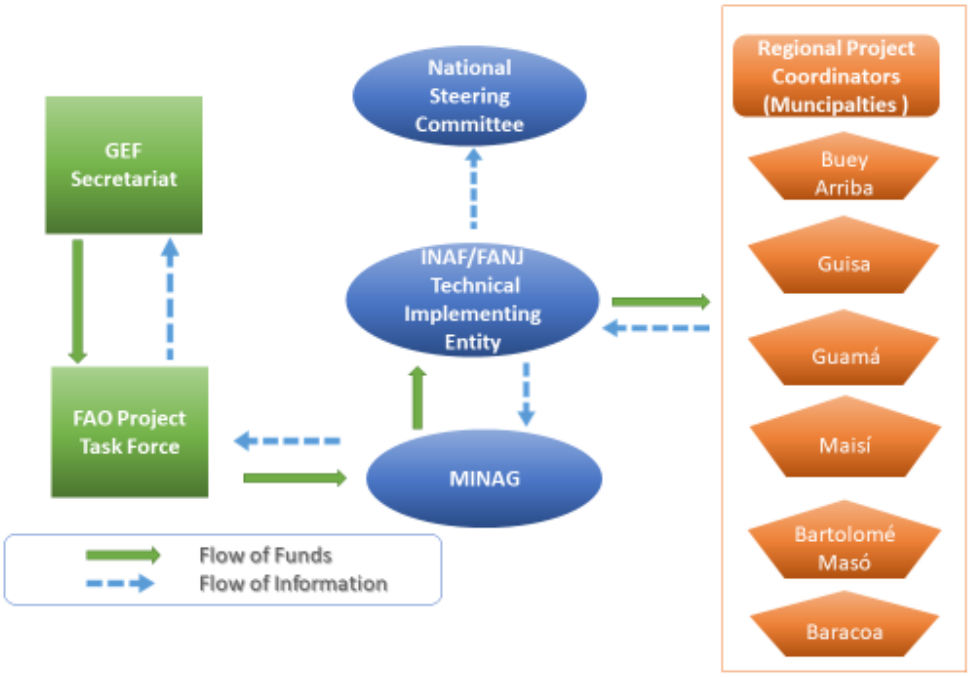
6.a Institutional arrangements for project implementation

220. The Minisitry of Agricuture (MINAG), will act as the Project Executing Agency in close consultation with other ministries and local governments participating in field activities. The Agroforestry Research Institute (INAF), suboredinated to MINAG, will have the technical implementation responsibility for the Project, with direct participation from the NGO "Antonio N??ez Jim?nez" Foundation for Nature and Humanity (FNAJ) in the execution of Outcome 1.2.

221. The Food and Agriculture Organization of the United Nations (FAO) has been selected by the participating country as the GEF Implementing Agency and as such, will provide project cycle management services as established in the GEF Policy. FAO will be responsible for providing oversight, technical backstopping and supervision of project implementation to ensure that the Project is being carried out in accordance with agreed standards and requirements. Technical backstopping will be provided by FAO in coordination with government representatives participating in the Project Advisory Committee.

222.Project Governance Structure:

Figure 8. Project Management Structure



223. A Project Steering Committee (PSC) will be established and co-chaired by FAO and MINAG, with INAF acting as Secretariat. It will comprise representatives from the Ministry of Environment (CITMA), Ministry of Food Industry (MINAL) and the Ministry of International Cooperation and Foreign Investment. The members of the PSC will act as project Focal Point(s) in their respective institutions. As Focal Points, the PSC members will: (i) technically oversee activities in their sector, (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the Project, (iii) facilitate coordination and links between the project activities and the work plan of their agency, and (iv) facilitate the provision of co-financing to the Project.

224. The PSC will meet at least twice a year to ensure: i) Oversight and assurance of technical quality of outputs; ii) Close linkages between the Project and other ongoing projects and programmes relevant to the Project; iii) Timely availability and effectiveness of co-financing support; iv) Sustainability of key project outcomes, including up-scaling and replication; v) Effective coordination of government partner work under this Project; vi) Approval of the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget; vii) Making by consensus, management decisions when guidance is required by the National Project Coordinator.

225. MINAG will designate a National Project Director (NPD). The NPD will be an INAF staff member and will have the responsibility of supervising and guiding the implementation of he project in line with government?s policies and priorities. He/she will also be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners and for

requesting FAO the timely disbursement of GEF resources that will allow the execution of project activities, in strict accordance with the Project Results-Based Budget and the approved annual work plans and budgets (AWP/B) for the current project year. The NPC will be the Secretary to the PSC.

226. A Project Management Unit (PMU) will be co-funded by the GEF. The main functions of the PMU, following the guidance of the Project Steering Committee, are to ensure overall efficient management, coordination, implementation and monitoring of the Project through the effective implementation of the AWP/Bs.

227. The PMU will be composed of a National Project Director (NPD) who will work full-time for the project lifetime in conjunction with a FANJ technical expert responsible for the technical implementation of Outcome 1.2. In addition, the Component Managers (4), a Planning and Monitoring Manager, an Administrative Manager and a Financial Manager will be part of the PMU. This structure will be in charge of managing the day-to-day implementation of the Project. The NPD will report to the CDN. The PMU will provide secretariat support to the PSC.

228. In addition, the PMU will have a Territorial Coordination Structure made up of Municipal Project Coordinators responsible for local implementation and coodination (1 in each of the 6 municipalities)

229. Financial management of GEF resources will be carried out according to FAO and GEF regulations and procedures.

6.b Coordination with other relevant GEF-financed projects and other initiatives.

230. The project will promote coordination with the following GEF-financed projects:

- ***A Landscape Approach to the Conservation of Threatened Mountain Ecosystems (Connecting Landscapes)*** **(GEF ID 4846)**. This Project is implemented from 2016 to 2022 and involves production entities and institutions of the agricultural sector mainly located in mountain areas and covers other aspects of biodiversity integration based on strengthening connectivity between landscapes and protected areas. It will contribute with significant experiences, mainly those derived from Outcome 3: Production systems compatible with conservation and connectivity.

- ***Capacity Building for Sustainable Financing Mechanisms / Sustainable Land Management in Dry Land Forest Ecosystems and Cattle Ranching Areas (OP15)*** **(NPCDD GEF/UNDP (2437).** This Project is currently being implemented and is the third of 5 projects that constitute the Country Pilot Partnership (CPP) of Cuba in support of Sustainable Land Management. It operates in the province of Villa Clara and is expected to continue till 2024. It will contribute significant experiences in sustainable land management.

- ***Incorporating multiple environmental considerations and their economic implications into the management of landscapes, forests and productive sectors in Cuba (ECOVALOR)*** **GEF Project ID 9429**. Implemented from 2016 to 2022 with the objective ?to promote the generation of multiple environmental benefits based on the integrated economic valuation of ecosystem goods and services, as a tool for decision-making at different levels.? It is being implemented in the north and west of the Pinar del Rio province, in the province of Matanzas, in the north of Villa Clara province, including the coastal plains and adjoining fringing reefs, cays and mangroves, and in the north of Las Tunas and Holguin provinces.
- ***Introduction of New Farming Methods for the Conservation and Sustainable Use of Biodiversity, including Plant and Animal Genetic Resources in Production Landscapes in Selected Areas in Cuba (COBIMAS)*** **GEF 6 Project**, ID 9435. Implementation period 2019-2024. The objective of the Project is to

contribute to *in situ* conservation of a group of species, local races as well as globally and nationally important varieties for food production and their wild relatives and the ecosystems that house them. It will be implemented in three (3) areas of the Matanzas, *Sancti Spiritus* and Granma provinces --given their value and importance for agriculture and natural biodiversity?linked to four (4) protected areas. Conservation *in situ* will be done through the use of sustainable agricultural practices under the *Save and Grow* principle promoted by FAO that focuses on soil, which is of great interest for this Project.

231. Adittionally, at the policy level, the project will review and propose revisions of the regulatory framework and the sectoral legislation to embed biodiversity into policies and strategies of the agricultural sector. The project will build upon existing efforts under the following GEF projects (linked to biodiversity conservation in agriculture and food production):

- GEF/UNDP (2437) CPP Cuba). (see above) Activities at the policy level aim to train and raise awareness regarding the planning, decision-making, and regulations necessary for the implementation of Sustainable Land Management (SLM) in Cuba. The design of an integrated SLM model of severely degraded areas is among the main results of this program.

- GEF/FAO (9435) (see above): Project activities at the policy level include reviewing the regulatory and legal framework to propose actions for the protection of genetic resources and the conservation of agrobiodiversity.

- GEF/UNDP (4846) (see above): Project activities at the policy level focus on implementing a systemic framework for landscape management, improving the effectiveness of protected area management, and establishing production systems compatible with conservation and connectivity; in four relevant intervention areas, which are directly linked to this submitted proposal.

- UNESCO?s experiences in assisting the National Committee of the International Hydrological Program (the only intergovernmental program of the United Nations devoted to water research and management, and related education and capacity development) will be evaluated, particularly in reference to determining the ecological and environmental flow of water currents. Likewise, UNESCO?s expertise in rescuing cultural traditions and goods related to agricultural productions, particularly coconut growing, will be of great value.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

232. Cuba signed the Convention on Biological Diversity (CBD) in 1994. This Project is in line with the evaluations and priorities established in the 6th National Report to the CBD (2019) and the objectives of the 2016-2020 National Biodiversity Program, which establishes among its priorities: to increase reforestation with native species; rehabilitate and restore ecosystems to avoid fragmentation; increase resilience and connectivity; contribute to climate change and extreme events adaptation and mitigation; pay

special attention to fragmentation, pollution and forest fires, which are among the main biodiversity threats; harmonize and integrate the objectives of conservation and sustainable use of biodiversity into the country's development policies and strategies and the decision-making processes at all levels; integrate and mainstream biological diversity issues in other sectors. The Project will mainly support the fulfilment of Goals 5 and 14 of the National Biodiversity Program and the Aichi Biodiversity Targets 1, 7, 15 and 19.

Aichi Biodiversity Target	**Project Outputs**
Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	**1.1.3, 1.1.4, 2.1.3, 4.1**
Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	**1.1.5, 2.1.1, 2.1.4**
Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced, through conservation and restoration of 15 per cent of degraded land.	**3.1.1, 3.1.2**
Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	**1.1.1, 1.1.2, 1.1.3, 1.1.4,2.1.1, 2.1.5, 3.1.3**

233. The Basis of the National Plan for Economic and Social Development to 2030 are also relevant. Under its Strategic Axis "Natural Resources and Environment," a General Objective is defined as "Guarantee the protection and rational use of natural resources, the conservation of ecosystems, and the care of the environment and the natural heritage of the nation for the benefit of society. Specific Objective: 4 elaborates: "Protect biodiversity and sustainably use assets and ecosystem services and the natural heritage of the country, socializing the utility and importance of these for all citizens", and 9: "Improving soils with the application of a sustainable agriculture, including a Sustainable Land Management approach, as a way to contribute to achieving the country's food security and sovereignty".

