



**Food and Agriculture Organization
of the United Nations**

INCREASED CLIMATE RESILIENCE OF RURAL HOUSEHOLDS AND COMMUNITIES THROUGH THE REHABILITATION OF PRODUCTIVE AGROFORESTRY LANDSCAPES IN SELECTED LOCALITIES OF THE REPUBLIC OF CUBA (IRES-CUBA)

Environmental and Social Management Framework

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PREFACE

This Environmental and Social Management Framework (ESMF) will be applied to all activities financed by the Green Climate Fund (GCF) for technical and / or financial support of the 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).

The National Steering Committee (CDNP), the National Coordination Committee (CCNP), the National Management Unit (UNGP) and the Operational Support and Financial Management Unit of the Project (UAOGF) (housed in the FAO Office in Havana), are responsible for the general coordination of project activities, with a designated specialist to focus attention on socio-environmental safeguards. The respective Provincial Management Units (UPGP) and Municipal Management Units (UMGP) are responsible for the daily implementation of the specific subcomponents and ensure compliance with the ESMF, as well as the safeguard of related documents, including maintaining the appropriate documentation on the Project file for possible revision by the GCF.

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ABBREVIATIONS

ACPA	Cuban Association of Animal Production
ACTAF	Cuban Association of Agricultural and Forestry Technicians
AIP	Project Impact Area
AMPP	Municipal Assembly of Popular Power
ANEC	Association of Economists of Cuba
ANAP	National Association of Small Farmers
AP	Protected Area
AZCUBA	Sugar Business Group
BANDEC	Bank of Credit and Commerce
CAM	Municipal Administration Council
CCS	Cooperative of Credit and Services
CCNP	National Coordination Project Committee
CECM	Executive Committee of the Council of Ministers
CIMAGTR	Center for the Animal Improvement of Tropical Cattle
CITMA	Ministry of Science, Technology and Environment
CNAP	National Center for Protected Areas
CDNP	National Project Steering Committee
CPA	Agricultural Production Cooperative
CUM	Municipal University Center
CTC	Workers Central Union of Cuba
DPPF	Provincial Directorate of Physical Planning
EEI	Invasive Exotic Species
EEPF	Experimental Station of Pastures and Forages
EN	Endemic Species
ENPA	National Agricultural Projects Company
ENPFF	National Company for the Protection of Flora and Fauna
FMC	Federation of Cuban Women
FONADEF	National Fund for Forest Development
GCF	Green Climate Fund
GEI	Greenhouse gases
IAS	Invasive Alien Species
IAGRIC	Institute of Agricultural Engineering
INRH	National Institute for Water Resources
IES	Institute of Ecology and Systematics
IIFT	Institute of Tropical Fruit Research
INIVIT	Tropical Roots Research Institute
INIFAT	Institute of Fundamental Research in Tropical Agriculture
IPF	Institute of Physical Planning
IRES	Short name of the Project
ESMF	Environmental and Social Management Framework
MINAG	Ministry of Agriculture

MINAL	Ministry of Food Industry
MINCEX	Ministry of Foreign Trade and Foreign Investment
MES	Ministry of Higher Education
MINSAP	Ministry of Public Health
NC	Cuban Norm (Standar)
OLPP	Local Body of Popular Power
PCAS	Plan for Environmental and Social Commitments
PCC	Communist Party of Cuba
PND	National Development Program
PNMCS	National Program for Soil Improvement and Conservation
POA	Work Plans and Annual Budget
PGR	Phytogenetic Resources
GRFA	Genetic Resources for Food and Agriculture
AGR	Animal Genetic Resources
SEF	State Forest Service
SNAP	National System of Protected Areas
TABACUBA	Tobacco Business Group
UAOGF	Operational Support and Project Financial Management Unit
UBPC	Basic Units of Cooperative Production
UEB	Business Base Unit
UMGP	Municipal Project Management Unit
UNGP	National Project Management Unit
UPGP	Provincial Project Management Units