234. The objective of the project is aligned with the Guidelines of the Economic and Social Policy of the Party and the Revolution for the period 2016-2021, in particular with guideline 159: ?To develop sustainable agriculture, using integrated management of science, technology and environment, taking advantage of and strengthening the capacities available in the country, in addition to recognizing the various productive scales; Guideline 160: ?Prioritize the conservation, protection and improvement of natural resources, including soil, water and zoo and plant genetic resources. Recover the production of quality seeds, animal and plant genetics; as well as the use of national biological products ?and guideline 170:? Promote the development of tobacco, coffee, beekeeping, cocoa and other activities, to contribute to the gradual recovery of exports ?.

235. Concerning the National Soil Conservation and Improvement Program (PNCMS), the project is linked to the application of productive practices that generate better productive yields, enable the reduction

or counteract limiting factors of the soil such as erosion, acidification, or low fertility. This program pursues as part of its policy: To preserve the national soil resource and the development of environmental achievements, and the stabilization of soil conservation and improvement measures in the identified areas. These aspects are implicit in the project.

236. Another important document that outlines national priorities is the State Plan for Confronting Climate Change (Life Task), with which the project is essentially identified in Task 8: Implement and control the adaptation and mitigation measures derived from climate change of sectoral policies in programs, plans and projects related to food security, renewable energy, energy efficiency, land and urban planning, fishing, agriculture, health, tourism, construction, transportation, industry and comprehensive forest management.

237. At the same time, the project is aligned with the coffee, cocoa, coconut and livestock development programs concerning its projections for the year 2030.

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

238. Knowledge management is at the core of this Project and one of its purposes. It is vital for ensuring enhanced visibility, scope and replication of best practices, including those developed by women and to sensitize decision-makers, communities and producers to attain the proposed transformations. The Project will coordinate actions with 4 other projects being implemented in Cuba with GEF funds (OP15, ECOVALOR, Connecting Landscapes, and COBIMAS) as well as with other related projects being implemented by FAO in the region in order to harness lessons learned, the experiences and knowledge generated. Exchanges and guidance activities are foreseen and the spaces and facilities provided by FAO for information sharing will be used. Component 2 will address the improvement of inter-institutional coordination, integration and exchange of information, which will facilitate knowledge management processes. As part of the design, Component 4 (Knowledge Management, M&E) will include concrete information and knowledge dissemination actions; the drafting of bulletins, the creation of databases and the use of the web sites of the research entities and of the AGRINFOR system of the Ministry of Agriculture to manage the new knowledge produced and systematized in programs, manuals, methodological guidelines, and other documents resulting from the implementation of Component 2. In order to guarantee progress and success of the Project, regular identification and analysis of lessons learned will be conducted.

239. Knowledge management will be aligned with the principles defined in the FAO Knowledge Management Strategy [1] aimed at government actors, project beneficiaries and partners, taking into account cultural perceptions and including the following guidelines in its design and implementation: a) Take a participatory and gender approach, b) Underpin ongoing processes of high acceptance and focused on finding solutions to local problems, c) Differentiated training for the type of actor at multiple scales, and d) Implement a mechanism for the monitoring and evaluation of outcomes and impact of the capacity strengthening programme.

240. The GoC has wide expertise in South-South cooperation (10+ countries supported in 2014-2019), and this is a top government priority, so the project will benefit from this institutional setting. In addition, the

project will participate in the networks promoted by UNDP/FAO/UNESCO in similar projects, and in scientific networks, as the Caribbean Biological Corridor Initiative.

241. Regarding CSLM and sustainable agriculture intensification, knowledge-sharing will be facilitated by FAO. Beneficiaries from knowledge-sharing sessions and South-South cooperation are government partners and small- and medium-scale producers in other countries, such as Uruguay, Ecuador, Dominican Republic, Honduras, Kenya, including Cuba. Same applies for Save and Grow.

Table 12. Key KM deliverable with associated budget

Key KM deliverables	**Expected dates**	**Estimated budget**
Communication strategy and campaign: - Target stakeholders and beneficiaries - Identification and sharing of technical information - Appropriated means of dissemination (virtual, radio, brochures, policy briefs) - Scope of the information to be communicated, content by type of audience, materials to be disseminated, etc.	First-second quarter of the first year of execution	20,000 (communication campaign)

Dissemination of brochures, best practices and lesson learned of at least 5 key aspects: - Synthesis of knowledge on national and local ILM - Best practices and lessons learned on ILM/GLEAM and Save and Grow; and - Reducing your footprint program with ILM perspective - Systematization of lessons learned on ILM implementation at the subnational level - Linking ILM and production certification with the Reducing your footprint program (water and products)	Second semester of years 1, 2, 3 of project execution	10 500 (printing and advertisement materials) 12 000 (communication expert)
Total		**42,500**

[1]http://www.fao.org/fileadmin/user_upload/capacity_building/KM_Strategy.pdf

9. Monitoring and Evaluation

Describe the budgeted M and E plan

242. The Project will systematize the knowledge and lessons learned. At the same time, successful experiences will be disseminated through the creation of a knowledge and information management platform, including the documentation and dissemination of the producers' best practices. This platform mentioned above will be supported by the preparation of newsletters, the creation of databases, the review of research centres' websites, and the AGRINFORN system of the Ministry of Agriculture.

243. In this sense, a monitoring and evaluation plan will be followed to recognize the impacts of the Project's actions and activities.

Reporting schedules

1. Specific reports that will be prepared under the monitoring and evaluation program are:

a. Project inception report

b. Annual Work Plan and Budget (AWP/B)

c. Project Progress Reports (PPRs)

d. Annual Project Implementation Review (PIR)

e. Technical reports

f. Co-financing reports

g. Final Report.

244. In addition, the GEF core indicators will be reported tracking progress against project baseline (PY 0).

245 **Project Inception Report.** After FAO internal approval of the Project, an inception workshop will be held. Immediately after the workshop, the National Project Coordinator (NPC) will prepare a project inception report in consultation with the FAO Representation in the country and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B and the M&E Matrix. The draft inception report will be circulated to FAO and to the Project Steering Committee (PSC) members, for review and comments before its finalization, no later than three months after project start-up.

246. **Annual Work Plan and Budget(s) (AWP/Bs).** The NPC will present a draft AWP/B to the PSC no later than 10 December of each year. The AWP/B should include detailed activities to be implemented by project outcomes and outputs and divided into monthly timeframes and targets, and milestone dates for output and outcome indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included, together with all monitoring and supervision activities required during the year. The FAO Representation in in the country will circulate the draft AWP/B to the FAO Project Task Force and will consolidate and submit FAO comments. The AWP/B will be reviewed by the PSC and the NPC will incorporate any comments. The final AWP/B will be sent to the PSC for approval and to FAO for final no-objection.

247. **Project Progress Reports (PPR).** The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and to take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework (Annex A), AWP/B and M&E Plan. Each semester the NPC will prepare a draft PPR, and will collect and consolidate any comments from the FAO PTF. The NPC will submit the final PPRs to the FAO Representative in the country every six months, prior to 10 June (covering the period between January and June) and before 10 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF.

248. **Annual Project Implementation Review (PIR).** The NPC, in coordination with the national project partners, will prepare a draft annual PIR report covering the period July (the previous year) through June (current year) no later than July 1st every year. The Lead Technical Officer (LTO) will finalize the PIR and

will submit it to the FAO-GEF Coordination Unit for review by July 5th. The FAO-GEF Coordination Unit and the LTO will discuss the PIR and the ratings. The LTO is responsible for conducting the final review and providing the technical clearance to the PIR(s). The LTO will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat and the GEF Independent Evaluation Office as part of the Annual Monitoring Review of the FAO-GEF portfolio.

249. **Technical reports.** The technical reports will be prepared as part of the project outputs and will document and disseminate lessons learned. Drafts of all technical reports must be submitted by the NPC to the PSC and FAO Representation in the country, which in turn will be shared with the LTO for review and approval and to the FAO-GEF Coordination Unit for information and comments before finalization and publication. Copies of the technical reports will be distributed to the Liaison Committee and the PSC and other project stakeholders, as appropriate.

250. **Co-financing reports.** The NPC will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all the project co-financiers and eventual other new partners not foreseen in the Project Document. Every year, the NPC will submit the report to the FAO Representation in the country before June 10, covering the period July (the previous year) through June (current year). This information will be used in the PIRs.

251. **GEF 7 Core Indicators.** In compliance with GEF policies and procedures, tracking tools on a given focal area should be sent to the GEF Secretariat in three stages: (i) with the project approval document by the GEF CEO Endorsement; (ii) in the mid-term of the Project; and (iii) with the final evaluation of the Project.

252. **Final Report**.Within two months prior to the Project?s completion date, the Project Coordinator will submit to the PSC and FAO Representation in the country, a draft final report. The main purpose of the final report is to give guidance to authorities (ministerial or senior government level) on the policy decisions required for the follow-up of the Project, and to provide the donor with information on how the funds were utilized. Therefore, the terminal report is a concise account of the main outputs, outcomes, conclusions and recommendations of the Project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for ensuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the integrated landscape management in the context of the development priorities at national and departmental levels, as well as in practical execution terms. This report will specifically include the findings of the final evaluation. A project evaluation meeting will be held to discuss the draft final report with the PSC and the Project Liaison Committee before completion by the Coordinator and approval by FAO-GEF Coordination Unit.

Evaluation provisions

253. The GEF evaluation policy foresees that all medium and large size projects require a separate terminal evaluation. Such evaluation provides i) accountability on results, processes, and performance; ii) recommendations to improve the sustainability of the results achieved and iii) lessons learned as an evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects.

254. The Budget Holder (BH) will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project, taking into account the ?GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects?. FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process via the OED Decentralized Evaluation Support team ? in particular; it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings.

255. After completing the terminal evaluation, the BH will be responsible for preparing the management response to the evaluation within four weeks and sharing it with national partners, GEF OFP, OED, and the FAO-GEF CU.

Monitoring and Evaluation Summary

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Inception workshop.	National Project Coordinator (NPC) (Support from Lead Technical Officer - LTO and FAO-GEF Coordination Unit).	In the first quarter of PY1	USD 8 000
Project Inception report.	NPC, M&E expert, with clearance by LTO, and FAO.	In the first quarter of PY1	
Project level impact monitoring.	NPC, project partners, local organizations.	Continuous.	USD 10 000 (9 percent of project coordination time, technical workshops for identifying indicators, monitoring and follow-up workshops)
Field level impact monitoring.	NPC, project partners, local organizations.	Continuous.	
Supervision visits and rating of progress in PPRs and PIRs.	NPC, FAO Sub-regional Office and LTO.	Annual, or as needed.	FAO visits costs will be borne by GEF agency fees. Project coordination visit costs will be borne by the project travel budget.
Project Progress Reports (PPRs).	NPC, with stakeholder contributions and other participating institutions.	Six-monthly	USD 3 000 (3.5 percent of project coordination time)

Project Implementation Review (PIR).	Drafted by the NPC, with the supervision of the LTO and FAO Representation. Approved and submitted to GEF by the FAO-GEF Coordination Unit.	Annual.	FAO staff time financed though GEF agency fees. PMU time covered by the project budget.
Co-financing reports.	NPC with input from other co-financiers.	Annual.	PMU time covered by the project budget.
Technical reports.	NPC, FAO (LTO, FAO Representation).	As needed.	
Mid-term Review Progress Workshop	National Project Coordinator (NPC) (Support from Lead Technical Officer - LTO and FAO-GEF Coordination Unit).	At the end of 20 months from project start	USD 8000
Mid-term review	NPC, FAO country (Support from LTO).	At the end of 21 months from project start	USD 30,000 external consultancy
Terminal Evaluation (TE).	The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED.	At the end of the Project (to start at least 6 months before the completion date).	USD 50,000 for external consultancy Staff time and travel costs will be financed by GEF agency fees.
Terminal Report.	NPC; FAO (FAO Representation, LTO, FAO PSR Reporting Unit).	Two months prior to the end of the Project	USD 6,550
Terminal Workshop.	NPC, FAO country (Support from LTO).	Immediately after the Terminal Evaluation.	USD 8,000 for terminal workshop.
Total M&E budget			USD 110,550

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

256. The actions of the project in the sphere of production-processing and marketing of coffee, cocoa, coconut and livestock products will promote processes that add added value to existing local productions, market spaces, both for local and national consumption as well as for export, certification and incentive systems through the articulation of actors and knowledge at all levels, and the use of sustainable technologies and social participation. While reducing the negative impact on natural resources and increasing efficiency in local productions, these actions will generate tangible benefits for producers and residents. The extension of sustainable agricultural methods and value chains, focusing on sustainability

and equity, favours the generation of jobs, income, and food sources through the strengthening of environmental management based on the nature-economy-society relationship.

257. Due to the improvement of the productive systems, knowledge, attitudes and practices of producers and local communities, in addition to the active participation of government entities, municipalities and agricultural cooperatives, the main expected global benefits include:

a) Direct benefits of 50,000 ha of productive landscapes in 2 areas of high biodiversity wealth and socio-environmental vulnerability that will improve the quality and management of their natural resources resulting from the application of the approaches promoted by FAO "Save and Grow" and "Climate-Smart Livestock" (CSL). Another 20,000 ha of high national significance for food production and exportable products will be indirectly benefited. These ecosystems will improve their functioning and health due to reducing the negative impacts of agriculture in the buffer zones, improvements in water quality, increase in biodiversity, connectivity and the establishment of biological corridors. 700 ha of agricultural land and forests will be restored and reclaimed

b) Four (4) value chains will benefit the production-commercialization-consumption cycle to reduce negative impacts on the environment.

c) Four (4) Regulatory frameworks strengthened at the local level, with repercussions on national policies, endowed with practical evidence, analysis and integrative proposals for sustainable management (economic, environmental and social dimension).

d) By creating these global benefits, the project will contribute to the environmental, social and economic sustainability of agricultural activity and the sustainable management of biodiversity in the implementation areas. Fifteen thousand local producers (22% women) in rural communities in the fragile mountain and pre-mountain ecosystems learn and incorporate sustainable management practices of agrobiodiversity. Through participatory and equity approaches, especially gender, the improvement of living and working conditions and production increases and the diversification of productions will favour the stable settlement of population groups and the reduction of rural emigration; hence the agricultural areas of these territories will obtain incremental benefits.

11. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE

PIF	CEO Endorsement/Approval	MTR	TE
	Medium/Moderate		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Risk identified	Risk Classification	Mitigation Action (s)	Indicator / Mean(s) of Verification	Progress on mitigation action
ESS 5 Possible use of pesticides in agricultural activities	Medium The Project will not buy, manage or support activities that incorporate or increase the use of pesticides; however, initially, their exceptional use by producers in agricultural production areas should not be ruled out.	- Preference will be given to sustainable pest management approaches as per the Integrated Pest Management (IPM), ecological approaches to pest management, and mechanical/cultural/physical or biological pest control tools. - Guarantee the training of producers in integrated pest management according to national and FAO regulations, showing alternative methods to reduce their use. - Identify quantities, concentration and frequency of use of pesticides used by producers independently. - Prepare an updated program for the biological control of pests and diseases.	- Training actions in integrated pest management and the use of biological methods. - Level of participation of producers in training actions. -Updated the program for the biological control of pests and diseases.	Biannual

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
ESS Screening Checklist Cuba Coffee Cacao	CEO Endorsement ESS	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Objective: To reduce pressures on the 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.							
Component 1: Mainstreaming of BD conservation and sustainable use in mountain and pre-mountain landscapes (Nipe-Sagua-Baracoa and Sierra Maestra)							
Outcome 1.1: Increased adoption of production practices that integrate biodiversity use and conservation and improved resource management based on people?s knowledge, skills and abilities.	**GEF Core Indicator 4**: Areas of landscapes under improved management	0	0	50 000 ha (field work) (5 000 ha tended by women)	Operating partner reports PPR/PIR Reports of MTR and TE	The conditions have been created to implement the "Save to Grow" and "Climate Smart Livestock" approaches in the project implementation areas and there is support from the government and mass bodies at the local and national levels	MINAG, GEFF, INAF PMU
	Project Indicator 1: Number of beneficiary producers and technicians, disaggregated by gender, including training processes. ***(Contributes to GEF Core Indicator 11)***	0	0	15 000 direct beneficiaries 22% are women	PPR/PIR Reports of Mid-Term Review and Terminal Evaluation		
	Project Indicator 2: Highly sensitive and important areas for BD not converted into agriculture lands	0	0	*20 000 forest hectares*	Operating partner reports PPR/PIR Reports of MTR and FE		

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	Indicator CC-6:GHG emissions mitigated	0	0	*10 911 887 tonCO_2 eq (in 5 project years plus 15 years of capitalization ? as calculated by EX ACT and GLEAM tools)*	Cuba National Determined Contributions Comunication Reports to the Paris Agreement Cuba National Communications to the UNFCCC		
	Project Indicator 3: # of Farms with *Save and Grow* and Climate-Smart Livestock (CSL) practices in mountains areas[1].			10,000 farms, 10% women-led	Field visits Minutes of the visits to the production centers by the MINAG Delegation in the territory		CIMAG, FMC, ACTAF, ACPA, ANAP, MINAG GEFF INAF Local authorities, cooperatives PMU
	Project Indicator 3.1: Number of new and innovative sustainable practices proven and implemented in intervention areas	0	3	6	Reports Visits to intervention areas. Infographics Workshop reports Project Progress Report		CITMA CIMAG, FMC, ACTAF, ACPA, ANAP, MINAG INAF Local authorities, cooperatives PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output.1.1.1 Assessment and inventory of accompanying flora and fauna and their valuation in the agricultural-pastoral systems.	Number of diagnoses and inventories of flora and fauna in agricultural systems.	0	6 diagnoses of flora and fauna (1 for each pre-mountain municipality) in the intervention areas	6 diagnoses and inventories of flora and fauna (1 for each pre-mountain municipality) in the intervention areas	Reports of expeditions to the areas. Documents and reports generated by the project		MINAG, CIMAGTAC TAF ACPA GEFF CITMA PMU
Output 1.1.2 Integrated landscape management (ILM) strategy developed and agreed with key stakeholders, with gender approach.	1.1.2 a) Number of ILM strategies prepared for the implementation zones, considering the gender perspective, presented to key environmental, local government, and sectoral stakeholders.	0	2 consultation processes carried out with men and women in productive and technical roles for the development of two ILM strategies(1 for each area of intervention)	2 strategies agreed and presented to key stakeholders for approval (1 for each area of intervention)	Documents and reports from MINAG and CITMA Documents and reports generated by the project Minutes of meetings and workshops		CITMA IMAGT, FMC, ACTAF, ACPA, ANAP, MINAG GEFF IIAF Local authorities, Cooperatives PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	1.1.2 b)) Percentage of acceptance of ILM strategies by stakeholders in each intervention area.	0	At least 50% of the stakeholders accept the strategic actions proposed in each area of intervention.	100% of stakeholders accept the strategic actions proposed in each intervention area.	Stakeholdes surveys Monitoring and control reports on strategy implementation		CITMA IMAGT, FMC, ACTAF, ACPA, ANAP, MINAG GEFF IIAF Local authorities, Cooperatives PMU
	1.1.2 c) Number of women producers and technicians surveyed for the elaboration of ILM strategies.		At least 10% de las consultas	At least 20% de las consultas			Coordinating team in each municipality
Output 1.1.3 An updated program for biological pest and disease control (as part of the ILM strategy).	Number of specific programs designed to control pests and diseases in each area of intervention.	0	----	2 programs designed and aprobed (one for each area of intervention)	Documents and reports from MINAG and CITMA Documents and reports generated by the project Minutes of meetings and workshops		CITMA CIMAGT ACTAF, ACPA, MINAG GEFF INAF PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 1.1.4 A capacity development program for producers and technicians on ILM, ILM best practices, and financial incentives, with a gender focus	1.1.4 a) Number of technicians and producers trained in practice to assess ABD and facilitate its sustainable management and implementation of Save and Grow and Climate Smart Livestock approaches	0	(TBC) 7 000 (1 500 women)	(TBC) 15 000 (3 324 women)	Training programs implemented Minutes of the courses and workshops taught. List of participants.		CIMAGT, FMC, ACTAF, ACPA, ANAP, MINAG GEFF INAF Local authorities, cooperatives PMU
	1.1.4 b) Percentage of producers including new management practices and conservation technologies based on the training received	0	30% (15% are Women)	70%(15% are Women)	Reports on the visits of the local MINAG office to the participating cooperatives and producers		MINAG PMU
	1.1.4 c) Number of Field Schools established to train producers and technicians in good practices of integrated landscape management, including financial incentives and gender equality	0	2 established Field Schools (one for each area of intervention)	3 Field Schools established (1 for Sierra Maestra and 2 for Nipe Sagua Baracoa)	Specific course programs, including financial incentives and gender equality. Minutes of the courses and workshops taught. List and certificates of participants.		MINAG, INAF PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Outcome 1.2 Key natural and agro-ecosystems in pre-mountain and mountain areas have been restored through participatory management, with gender focus increasing socio-ecological resilience	**GEF Core Indicator 3.1**: Area of degraded agricultural lands restored	0	0	200 ha of forests of mixed uses	Operating partner reports PPR/PIR Reports of MTR and FE	The services provided by natural and agricultural mountain and pre-mountain ecosystems contribute to the sustainability of local productions and the resilience of communities.	FANJ ACTAF, ACPA, ANAP, MINAG GEFF, IIAF CITMA PMU
	GEF Core Indicator 3.2: Area of forest and forest land restored	0	0	500 ha of restored forests	Operating partner reports PPR/PIR Reports of MTR and FE		
Output 1.2.1 Participatory field actions implemented to restore 500 has of protective ecosystems in agricultural and pre-mountain community-based areas	# of hectares of rehabilitated protective ecosystems	0	150 ha (10% managed by women)	500 ha (10% managed by women)	Report of visits to the intervention areas Project Progress Reports		FANJ ACTAF, ACPA, ANAP, MINAG GEFF, IIAF CITMA