EXECUTIVE SUMMARY

1. The IRES project aims to increase climate resilience and sustainable development through innovation and financial incentives in seven municipalities in Cuba selected for their vulnerability to climate change. The Project will restore productive landscapes, ensuring the preservation of critical ecosystem services. IRES is an important contribution to national efforts to achieve the goals of the National Economic and Social Development Plan of the Republic of Cuba up to 2030, the Sustainable Development Goals (SDGs) and the actions and priorities foreseen in the Nationally Determined Contribution (NDC). It will also support the territorial development plans and especially encourage the implementation of “Tarea Vida” the national policy against climate change expressed in the State Plan on climate action. IRES is implemented through three outcomes. The first outcome centers on the establishment of green investments, and is the heart of the project, providing for the implementation of 6 technology modules in highly degraded agricultural and forest scenarios. The second will support the development of capacities for adaptation to climate change. The third outcome will encourage the development of new government incentives for adaptation to climate change.

Outcome 1 Will utilize modern climate change (CC) -resilient investments to rehabilitate production landscapes through agroforestry, sylvopastoral, reforestation and assisted natural regeneration modules, which have been tested and evaluated earlier. Rehabilitation of these landscapes will involve removal of Marabu, a non-native invasive tree species as an essential first step.

Outcome 2 Will provide technical assistance, capacity building and know-how to ensure that farmers can replace maladaptive, carbon intensive practices with new resilience-enhancing production practices necessary for effective implementation of the landscape rehabilitation modules.

Outcome 3 Will support the transformation of the political and legal framework required to shift the prevailing paradigm of production maximization to the new paradigm of economically viable climate-resilient production systems; this will include analyses of and reforms to current financial mechanisms and economic incentive structures. The project will target vulnerable members of agricultural cooperatives and individual landholders who have been supported insufficiently under current public policy in order to unleash their potential and initiative.

2. The project will be implemented in 7 municipalities in the Cuban provinces of Matanzas, Villa Clara and Las Tunas, the first two in the Central Region and the last in the eastern region. The Project will be executed over a period of 6 years, with a total cost of USD 119.9 million. The National Project Steering Committee will provide general supervision, while the responsible entities selected at the national, provincial and local levels will work with the project participants to implement specific activities. They will collaborate with the accompanying Institutions (Advisors), particularly at the field level in training and providing other services for agricultural producers. There will be an estimated 51,098 direct beneficiaries of the project, and about 240,117 indirect beneficiaries. At the request of the National Designated Authority of Cuba, FAO will function as the Accredited Entity and will offer operational support and financial management of the project.
3. The project will not be implemented or affect protected areas or their buffer zones. The project areas were selected in consultation with environmental authorities and other stakeholders and will avoid

protected areas and their buffer zones. Also refer to Appendix 6.1 *Non-eligibility List*.

4. The current Environmental and Social Management Framework (ESMF) has been prepared by FAO to (i) Identify potential negative environmental and social impacts; (ii) Propose mitigation measures; (iii) Provide basic selection criteria for the selection of sub-activities; (iv) List the type of instruments to be developed for individual sub-activities during implementation; and (v) Provide institutional agreements, grievance redress mechanisms and monitoring, reporting and documentation measures for compliance with environmental and social safeguards. The ESMF covers all the work and physical activities, as well as the viability and other studies that will be carried out within the framework of the project.
5. The positive impacts of the Project are expected to far exceed negative impacts. The environmental benefits of the project are wide ranging and come primarily as a result of the implementation of agricultural diversification for climate risk mitigation as well as the controlled removal of Marabu (*Dichrostachys cinerea*), a non-native invasive tree species. The project will promote multi-cropping systems with the aim of maintaining soil cover throughout the year, enhancing soil organic matter and carbon content, reducing soil erosion, increasing groundwater recharge, reducing vulnerability to insect pests and enhancing their diversity, including pollinators and increasing water holding capacity and soil biodiversity. More efficient irrigation will allow for the growth of green manure crops, improving nutrient cycling at farm and landscape level and providing continuous vegetative cover on farmland. The use of leguminous trees in agroforestry systems will permit reduction or elimination of the use of nitrogen fertilizers, reducing greenhouse gas emissions from this source. Use of trees and shrubs in sylvopastoral systems will assist in avoiding soil compaction, and provide shade for soil, thereby reducing soil temperatures and the speed of physical, chemical and micro-biological processes. Agricultural diversification through integration of trees and shrubs into crop production will produce significant climate change mitigation benefits.
6. The project will also result in significant social benefits. These social benefits are derived primarily from the implementation by farmers and producers' organizations of agroforestry systems, resilience-enhancing agricultural practices, as well as more efficient water use. Farmers will be able to plan and implement their operations while managing climate risk. Capacity building through the established system of Farmer Field Schools, training-and-visit extension, and farmer-to-farmer exchanges will lead to improve the culture of climate resilient agriculture and livestock-raising in which knowledge and experience are freely exchanged, contributing to social cohesion and resilience. It is expected that increased and more stable yields will permit farmers and producers' organizations to achieve a level of food and financial security based on contractual agreements with buyers, as well as sales to supply-and-demand markets. Women, in particular, will receive strong support given the increase in the proportion of women in rural areas, in part attributable to rural-to-urban migration of male family members. Women will receive gender-sensitive training and capacity building, including for farm management, business development, use of weather and climate information, and marketing of farm products.
7. The Project has been classified as Moderate risk (Category "B") due to activities in Outcome 1, which are expected to activate the following FAO Environmental and Social Standards (ESS) : ESS 1 (1.1), ESS 2 (2.3, 2.4);ESS 3 (3.2.1)and ESS 5 (5.1)(all moderate risk level). The main reasons for this are the risks introduced by the limited use of herbicides in the control of Marabu, the use of certain machinery used for the control of Marabu, seeds management and the risks of use a potential alien species that may show invasive behavior in conditions without management. In order to comply with these policies,

the following specific safeguard instruments have been identified:

SAFEGUARD POLICIES	APPLICABILITY	SAFEGUARD INSTRUMENTS AND MITIGATION MEASURES
ESS 1– Natural Resources Management G	YES	Agricultural conservation principles will be applied, especially on the use of appropriate implements and minimum tillage, as well as amendment after specific damages resulting from the use of machinery- More details on technical aspects on Appendix 2.6 of the Feasibility Study
ESS2 – Biodiversity, Ecosystems and Natural Habitats	YES	ESMF/ESMP with proposals for strict management of the species with the greatest attention to planting in sylvopastoral modules based on experiences validated by research and mitigation measures. Also included are measures to diminish the impacts caused by the incremented use of water, biodiversity management, machinery and chemical products. More details on technical aspects are available in Appendix 2.6 of the Feasibility Study
ESS3 – Plant Genetic Resources for Food and Agriculture	YES	ESMF/ESMP, seeds and planting materials free from pests and diseases, locally adapted. Following National Phytosanitary and IPPC Norms.
ESS4 – Animals - Genetic livestock and aquatic resources for food and agriculture	NO	Non eligible activities (Appendix 6.1)
ESS5 – Pest and pesticide control	YES	ESMF / ESMP with Integrated Pest Management (IPM) used in activities, training on safe management and the use of pesticides in cases where it is not possible to avoid them. A tentative Pest Management Plan (PMP) is provided in Appendix 6.2.
ESS6 – Resettlement and involuntary displacement	NO	Non eligible activities (Appendix 6.1)
ESS7 – Decent Work	NO	Non eligible activities (Appendix 6.1)
ESS8 – Gender Equality	NO	The project incorporates a Gender Analysis and an Action Plan with specific activities focused on gender, incorporated in the project design.
ESS9- Indigenous Peoples And Cultural Heritage	NO	Non eligible activities (Appendix 6.1)

8. The identified negative impacts of the Project are related to the Outcome 1, which provides for the establishment of the 6 agroforestry modules and sylvopastoral systems. The moderate risk categorization arises primarily from the fact that one of those modules includes one alien species, *Moringa (Moringa oleifera)*¹, that may show a potential invasive behavior under circumstances without monitoring or control. It should be noted that species selection was carried out in close collaboration with Cuban authorities and stakeholders, and that all species used are already introduced in the Cuban context. The risks associated with this species, as well as the logic behind overall species selection have been detailed comprehensively in both the ANNEX 2 Feasibility Study,

¹ See supplementary material 2.6.7 in Appendix 2.6 of the Feasibility study for risk assessment of this species. Special measurements for the management of the specie are summarized in Appendix 2.6 of the Feasibility Study..