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 1.2.2 Capacity development programs for young people, women and communities to support restoration actions, family farming and strengthen ties with the local territory.	Number of specific programs designed for capacity building with gender approach	0	---	6 participatory designed programs (one for each municipality of intervention)	Participatory Workshops Reports Project Progres Reports Municipal training programs.		FANJ ACTAF, ACPA, ANAP, MINAG GEFF, IIAF CITMA PMU
Output 1.2.3: Community-based toolbox to design, implement, rehabilitate and monitor field actions in natural and agro-ecosystems	1.2.3 a) Number of toolbox designed	0	0	1 Toolbox with Guidelines - -	Workshops Reports Project Progress Reports		FANJ ACTAF, ACPA, ANAP, MINAG GEFF, IIAF CITMA PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	1.2.3.b) Technical Manual of good agricultural practices adapted to local pre-mountain conditions with gender focus.	0	Technical Manual Proposal	Technical Manual	Document		FANJ ACTAF, ACPA, ANAP, MINAG GEFF, IIAF CITMA PMU
Component 2: Strengthening governance, policy framework and capacity building.							
Outcome 2.1. Policy, legal and regulatory frameworks for agriculture production have mainstreamed biodiversity conservation and use with Ggender focus	***Project Indicator 4:*** *Number of institutions and entities with strengthened capacities.*	0	**At least 11**	At least 21	Operating partner reports PPR/PIR Reports of MTR and FE	The current regulatory and legal framework covers the main aspects to be taken into account for biodiversity convervation and use in mountain and pre-mountain productive landscapes	CIMAGTFMC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Autoridades locales, Cooperativas, PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	Project Indicator 5**: Territorial coverage of programs and sectorial policy framework for BD conservation and natural resources sustainable management (in hectares)* ***(Contributes to GEF Core Indicator 4)	0	0	200 000 benefited hectares (20 thousand women-led)	Operating partner reports PPR/PIR Reports of MTR and FE	management	
<u>Output 2.1.1</u> Capacity development program(s) on BD and natural resources management, control and monitoring.	Number of organizations that integrate the perspective of biodiversity conservation, sustainable use of natural resources and a gender equality approach in their development programs.	0	At least 11 organizations with development programs integrating BD	At least 21 organizations with development programs integrating BD	Document of the development programs of local governments, entities and institutions. Report on training/ awareness activities with stakeholders to include the BD approach in development programs		CIMAGTFMC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Local authorities, Cooperatives PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 2.1.2</u> Review of laws/regulations to incorporate biodiversity considerations.	2.1.2 a) Percentage of documents of the legal and regulatory framework for the sector reviewed.	Weak presence of aspects of biodiversity conservation and sustainable management of natural resources within the sectorial regulatory framework.	50 % of documents reviewed	100 % of documents reviewed	Report on the results of the meetings and workshops for the review of the legal framework		CIMAGTF MC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Local authorities, Cooperatives PMU
	2.1.2 b) Diagnosis of legal gaps in the current sectorial regulatory framework related to biodiversity.		Survey and study of the documents associated with the current sector legal and regulatory framework.	Document of the analysis and evaluation of the current legal and regulatory framework, identifying all legal documents that lack a biodiversity integration approach.	Project reports and evaluations Workshop reports Analysis documents		

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.1.3 Revised legal and regulatory frameworks	Percentage of the documents identified from the sectorial legal and regulatory framework that are proposed to incorporate the aspects of biodiversity conservation and the sustainable use of natural resources.	0	30 % of the documents identified with proposals for incorporating the aspects of biodiversity conservation and the sustainable use of natural resources.	100% of the documents identified with proposals for incorporating aspects of biodiversity conservation and the sustainable use of natural resources.	Project reports and evaluations		CIMAGTFMC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Local authorities, Cooperatives PMU
Output 2.1.4 Policy Framework and 4 sectorial programs are BD-mainstreamed with gender focus	Number of sectoral policies and programs that incorporate the aspects of biodiversity conservation and the sustainable use of natural resources with a gender perspective.	Weak presence of aspects of biodiversity conservation and sustainable management of natural resources with a gender perspective in sector policies and programs.	Proposal prepared in the 4 sector programs (coffee, cocoa, coconut and livestock) for the integration of biodiversity with a gender perspective, within the framework of their policies.	The policy framework of the 4 sector programs (coffee, cocoa, coconut and livestock) include the integration of biodiversity with a gender perspective	Policy and legal documents. Report on the results of the meetings and workshops for the review of the sector policy framework		CIMAGTFMC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Local authorities, Cooperatives

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.1.5 Inter-sectorial working group to support newly created institutional capacities and inter-institutional coordination, incorporando enfoque de g?nero.	2.1.5 a) Number of intersectoral working groups created for inter-institutional coordination with a gender perspective.	0	6 intersectoral working groups (one for each Municipality in the intervention areas)	6 intersectoral working groups (one for each Municipality in the intervention areas)	Supporting documents with evidence of the creation of working groups. Minutes and reports of the Work Meetings		CIMAGTFMC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Autoridades locales, Cooperativas.
	2.1.5 b) Percentage of key stakeholders that recognize improvements in inter-institutional coordination.	0	At least 80% of the key takeholders recognize improvements in inter-institutional coordination	100% of key stakeholders acknowledge that inter-institutional coordination has been improved.	Project Progress Report Stakeholder Surveys report		CIMAGTFFMC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Autoridades locales, Cooperativas.
Output 2.1.6 Sectorial financing mechanism designed for BD-positive projects	Number of financial mechanisms designed to promote biodiversity conservation projects	0	The bases for the implementation of 2 sectoral financing mechanisms (1 for Agriculture and 1 for Livestock) for biodiversity conservation projects have been evaluated.	2 sectoral financing mechanisms designed (1 for Agriculture and 1 for Livestock) for biodiversity conservation projects	Minutes and reports of the workshops and work reports. Agreement of the local authorities.		CIMAGTFMC, CITMA ACTAF, ACPA, ANAP, MINAG GEFF INAF Local authorities, Cooperatives
Component 3: Strengthening sustainable value chains.							

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Outcome 3.1: BD contribution has been assessed in value chains born in selected landscapes.	**Project Indicator 6:** Number of new markets identified that are accessed with the incorporation of products resulting from good practices in agroecological/ organic productions	0	4 new markets evaluated and diagnosed: 1-Tourism 2- Non-agricultural production and services cooperatives, 3- Self-employed workers (private sector), 4- National and foreign companies exporting goods and services	4 new markets established and connected to the value chains of coffee, cocoa, coconut and livestock production in the productive landscapes of the project intervention areas.	Visits to the implementation areas. Minutes of meetings and reports. Project evaluations		CIMAGTFMC, ACTAF, ACPA, ANAP, MINAG GEFF IIAF Local authorities, Cooperatives
<u>Output 3.1.1</u> Mountain and pre-mountain value chains in coffee, cocoa, coconut, and beef are assessed and practices along the chain are aligned to comply	3.1.1 a) Number of studies prepared where the value chains of coffee, cocoa, coconut and livestock are evaluated.	0	4 Studies where value chains are evaluated (one for each productive item)	6 Studies where the value chains integrated to the productions at the local level in the evaluated items are evaluated (one for each Municipality of intervention)	Studies that support the strengthening/ creation of value chains Minutes and reports of the workshops and work reports		FMC, ACTAF, ACPA, ANAP, MINAG, CITMA, MINAL, BNC MINCIN MINTURGEF Local authorities, cooperatives

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
with identified organic markets and standards through market intelligence, market access, cost, and sustainability studies.	3.1.1 b Number of strategies developed for the creation/ strengthening of value chains for coffee, cocoa, coconut and livestock in the project implementation areas.	0	The 4 strategies evaluated and agreed with the stakeholders, one for each item for the creation / strengthening of value chains in productive mountain and pre-mountain landscapes, including the requirements for the certification of new products and access to new markets.	The 4 strategies developed and with proposals submitted for approval, one for each productive item, for the creation / strengthening of value chains in productive mountain and pre-mountain landscapes.	Diagnostic and evaluation documents of value chains Minutes of meetings and reports. Project evaluations Strategy document for strengthening value chains.		FMC, ACTAF, ACPA, ANAP, MINAG, CITMA, MINAL, BNC MINCIN MINTURGEFF Local authorities, Cooperatives

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 3.1.2</u> Demonstrative models applied and adapted to local landscapes (BD mainstreamed in agricultural practices)	3.1.2 a) Number of established production and marketing chains.	0	Advanced studies for the implementation of mini-industries, new products and points of sale have been carried out.	Established 4 mini-industries: 1. Improvement and use of residues from coffee production (use of pulp and mucilage for making tea and energy drinks) 2. Chocolate production (artisanal - organic or with a protected geographical indication). Other uses as a traditional liquor from the Cuban East produced from the fermentation of cocoa residues. 3. Processing and utilization of residues from coconut production (typical coconut sweets from the eastern provinces of Cuba, denominat	Reports of visits to the implementation areas. Project evaluations Established mini industries and marketed products		ACTAF, ACPA, MINAG, CITMA, MINAL, BNC MINCIN, GEFF Local authorities, Cooperatives FMC

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	3.1.2 b) Number of people, disaggregated by sex , in the selected production and marketing chains who receive training and economic benefits, with a gender equity approach	0	Training for personnel participating in the identified chains is carried out, at least 60% are women	Two hundred people benefited from the implementation of the chain, of which at least 120 are women, income improves	Reports of visits to the implementation areas. Project evaluations		ACTAF, ACPA, MINAG, CITMA, MINAL, BNC MINCIN, GEFF, Local authorities, Cooperatives ,FMC
<u>Output 3.1.3</u> Alternative organic certification and geographical indication schemes, designed and tested	3.1.3 a) Number of technical guides prepared for organic/ agroecological certification and protected geographical indication schemes for coffee, cocoa, coconut and livestock production.	0	The technical requirements /procedures evaluated and diagnosed as well as the conditions for organic/ agroecological certification in the intervention areas, including protected geographical indication schemes for coffee, cocoa, coconut and livestock production .	4 technical guides prepared for organic/ agroecological certification, including protected geographical indication schemes for coffee, cocoa, coconut and livestock production in the project intervention areas.	Visits to project implementation areas. Minutes and reports of the workshops and work meetings. Project evaluations		CIMAGTF MC, ACTAF, ACPA, ANAP, MINAG GEFF IIAF Local authorities, Cooperatives