APPENDIX 2.6, Agroforestry Modules for Landscape Restoration. A regular monitoring program, and capacity building on invasive alien species (IAS) management, will be implemented. That is a management plan for the early detection, control and eradication of this IAS will be developed and implemented. Furthermore, training will be provided to the extension agents and technicians on management of this potential IAS, with emphasis on the proposed modules in the project. Finally, an Early Warning Protocol linked to the expansion of IAS, will also be developed in the management plans.

9. Agricultural machinery will be used for agricultural work and for the elimination of Marabu (*Dichrostachys cinerea*), with moderate risk, as appropriate equipment will be acquired to replace inefficient equipment (bulldozers), which are already used for unsustainable Marabu removal. Equipment use will be managed based on good practices and will guarantee the restoration productive landscapes, and contribute to food security.
10. Water management will be carried out efficiently following strict planning and the national regulations established in the "Water Plan"², without creating competition with the human supply or pressure on aquifers in the intervention areas. Water will be used responsibly in small irrigation systems and for livestock using only rainwater harvesting and runoff water³.
11. Another low risk exists, due to the generation of limited amounts of environmental waste from the application of slow-release chemical fertilizers that do not decompose completely. This risk is considered low as the project's strategy included the use of fertilizers only during initial phases, followed by the progressive and complete replacement by organic fertilizers, expanding production capabilities⁴.
12. Finally, pesticides will be used to control Marabu along with mechanical methods; however pesticides will only be used in certain areas and only in the initial phase of the project, following integrated pest management practices (IPM). Highly toxic or dangerous pesticides will not be used in the project areas. Pesticides will be managed in a controlled manner with limited risks for agro-biodiversity and natural biodiversity and will be used on certain forest species, forages and pastures that may manifest invasive behavior.
13. During the project design, a systemic assessment of natural resources, including their availability, quality and tenure was carried out. From the analysis of the spatial information (different shape files), the available studies and the evaluations carried out by the formulation team, it was possible to make a preliminary determination of the carrying capacity of the agro-ecosystems to support the proposed agroforestry systems. Existing environmental legislation and land tenure issues as provided in the Territorial Planning Plans of each municipality and its traditional uses, together with aspects of financing and the availability of human resources (labor force, possible beneficiaries) were considered when developing the ESMF. It was also deemed as crucial to consider the climatic dimension (including predictive aspects), the degree of vulnerability and the characteristics of the surrounding environment, with emphasis on the links with river basins, geomorphology, status of natural ecosystems and population dynamics.

² National mechanism for the planning and efficient use of water resources under the control of the National Institute for Water Resources (INRH).

³ For more information on ANNEX 2 Feasibility Study, APPENDIX 2.6, Agroforestry Modules for Landscape Restoration

⁴ See chapter 7 about mitigation measures

14. For the determination of the quantity and location of the irrigation systems, and the construction of the reservoirs for the collection of rainwater, in addition to aspects of demand for the water of each crop or the livestock food systems, project formulation team took into account the most critical areas in terms of the historical, present and future availability of water resources, without compromising the water balance of the territory, or extracting or competing with the needs of the population or other intended uses for water. The selection of crops, species and type of technology or design of agroforestry systems, and the planning of the necessary inputs (including fertilizers), took into account the typology and condition of the soils, accompanied by a strategy of continuous improvement, based on the application of organic material, and assessments and assurance of water needs to support them (for further details and justification for the selection of modules refer to Annex 2. Feasibility Study).
15. The state of natural resources will be subject to continuous monitoring and evaluation for possible design adjustments, to measure the impacts and progress of the project on these, and to determine the improvements in the resilience capacity of the selected areas.
16. Budget: The total cost for ESMF implementation is three hundred sixty-seven thousand US dollars.

ESMF implementation activities	Budget \$
1. Project Environmental Commitment Plan (PCAS)	4500.00
2. Capacity Development	35500.00
3. Socio-environmental Management Plans of the Selected Entities	-
4. Social-environmental Reporting, Monitoring and Verification	157000.00
5. Stakeholders Consultation	48500.00
6. Biodiversity Management	31000.00
7. Pest Management	17500.00
8. Water Management	73000.00
TOTAL	367000.00

1 INTRODUCTION

17. The climatic conditions of the Cuban Archipelago are determined by its geographical position in the northern hemisphere. Cuba receives high levels of solar radiation throughout the year, which gives the climate its warm character. In turn, the proximity to the Tropic of Cancer introduces the seasonal influence of tropical and extra-tropical atmospheric circulations. The data show that in the climate of Cuba there has been an increase in the surface temperature of the air, a reduction of the diurnal temperature range; greater frequency of long and severe droughts in summer, and an increase in rainfall associated with heavy rainfall events in winter. The most notable changes experienced in the Cuban climate can be summarized in the behavior of the following climatic variables:
- **Temperature:** The surface temperature of the air has increased by 0.9 ° C since the middle of the last century. An increase in the average minimum temperature by 1.9 ° C has conditioned a decrease in the diurnal oscillation of the temperature.
 - **Rainfall:** The slight increase in the positive anomalies of rainfall since the late 1970s with an increase in rainfall during the dry season (November to April).
 - The tendency of decreased precipitation in the Eastern Region. Since the 1990s the accumulated rain fall has experienced significant deficits.
 - **Drought:** The significant increase in drought events in the period 1961–1990 relative to 1931–1960. Continuity of these events in the eastern half of the country up to the extraordinary event of drought between 2003 and 2005, which progressively spread throughout the country.
 - **Hurricanes:** Since 1996, a new period of very active hurricane activity started in Cuba. Between 2001 and 2008, the country was affected by nine hurricanes;
 - **Flooding:** The increase of the occurrence of moderate and strong coastal floods during the last three decades.
18. The results of the 2050 and 2100 climate projections show that, towards the end of the 21st century, Cuba's climate will be hotter, drier. It is expected that by the end of this century the climate will be characterized by: i) Increase of up to 4 ° C in the average air temperature; ii) annual precipitation decrease between 15 and 63%; iii) an increase in potential evapotranspiration and real evaporation, which leads to the progressive reduction of the net primary productivity of terrestrial and agricultural ecosystems, as well as the potential density of biomass; iv) dry sub-humid climates will advance in extension from the eastern region to the west; and v) dry sub-humid climates, susceptible to desertification, will be established in the eastern mountainous massifs.
19. The studies carried out confirm that the potential agricultural and irrigated yields of the main crops will progressively decrease over the next century between 10 and 25%; in the cane, between 5 and 10%; and those of the potato up to 50%. The total evapotranspiration of the crops will decrease in general except for potato. However, the needs of irrigated water would rise progressively, between 40–55% for short-cycle crops and 15–30% for long-cycle and perennial crops. In climatic scenarios (i.e. increments of 1–2 ° C in the average temp.), a greater aggressiveness is expected of many of the existing pests and the emergence of new ones, giving the possibility of secondary species displacing the current primary species. Pasture yields will be reduced in all regions of the country, and the pasture growth process will move towards greater lignification and a lower content of proteins and

carbohydrates.