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	3.1.3 b) Number of hectares of productive landscapes (differentiating those managed by men and women), that integrate the conservation and sustainable use of biodiversity are evaluated and meet the requirements for agroecological certification.	0	5 000 ha (10% managed by women)	20 000 ha (10% managed by women)	Visits to the implementation areas. Minutes of meetings and reports. Project evaluations Evidence of the application of the technical guides for the agroecological certification of the products		CITMA CIMAG, FMC, ACTAF, ACPA, ANAP, MINAG GEFF IIAF Local athorities, Cooperatives
	3.1.3 c) Number of products with potential for organic certifications including geographical indication schemes.	0	Conditions are created for organic certification and/or geographical indication schemes of at least 4 products.	Conditions are created for organic certification and/or geographical indication schemes of at least 6 products.	Reports of visits to the project implementation areas. Project evaluations Evidence of the application of the technical guides for the organic certification of products and / or geographical indication schemes.		CITMA, CIMAGT ACTAF, ACPA, ANAP, MINAG, GEFF, IIAF Local authorities, Cooperatives
Component 4: Project Knowledge Management, Monitoring and Evaluation (M&E) with gender sensibility.							

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Outcome 4.1: Knowledge and lessons learned systematized with gender focus and disseminated for the replication and scaling-up of successful experiences.	**Project Indicator 7**: At least one document systematizing experiences and knowledge with gender focus in every productive branch:	0	0	4	PIR /PPR Mid-term and final evaluations Final Project Report	The Project's monitoring and evaluation reports make it possible to systematize knowledge and practices, with gender sensitivity, and disseminate them to other territories.	CITMA, CIMAGT, ACTAF, ACPA, ANAP, MINAG, GEFF, IIAF Local authorities, Cooperatives FAO
<u>Output 4.1.1</u> Information and knowledge management centres created to promote and monitor the integrated landscape management in targeted municipalities	4.1.1 a) Number of territorial knowledge management centers established to integrate a national platform for the integrated management of biodiversity in productive mountain and pre-mountain landscapes with a gender perspective.	0	6 knowledge management centers established at the municipal level (one in each municipality of intervention of the project, made up of at least 60% of women.	The national platform is created and integrates at least 6 territorial knowledge management centers for the integrated management of biodiversity in productive mountain and pre-mountain landscapes.	Project evaluation reports. Reports of visits to the project implementation areas. Published documents	The project partners are open to the challenges, successes and lessons learned from the project so that these can be identified, published and disseminated nationaly through the plataform	CITMA, CIMAG, ACTAF, ACPA, ANAP, MINAG, GEFF, IIAF Local authorities, Cooperatives PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
	4.1.1 b) Number of local networks supported	0	At least 3 municipalities of intervention have created their local networks, 2 coordinated by women.	At least 6 municipalities of intervention have created their local networks, 4 coordinated by women.	Project monitoring and evaluation reports.		CITMA, CIMAGT ACTAF, ACPA, ANAP, MINAG, GEFF, IIAF Local authorities, Cooperatives PMU
Output 4.1.2 Cooperation and exchange actions implemented emphasizing South-South cooperation.	Number of events to exchange knowledge with countries of the Greater Caribbean region through South-South exchanges, conferences and participation in global events.	0	At least two knowledge exchange events held through South-South cooperation	At least four knowledge exchange events held through South-South cooperation	Reports of events communication documents.	The exchange of information with other countries of the Greater Caribbean region through South-South cooperation has been facilitated.	MINAG, MINCEX PMU
Output 4.1.3 A Monitoring and Evaluation (M&E) Plan with gender focus and Gender Action Plan, implemente	4.1.3 a) Implementation of the monitoring and evaluation plan with a gender perspective, to provide systematic information on the progress of the project	0	2 progress reports (PIR) and a mid-term evaluation	5 progress reports (PIR) and a final evaluation	Progress reports and project evaluations	Published communication materials (videos, manuals, guides, brochures, infographics, webinars). Press reports PPR/PIR	MINAG, PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
d	4.1.3 b) Gender Action Plan implemented	0	The strategy for the implementation of the Gender Action Plan approved	Gender Action Plan implemented	Report of workshops on gender Project progress reports and evaluations		MINAG, FMC, PMU.
	4.1.3 c) The communication and visualization strategy of the project actions with a gender perspective has been prepared and implemented	0	Communication Strategy designed for the project with a gender perspective.	Project communication strategy implemented, including project logo, newsletters, website.	Published communication materials (videos, manuals, guides, brochures, infographics, webinars,). Webpage PPR/PIR	The communication strategy is suitable for the target audience with a gender perspective and culturally appropriate	MINAG, FMC, PMU
<u>Output 4.1.4</u> Manual on gender mainstreaming in sustainable production systems (including *Save and Grow* and CSL).	Prepared manual on the incorporation of the gender perspective in sustainable production systems, which systematizes practices and learning.	0	Design of the manual that systematizes practices and learning for gender equality.	Manual prepared on gender mainstreaming in the project.	Gender manual		MINAG, FMC, FAO

[1]http://www.fao.org/3/i8324en/i8324en.pdf, The exact number of farms will be determine during the Project preparation phase.

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Council Comments		**Project Formulator Team Response**
GERMANY Component 1	It is not clear how this component contributes to addressing barriers 2, 3 and 4 (especially, how does this component increase local technical capacities and how does it enhance information and the science/policy interface?). Mainstreaming seems to refer to the use of biological pest and disease control only, while mainstreaming is, however, usually understood as a broader approach to integrating biodiversity into sectors, policies, etc. The proposal should therefore consider using a broader approach to the mainstreaming component such that the barriers targeted here can be overcome.	Agree. Content of Component 1 was revised, and the wording was modified, which can be seen in the body of the PRODOC, specifically paragraphs 89 and 90.
Component 2	It is not clear how capacities are to be strengthened and how biodiversity will be mainstreamed into the regulatory framework. The proposal would benefit from a more detailed description of planned activities and how they address barrier 1.	The project document reflects the different training topics, which are better reflected in the Project Results Framework, contained in Annex A1. It is suggested to verify the following: Outcome 1.1 see 1.1.4 a, b and c; Outcome 3.1 see 3.1.2 b, 3.1.3 a; and Outcome 4.1 see 4.1.4

Component 3	This component does not seem to be adequate in addressing barrier 5. The proposal should clearly describe how the interest and incentives for producers to invest in sustainable practices and new products can be raised.	Kindly note that Component 3 is not aimed at addressing Barrier #5 but Barrier #2. Barrier #5 will be overcome through Component 1. Regarding the interest and incentives for producers to invest in sustainable practices and new products, please note that the project will: i) promote waste valuation and re-use; and ii) identify products with potential for organic/ecologocial certification or *denomination of origin* (see as reference: http://www.fao.org/3/i1760e/i1760e00.pdf). This strategy is expected to contribute to sustainable agricultural practices, and generate global environmental benefits and socio-economic co-benefits. Improved livelihoods and access to local and tourism markets will be supported. Please see Annex A1 of the FAO GEF Project Document (Results Framework), Outcome 3.1, indicators 3.1.2b, and 3.1.3 b.
Component 4	This component should elaborate on the target audience for the knowledge products to be developed and how the project will ensure that these products will be used effectively.	Agree. Paragraphs 123-126 of the FAO GEF document describe the project communication and knowledge management outputs, with a gender-sensitive approach.
	Finally, Germany would also recommend reviewing the description of barriers, to more clearly differentiate between causes and effects and illustrate how project activities contribute to addressing them.	Agree. Barriers have been refined in the FAO GEF Project Document.

UNITED STATES OF AMERICA	The United States of America objected to this project during the 57th Council meeting. Those objections notwithstanding, we would suggest that the future version of this proposal include greater detail regarding how the project would effectively address barrier #5, which indicates that there are no economic incentives for farmers to mainstream biodiversity.	Kindly note that Barrier #5 has been revised and refers to the lack of updated information and the poor science/policy/production interface. Regarding the poor economic incentives for farmers to mainstream biodiversity, please note that the project will: i) promote waste valuation and re-use; and ii) identify products with potential for organic/ecologocial certification or *denomination of origin* (see as reference: http://www.fao.org/3/i1760e/i1760e00.pdf). This strategy is expected to contribute to sustainable agricultural practices, and generate global environmental benefits and socio-economic co-benefits. Improved livelihoods and access to local and tourism markets will be supported. Please see Annex A1 of the FAO GEF Project Document (Results Framework), Outcome 3.1, indicators 3.1.2b, and 3.1.3 b.

ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: 150,000			
Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
5011 Salaries Professional	7,143	0	0
5013 Consultants	96,332	77,168	18,431
5021 Travel	15,829	0	0
5023 Training	21,752	5,752	20,000
5024 Expendable Procurement	0	0	0
5025 Non Expendable Procurement	7,546	7,546	20,000
5028 General Operating Expenses	1,398	1,103	0
Total	**150,000**	**91,569**	**58,431**

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

GUANT?NAMO

MAIS?