20. The forestry sector will be impacted by the increase in air temperature, the decrease in rainfall, the increase in mean sea level with its accompanying floods and land losses and increase in saline intrusion in length and depth, the occurrence of more frequent and intense extreme events. These effects will modify the phenological patterns in coastal and mountain arboreal species, cause loss of biodiversity in forest formations of higher altitude, and accelerate the reproductive cycles of pests, increasing their destructive potential.
21. The rise in sea level and the effect of tropical cyclones (more frequent and intense), would have negative consequences, especially in the significant losses of timber volumes and ecosystem services in general of forests, as well as severe impacts on biological diversity. Finally, the increase in the concentration of CO₂ in the atmosphere would result in the expansion of the carbon-nitrogen ratio and the increase in foliage consumption by insects in some forest species; higher level of fuel products in forests increasing the danger of forest fires; increased incidence of insects and damage caused by diseases.
22. Regarding human settlements and land use, the Second National Communication to the United Nations Framework Convention on Climate Change determined that climate change would have a negative impact on the quality of life of the people and communities. This will be reflected in the agricultural activity related to the production of foods that are fundamental to the national diet; the increase in disaster risk in coastal areas; and the loss of territory in the low areas due to the increase in the mean sea level. It is expected that the rise of the mean sea level with the scenarios estimated for the years 2050 and 2100 (0.27 and 0.85 m) will mean a loss of coastal land between 2.3% and 5.5% of the total surface of the mainland. To this are added cays and islets of the archipelago (areas more sensitive and vulnerable to ascent), whose land losses have not yet been estimated. The growing population in the country is currently facing and will face the need to relocate as the spatial distribution of human settlements shifts, particularly away from areas experiencing severe drought regimes due to variability and climate change. The areas most affected by the increase in the mean sea level are those occupied by mangrove swamps, grasslands, and low coastal territories, which causes the increase of salinization of farmland and aquifers. The lands located in the eastern region will be the most affected, with an expected worsening of the drought phenomenon.
23. To that end, in 2017 the State Plan to respond to Climate Change in the Republic of Cuba was issued "Tarea Vida." Among Tarea Vida's Strategic Actions is the adaptation of agricultural activities, particularly those with the greatest impact on food security, changes in the use of the land as a result of the elevation of the mean sea level and the drought. Project tasks include:
 - (4) Assuring the availability and efficient use of the water as part of the response to the drought, from the application of technologies for saving and the meeting of local demands. To improve the hydraulic infrastructure and its maintenance, as well as the introduction of actions to measure the efficiency and productivity of water.
 - (5) Guiding reforestation towards the maximum protection of soil and water in quantity and quality, as well as the recovery of the most affected mangroves. Prioritize the reservoirs, channels and hydro-regulatory fringes of the tributary basins of the main bays and the coasts of the insular platform.
 - (8) Implementing and controlling adaptation and mitigation measures to climate change derived

from the sectorial policies in the programs, plans and projects linked to food security, renewable energy, energy efficiency, territorial and urban planning, fisheries, agriculture, health, tourism, construction, transport, industry and integrated management of forests.

24. The resources to be provided by the Green Climate Fund for the IRES project, together with the co-financing of the Cuban government, institutions and producers, will be invested in the development of innovative models of agroforestry ecosystems for landscape management, capacity building and new incentives for adaptation to climate change. Its execution is aimed at reducing the high degradation of agro ecosystems, improving the provision of ecosystem services and agricultural productivity, dealing with the infestation of areas by invasive alien species, among other problems. The IRES project will achieve these using sustainable practices that conserve biodiversity and do not have a negative impact on natural resources and communities. Small-scale improvements to diversify climate-resilient agriculture and landscape restoration, successfully developed by Cuban research institutions, have not yet been promoted by extension services to rural producers and populations. The Project will address the current lack of logistical and technological tools and means for extension services for producers aimed at transferring information to farmers and the local population, including methodological training, modern communication technologies, transport, audiovisual equipment. The Project will also address the institutional financial and policy processes regarding climate change, which are currently insufficient. The abandonment of the countryside and migration are growing due to the lack of financial instruments, technologies and incentives for young people and women, which result in the scarcity of the work force to undertake the restoration of landscapes and the safe production of food.
25. The objective of the project is, "To increase sustainable development, resilient to climate change through innovation and financial incentives to ensure critical ecosystem services of restored productive landscapes in seven municipalities selected for their vulnerability to climate change."
26. The project will focus on highly vulnerable agricultural and livestock landscapes of 7 municipalities in the Cuban provinces of Matanzas, Villa Clara and Las Tunas, the first two in the central region and the last in the eastern region. The project will be implemented over 6 years, with an estimated budget of USD 115.7 million, including government co-financing of USD 82.3 million and GCF financing of USD 33.3 million. It will consist of 3 outcomes :

Outcome 1 Will utilize modern CC-resilient investment to rehabilitate production landscapes through agroforestry, sylvopastoral, reforestation and assisted natural regeneration modules tested and evaluated earlier. Rehabilitation of these landscapes will involve removal of Marabu, a non-native invasive tree as an essential first step.

Outcome 2 Will provide technical assistance, capacity building and know-how will be provided to ensure that farmers know how to replace traditional, maladaptive, carbon intensive practices with new resilience-enhancing production practices necessary for effective implementation of the landscape rehabilitation modules under

Outcome 3 Will support the transformation of the political and legal framework required to shift the prevailing paradigm of production maximization to the new paradigm of economically viable climate-resilient production systems; this will include analyses of and reforms to current financial mechanisms and economic incentive structures. The project will target members of agricultural cooperatives and individual landholders who have been supported insufficiently under current public policy in order to

unleash their potential and initiative

27. The Project has been classified as Moderate Risk (Category B) by the Food and Agriculture Organization of the United Nations (FAO) based on the FAO Safeguards Policy and IFC Performance Standards. The project's risk assessment was carried out using the FAO Environmental and Social Assessment Form (see Appendix 6.5), which identifies potential areas of risk and, based on the further details regarding those potential risks, resulted in the categorization of this project as moderate risk. Environmental and Social Management Framework (ESMF) will guide project implementing entities and stakeholders in ensuring compliance with environmental and social standards, including the development of Environmental and Social Management Plans (ESMPs) to mitigate impacts and ensure monitoring and reporting throughout the project implementation. The ESMF will be adopted by the CDNP, the CCNP, the UNGP and the UAOGF, and must be followed by any sub-contractors or entities involved with the project (as per contract stipulation). All must comply with the protocols and actions listed therein and receive the necessary training in social and environmental protection before undertaking activities related to the project.
28. The Environmental and Social Management Framework guarantees that environmental and social management, as well as the adequate management of socio-environmental risks, are integrated into the project's development cycle. Due to the fact that the exact activities are not determined at the beginning of the project, but will be decided during the project inception phase to take into account the interests of relevant stakeholders and communities, the ESMF is an appropriate instrument according to the Environmental and Social Guideline of FAO. The ESMF is intended to serve as a baseline document for consultation with stakeholders and potential project beneficiaries. It has been prepared by FAO to:
- Identify all potential negative environmental and social impacts;
 - Propose mitigation measures;
 - Provide basic selection criteria to select sub-activities;
 - List the type of instruments to be developed for individual sub-activities during implementation; and
 - Define institutional agreements, budget, mechanisms for handling complaints and monitoring, and reporting and documentation measures for compliance with environmental and social safeguards.

2 PROJECT DESCRIPTION

29. The IRES Project is aimed at increasing the adaptation capacity of rural households and communities highly vulnerable to the impacts of climate change in 7 municipalities of 3 provinces of the Central and Eastern Regions of Cuba. It will be executed through 3 integrated outcomes aimed at promoting a paradigm shift towards sustainable development based on climate resilience. The technological models developed by Cuban scientific institutions (6 modules) will be carried out at a municipal scale in a total of 35,734 ha, based on the implementation of agroforestry systems and resilient silvopastoral systems on agricultural areas infested by Marabu and degraded pastures. A total of 51,098 people will be directly benefited. The direct beneficiaries will be more resilient to climate change because they will be trained and will participate directly in the sustainable transformation of agroforestry and livestock landscapes, for which they will receive appropriate technologies and inputs. The project will lead to productive increases and yields in agricultural and livestock production, improving income and livelihoods, and supporting local food security.
30. Current agro-ecosystems degrade rapidly, losing productivity and sustainability due to inadequate land preparation, cultivation and irrigation techniques. Monocultures lead to exposed soils, rapid runoff, and infestation by invasive species (e.g. Marabu), soil erosion and transport to coastal areas, salinization and increased risk of flooding and loss of life and property. This business-as-usual scenario increases producer vulnerability to extreme weather events and climate variability and reduces the capacity of the country to maintain its food security. With widespread adoption and implementation of climate-adapted agroforestry systems, the vulnerability of production landscapes to climate change will be reduced. At the same time, production landscapes will become more resilient to climate risk and impacts from improved, diversified production systems supported by revitalized water storage and more productive water use through efficient irrigation.
31. There are currently significant barriers to effectively implementing this strategy for climate adaptation and mitigation. In general, institutional staff and producers do not have sufficient awareness or knowledge of the climate risk reduction benefits of integrated landscape management nor do they have the skills to manage climate risk by applying resilience-enhancing agricultural practices and systems. Existing financial mechanisms available to farmers and producers' organizations do not consider the climate change context or farmers' CC adaptation needs. Nor do they support resilience-enhancing initiatives to manage landscape resources for improved ecosystem services. At the same time, Cuban agricultural and forest management institutions have limited access to adequate equipment, technologies and other inputs that would allow them to effectively support farmers and producers' organizations to adapt to climate change and build climate resilience into their production systems. The second-phase (outcome 2) of the Project will seek to overcome these barriers.
32. Project costs and financing: The project will have a total cost of USD 115,657,781 million and would be supported by the GCF through a grant of USD 33.3 million. Government co-financing will amount to approximately USD 82.3 million.