Figure 9. Project's intervention sites in Maisi

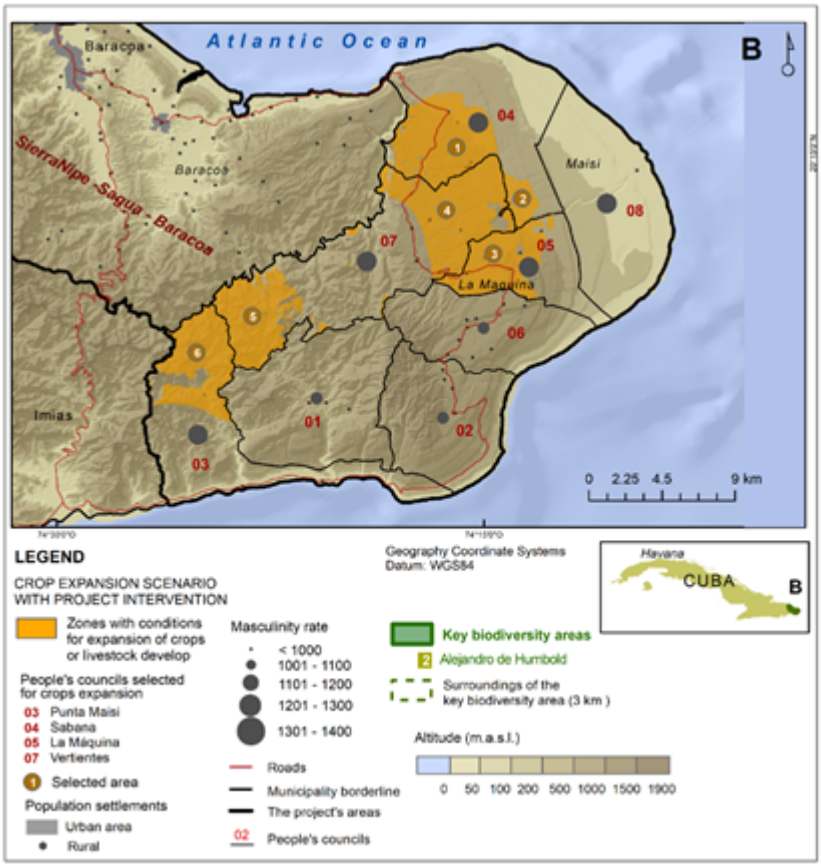


Table 13. Coordinates of the project's intervention sites in Maisi. (The geographical coordinates use Datum WGS84)

Municipality	Id (PC)	People? s Councils (PC)	Id of area	Latitude (North)		Longitude (West)	
				Bottom	Top	Left	Right
Maisi	04	Sabana	1	20o 13? 54?	20o 17? 41?	-74o 14? 16?	-74o 11? 45?
Maisi	04	Sabana	2	20o 11? 54?	20o 13? 06?	-74o 15? 41?	-74o 13? 50?

Maisi	05	La M?quina	3	20° 11? 16?	20° 15? 08?	-74° 12? 06?	-74° 15? 45?
Maisi	07	Vertientes	4	20° 11? 14	20° 15 ? 34?	-74° 12? 32	-74° 17? 26?
Maisi	07	Vertientes	5	20° 08? 28	20° 12? 03?	-74° 20? 54	-74° 24? 15?
Maisi	08	Boca de Jar?co	6	20° 06? 43	20° 10 ? 57?	-74° 23? 22	-74° 26? 40?

BARACOA

Figure 10. Project intervention sites in Baracoa

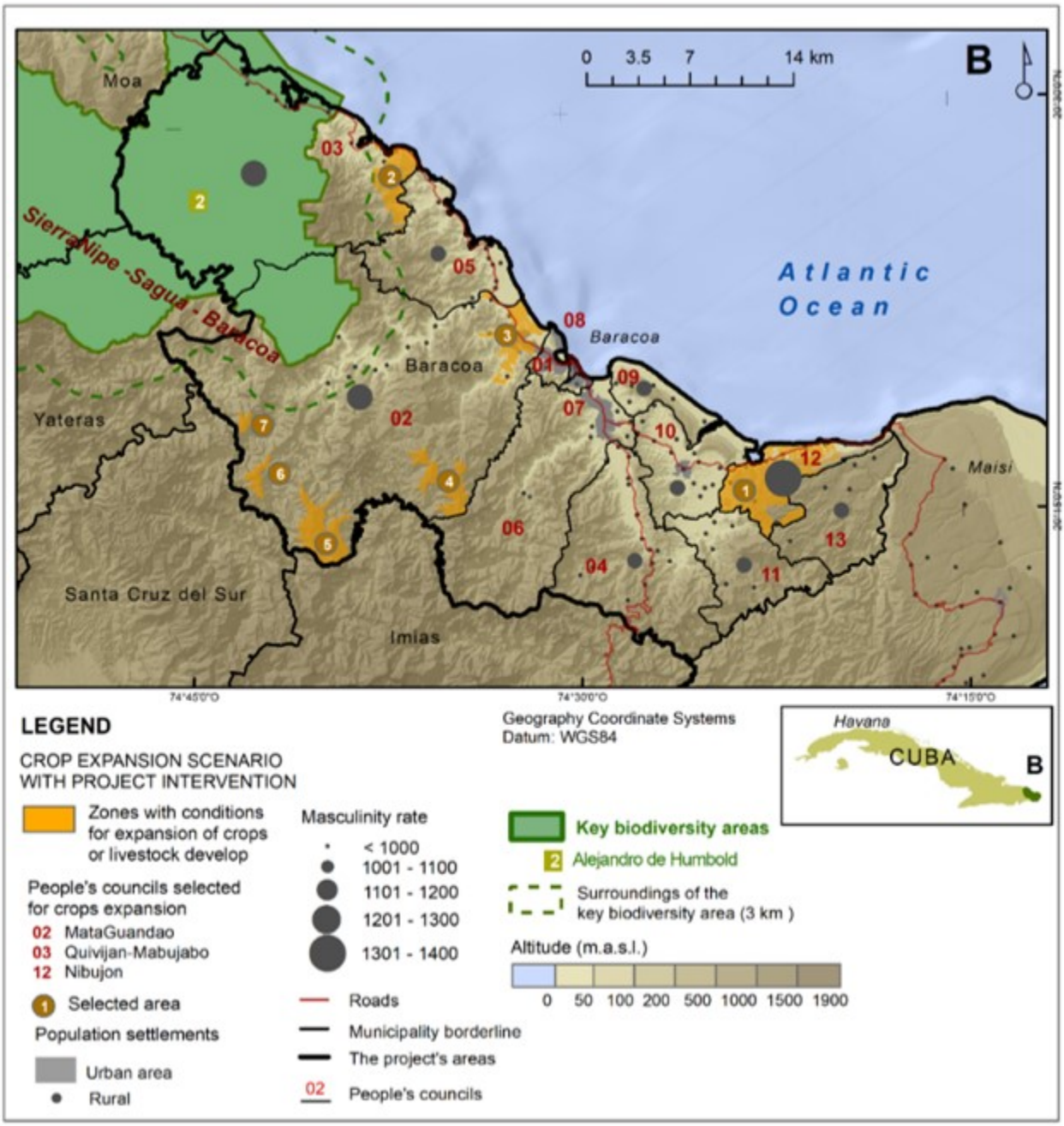


Table 14. Coordinates of the project's intervention sites in Baracoa. (The geographical coordinates use Datum WGS84)

Municipality	Id (PC)	People? s Councils (PC)	Id of area	Latitude (North)		Longitude (West)	
				Bottom	Top	Left	Right

Baracoa	12	MataGuandao	1	20º 14? 14?	20º 17? 46?	-74º 24? 24?	-74º 19? 41?
Baracoa	03	Nibuj?n	2	20º 26? 02?	20º 29? 15?	-74º 37? 19?	-74º 35? 31?
Baracoa	02	Quibij?n Majubabo	3	20º 20? 13?	20º 23? 50?	-74º 33? 32?	-74º 30? 34?
Baracoa	02	Quibij?n Majubabo	4	20º 15? 30?	20º 18? 38?	-74º 36? 18?	-74º 34? 07?
Baracoa	02	Quibij?n Majubabo	5	20º 15? 28?	20º 18? 19?	-74º 40? 47?	-74º 38? 43?
Baracoa	02	Quibij?n Majubabo	6	20º 16? 24?	20º 18? 06?	-74º 42? 48?	-74º 41? 31?
Baracoa	02	Quibij?n Majubabo	7	20º 18? 52?	20º 19? 38?	-74º 42? 58?	-74º 42? 11?

SANTIAGO DE CUBA

GUAM?

Figure 11. Project intervention sites in Guam?

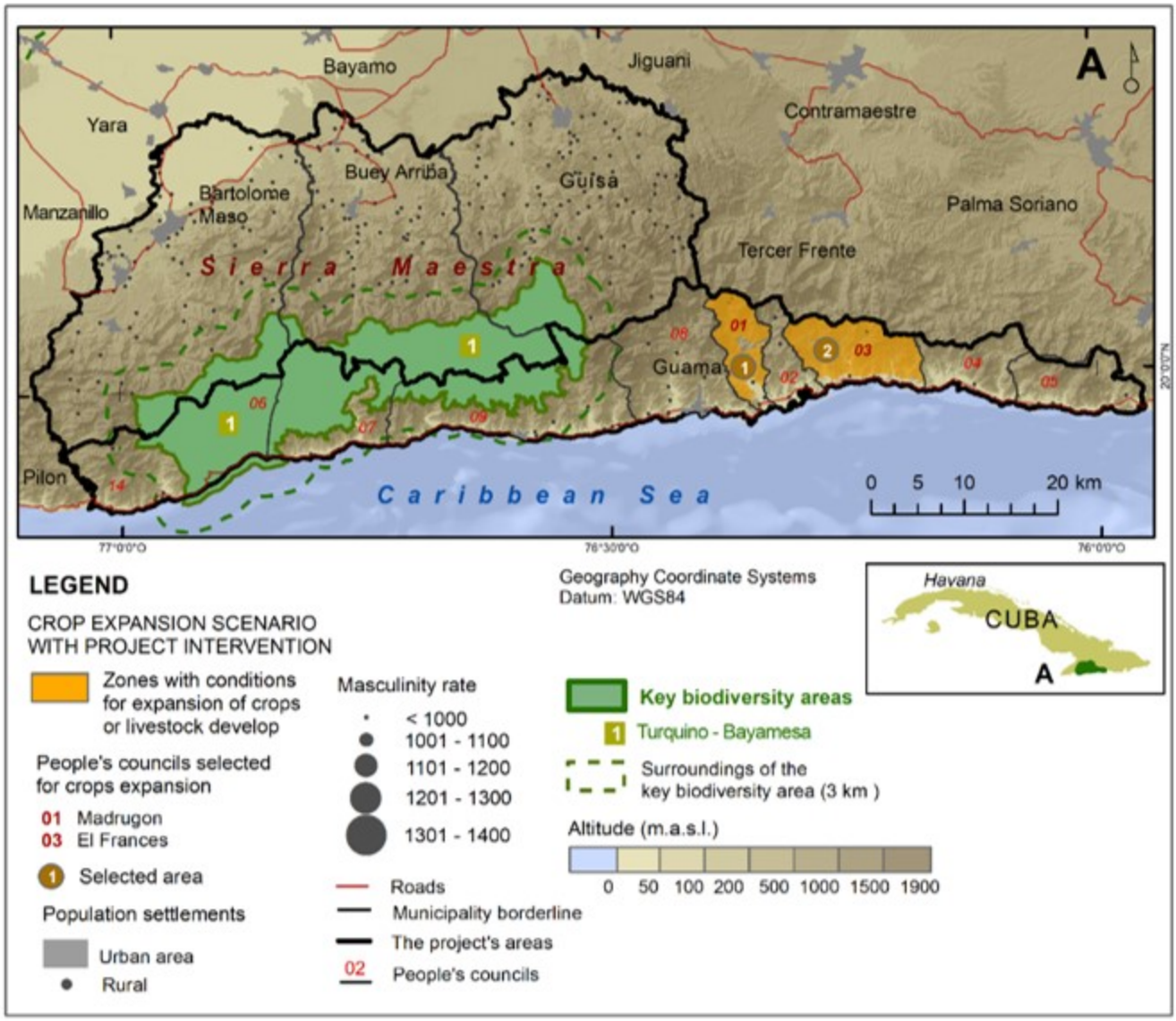


Table 15. Coordinates of the project intervention sites in Guam?. (The geographical coordinates use Datum WGS84)

Municipality	Id (PC)	People? s Councils (PC)	Id of area	Latitude (North)		Longitude (West)	
				Bottom	Top	Left	Right
Guam?	01	Madrug?n	1	19o 58? 20?	20o 05? 12?	-76o 24? 09?	-76o 19? 51?

Guam?	03	El Frances	2	19° 59? 48?	20° 03? 39?	-76° 19? 17?	-76° 10? 32?

GRANMA

BARTOLOM? MASO

Figure 12. Project intervention sites in Bartolom? Maso

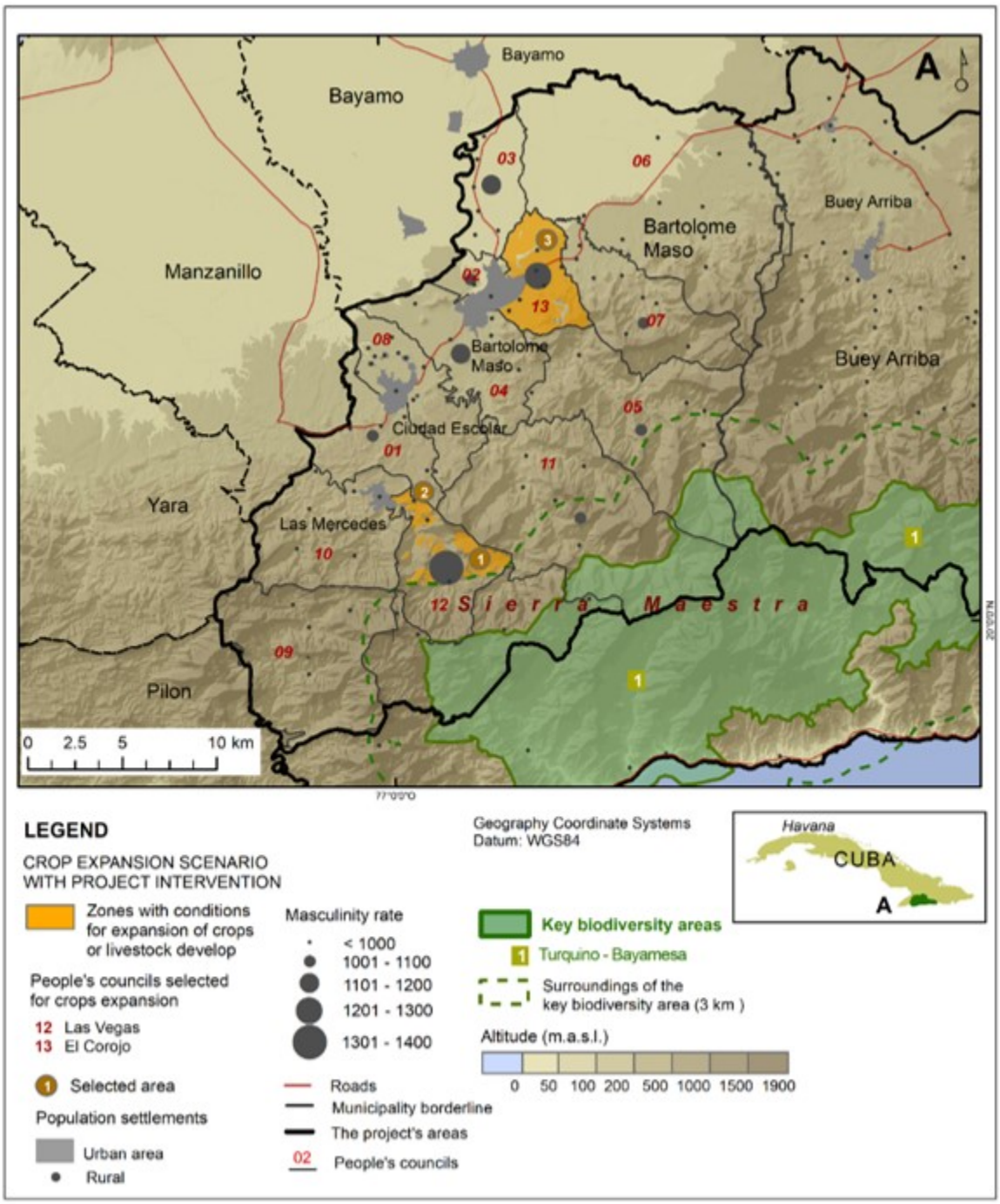


Table 16. Coordinates of the project intervention sites in Bartolome Maso. (The geographical coordinates use Datum WGS84)

Municipality	Id (PC)	People? s Councils (PC)	Id of area	Latitude (North)		Longitude (West)	
				Bottom	Top	Left	Right
Bartolom? Maso	12	Las Vegas	1	20^{0} 01? 34?	20^{0} 02? 56?	-76^{0} 59? 42?	-76^{0} 56? 16?
Bartolom? Maso	12	Las Vegas	2	20^{0} 03? 07?	20^{0} 04? 21?	-77^{0} 00? 08?	-76^{0} 58? 15?
Bartolom? Maso	13	El Corojo	3	20^{0} 08? 22?	20^{0} 12? 17?	-76^{0} 56? 43?	-76^{0} 53? 41?

BUEY ARRIBA

Figure 13. Project intervention sites in Buey Arriba

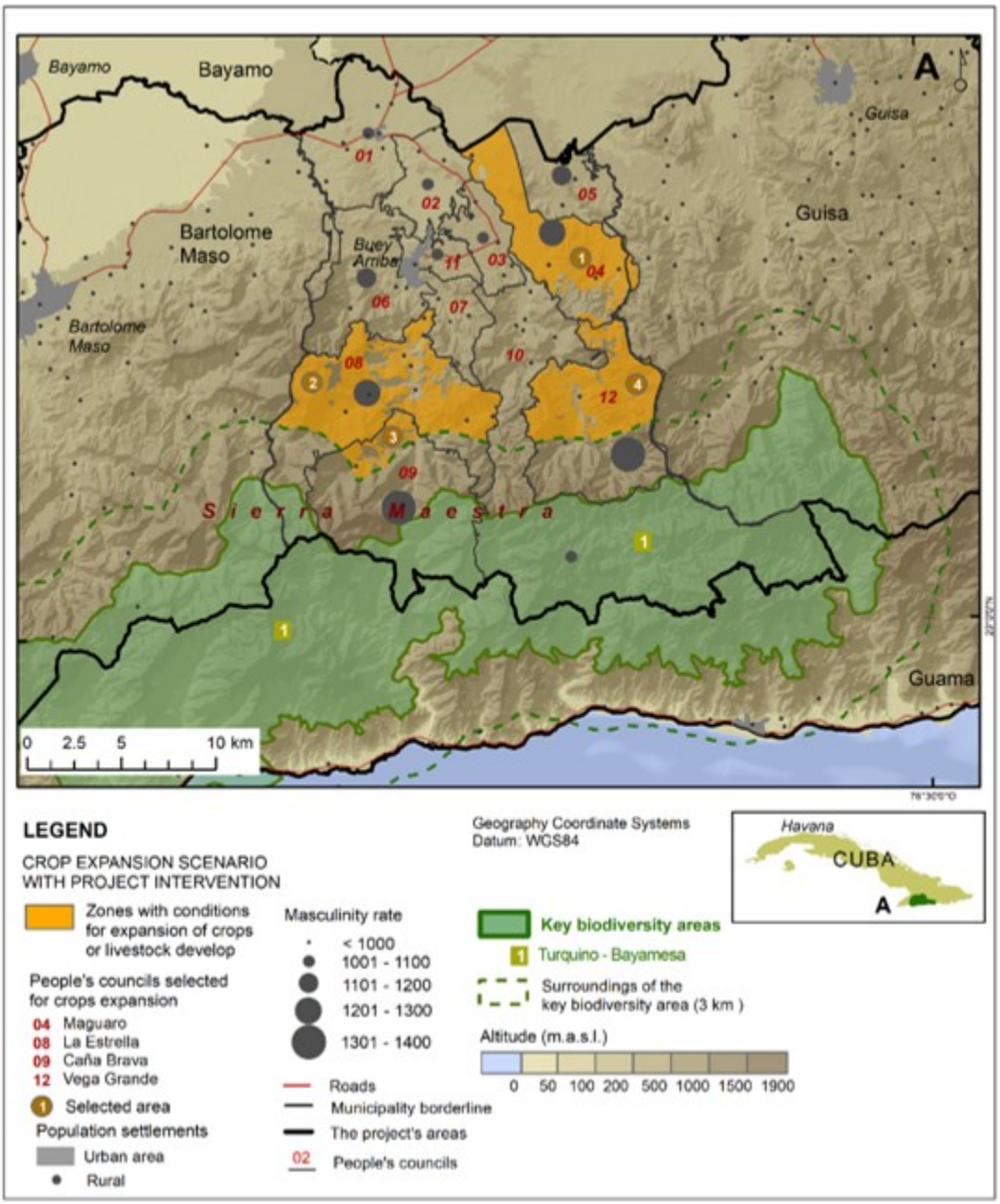


Table 17. Coordinates of the project intervention sites in Buey Arriba. (The geographical coordinates use Datum WGS84)

Municipality	Id (PC)	People? s Councils (PC)	Id of area	Latitude (North)		Longitude (West)	
				Bottom	Top	Left	Right

Buey Arriba	04	Maguaro	1	20o 09? 34?	20o 14? 37?	76o 43? 55?	76o 38? 28?
Buey Arriba	08	La Estrella	2	20o 04? 17?	20o 09? 21?	76o 50? 02?	76o 42? 33?
Buey Arriba	09	Ca?a Brava	3	20o 04? 17?	20o 06? 11?	76o 47? 45?	76o 44? 44?
Buey Arriba	12	Vega Grande	4	20o 05? 17?	20o 09? 03?	76o 42? 18?	76o 37? 40?

GUISA

Figure 14. Project intervention sites in Guisa

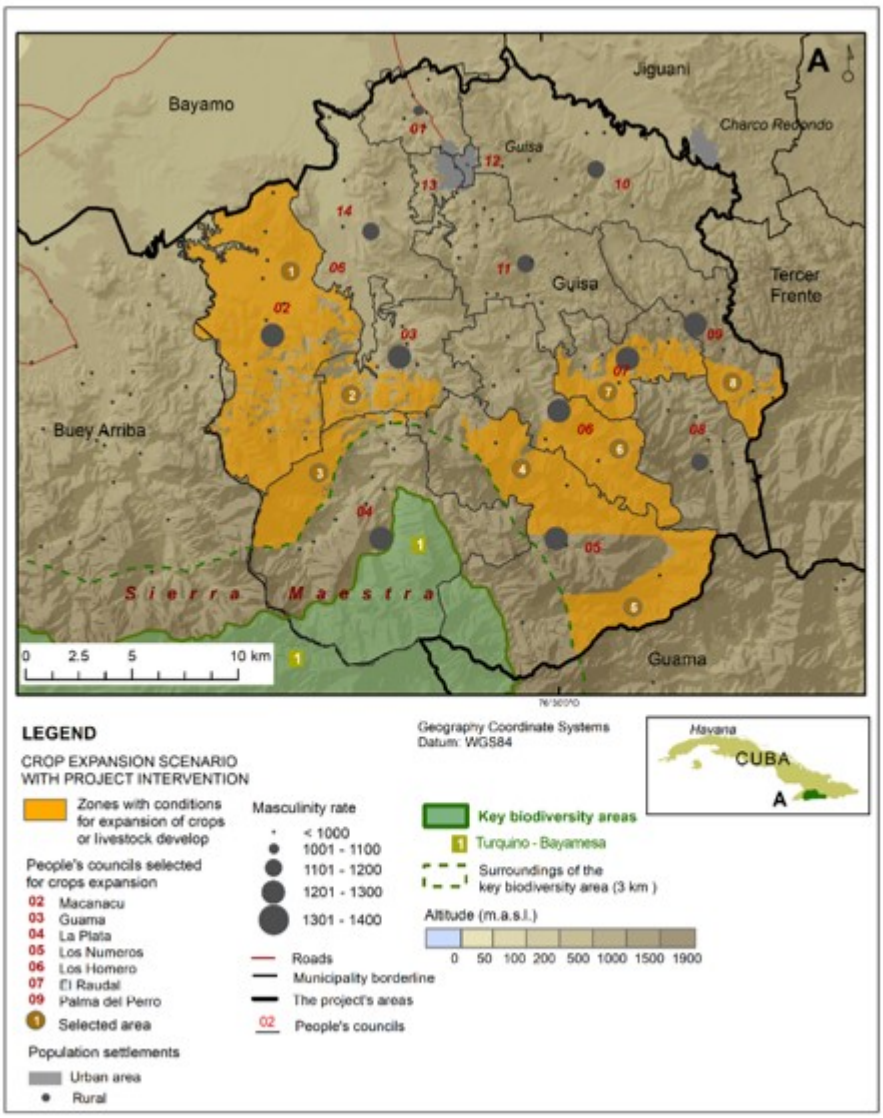


Table 18. Coordinates of the project intervention sites in Guisa. (The geographical coordinates use Datum WGS84)

Municipality	Id (PC)	People? s Councils (PC)	Id of area	Latitude (North)		Longitude (West)	
				Bottom	Top	Left	Right
Guisa	02	Macanac?	1	20o 15? 22?	20o 07? 09?	-76o 39? 45?	-76o 34? 53?
Guisa	03	Guam?	2	20o 07? 54?	20o 10? 15?	-76o 37? 10?	-76o 36? 07?
Guisa	04	La Plata	3	20o 05? 42?	20o 08? 53?	-76o 38? 20?	-76o 34? 57?
Guisa	05	Los N?meros	4	20o 05? 51?	200 09? 23?	-76o 32? 36?	-76o 27? 30?
Guisa	05	Los N?meros	5	20o 02? 33?	20o 06? 14?	-76o 29? 58?	-76o 25? 28?
Guisa	06	Los Homero	6	20o 06? 09?	20o 09? 03?	-76o 30? 22?	-76o 26? 27?
Guisa	07	El Raudal	7	20o 08? 45?	20o 11? 11?	-76o 30? 09?	-76o 26? 12?
Guisa	09	Palma del Perro	8	20o 08? 11?	20o 10? 32?	-76o 26? 27?	-76o 23? 26?

ANNEX E: Project Budget Table

Please attach a project budget table.

FAO Cost Categories	Component 1	Component 2	Component 3	Component 4	M&E	PMC	Executing Agency	Total GEF
	Total	Total	Total	Total				
5011 Salaries professionals								
	0	0	0	0				0
	0	0	0	0				0
5011 Sub-total salaries professionals	0	0	0	0		0		0
5012 GS Salaries								
	0							0

	0							0
5012 Sub-total GS salaries	0	0	0	0		0		0
5013 Consultants								
Value chain expert	0	0	72,000	0			FAO	72,000
Livestock Expert (SCL)	0	0	72,000	0			FAO	72,000
Save &Grow - SCPI Expert	0	0	72,000	0			FAO	72,000
Sub-total international Consultants	0	0	216,000	0		0		216,000
Project Coordinator	0	0	0	0		60,000	FAO	60,000
Coffe and cocoa Production Expert	24,000	0	0	0			FAO	24,000
Strategic Processes Liaison Officer	60,000	0	0	0			FAO	60,000
Expert in mountain and pre-mountain livestock	24,000	0	0	0			FAO	24,000
Expert in gender related issues	48,000	0	0	0			FAO	48,000
Communication Expert		0	0	48,000			FAO	48,000
Sub-total national consultants	156,000	0	0	48,000		60,000		264,000
5013 Sub-total consultants	156,000	0	216,000	48,000		60,000		480,000
5650 Contracts								
Visibility and communication strategy				48,000			FAO	48,000
Locations for workshops, meetings and others	3,000	3,000	4,000	0			INAF	10,000
Maps printing	3,000	0	2,000	0			INAF	5,000

Editing and printing of handbooks and catalogues	0	0	9,000	0			INAF	9,000
Translation services	0	0	4,000	0			FAO	4,000
Certification of Labeling and Branding (OCPI)	0	10,000	0	0			FAO	10,000
Certification of best practices to implementing	0	48,400	0	0			FAO	48,400
Contracts: Edition and printing of materials for component 1 activities	20,000	0	0	0			INAF	20,000
Mid-term review	0	0	0		30,000		FAO	30,000
Final evaluation	0	0	0		50,000		FAO	50,000
Terminal report	0	0	0		6,550		FAO	6,550
Evaluation and characterization of the resilience of agricultural and natural ecosystems and associated communities in the intervention areas	50,000	0	0	0			FAO	50,000
Implementation of 200 ha of productive mixed forests	80,000	0	0	0			FAO	80,000
Local capacity development, with a multiplier effect	60,000	0	0	0			FAO	60,000
Capacity building program, driven by young people from the communities involved	40,000	0	0	0			FAO	40,000

Manual of good agricultural practices in fragile coastal and pre-mountain agroecosystems	30,000	0	0	0			FAO	30,000
Validation of a community participation toolbox for the design, implementation, rehabilitation and monitoring of associated agricultural and natural ecosystems	40,000	0	0	0			FAO	40,000
5650 Sub-total Contracts	326,000	61,400	19,000	48,000	86,550	0		540,950
5021 Travel								
(Lump sum) International travel	50,000		50,000				FAO	100,000
(Lump sum) National travel	68,334	8,234	68,282				INAF	144,850
(Lump sum) Travel for training/workshops and meetings	88,418	49,618	81,749				INAF	219,785
5021 Sub-total travel	206,752	57,852	200,031	0		0		464,635
5023 Training								
Inception Workshop					8,000		INAF	8,000
Mid-term Review Progress Workshop					8,000		INAF	8,000
Final Workshop					8,000		INAF	8,000
Workshop on the anlaysis of productive systems	5,000		5,000				INAF	10,000

Training workshops for the implementation and disclosure of the basic ?Save and Grow principles?	15,000		15,000				INAF	30,000
Training Workshop on the impact of management practices	7,500		7,500				INAF	15,000
Training on the application of "Save and Grow in productive systems	20,000		10,000				INAF	30,000
Gender Equiality Workshops				17,500			INAF	17,500
Commercialization Workshops	7,000		3,500				INAF	10,500
Workshop on local certified production, Labeling and Branding Schemes	5,000						INAF	5,000
Workshops on organic production	21,000						INAF	21,000
Workshops on animal production	6,500			4,000			INAF	10,500
Workshop on regulatory framework				12,000			INAF	12,000
Capacity needs assessment				16,000			INAF	16,000
Other workshops				16,000			FAO	16,000
5023 Sub-total training	87,000	0	41,000	65,500	24,000			217,500
5024 Expendable procurement								
Communication and visibility materials	95,000	22,731		32,269			FAO	150,000

Lab Supplies	214,410		150,000				FAO	364,410
Technical Inputs	190,146						FAO	190,146
Inputs for ecosystems restoration	163,188		500				FAO	163,688
Material for workshops and meetings	30,000						FAO	30,000
Agricultural tools	10,500		10,500				FAO	21,000
5024 Sub-total expendable procurement	703,244	22,731	161,000	32,269		0		919,244
6100 Non-expendable procurement								
IT Inputs (PC, Laptops, printers)		59,321					FAO	59,321
Picolino mini-tractor	10,000	10,000	10,000				FAO	30,000
Charging truck		275,000					FAO	275,000
Agricultural machine for SCPI			135,000				FAO	135,000
Tractor - 800 / 2 tractions	50,000						FAO	50,000
Cart for the tractors	8,000						FAO	8,000
Tools and Instruments for mini-industries			360,000				FAO	360,000
Turbine joined to solar panels	195,000						FAO	195,000
Grain milling machine	4,000						FAO	4,000
Turbine joined to photo-electric systems	49,500						FAO	49,500
Submergible motor for water extraction joined to photo-electric systems	46,200						FAO	46,200
Photo-voltage electric system			21,000				FAO	21,000
Communications equipments			10,000				FAO	10,000

Technical Equipment for component 1 activities	41,800					29,258	FAO	41,059
Technical Equipment for component 2 activities		67,285				29,259	FAO	96,544
Technical Equipment for component 3 activities			67,285			29,259	FAO	96,544
Technical Equipment for component 4 activities				67,285		29,259	FAO	96,544
6100 Sub-total non-expendable procurement	404,500	411,606	603,285	67,285	0	117,035		1,573,712
5028 GOE budget								
Recurrent mobility expenses such as transport rental for the execution of technical activities	391,745						FAO	391,745
Administrative and indirect expenses, transfer expenses, communications						45,000	INAF	45,000
6300 Sub-total GOE budget	391,745	0	0	0		45,000		436,745
TOTAL	2,275,241	553,589	1,240,316	261,054	110,550	222,035		4,632,786

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies? capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).