2.1 Project Outcomes

33. **Outcome 1:** Increased CC-resilient production landscapes through investment in innovative agroforestry systems, reforestation with close-to-nature planted forests (CTNPFs) and assisted natural forest regeneration.

Agroforestry and forestry concepts, methodologies and low impact modern technology will be applied to restore vital ecosystem services for water regulation, livelihood protection and food security on approximately 35,734 ha of productive landscapes across the seven municipalities of the Project regions. Bringing to scale six CC-resilient production modules described in Appendix 2.6 of the Feasibility Study, which have been assessed for their technical, financial and social feasibility, will be used to accomplish this goal. These modules are based on local best practice; applied research results from national institutions, and thorough assessments of their climate resilience, adaptation and mitigation benefits. The modules were presented, discussed and adjusted during two consultation workshops with the active participation of experts and stakeholders from national, provincial and municipal institutions, as social actors in both project areas⁵. The implementation of these modules will result in improved water regulation, decreased soil erosion, augmented soil moisture capacity and groundwater, and improved root penetration, as well as substantially increased carbon storage in soils and biomass. Crop yields will improve as will the health and well being of farmers by reducing water scarcity and food insecurity.

Activity 1.1: Developing sustainable agroforestry. Restore approximately 15,544 ha of farmland from Marabu, and increase CC-resilience through sustainable agroforestry (AF), CTNPFs and assisted natural regeneration (mitigation co-benefit 417,532 million tCO₂-eq. in 7 years of implementation).

While Marabu provides some soil cover and fixes atmospheric nitrogen, it accumulates only a fraction of the biomass of forests or agroforestry systems⁶. From the climatic and hydrological points of view, the replacement of Marabu by planted forests has the following advantages:

- Forests can buffer the effects of extreme climate events, higher temperatures and provide alternative sources of food during droughts or floods⁷. Moreover, agroforestry systems and CTNPFs are known to improve microclimate⁸.
- Forests contribute a greater volume of biomass (litter, branches, fruit, etc.) to the soil that, when decomposed, constitutes a fundamental factor in the improvement of the hydro physical properties of the soils (structure and porosity among others). In addition, a planted forest root system is deeper and more expansive such that when penetrating the ground, it opens tunnels through which the water filters towards lower levels, thereby influencing infiltration capacity and soil moisture retention.
- Planted forests have also been shown to regulate the quantity and availability of water, improve water quality, increase groundwater recharge and provide riparian buffers⁹. Marabu's influence on the water regime is considered comparable to a permanent crop such as fruit trees (mango or citrus), which uses soil similarly to Marabu. In this case, forest-covered soil has an average runoff coefficient 3.4 times lower and an erosion rate 13 times lower than Marabu-dominated soil (see

⁵The technical description of each of the modules, as well as the documentation of the two consultation workshops, can be found in Appendices 6 and 10 of the Feasibility Study.

⁶Only 2-3% of Marabu biomass is actually used for poles or charcoal (Herrero J. 2018)

⁷Lasco, R. D., Delfino, R. J. P. and Espaldon, M. L. O. (2014). Agroforestry systems: Helping smallholders adapt to climate risks while mitigating climate change. *Wiley Interdisciplinary Reviews: Climate Change* 5:825–833.

⁸Kandji, S. T., Verchot, L. V., Mackensen, J., Boye, A., Noordwijk, M., Tomich, T. P., Ong, C., Albrecht, A. and Palm, C. (2006). Opportunities for linking climate change adaptation and mitigation through agroforestry systems. Chapter 13. In *World Agroforestry into the Future*, 113–123 (Eds D. Garrity, A. Okono, M. Grayson and S. Parrott). World Agroforestry Centre.

⁹AraújoFilho, J.A. de (2013). Manejo Pastoril Sustentável da Caatinga, 200. Recife, PE: Projeto Dom Helder Câmara. Bargués Tobella, A., Reese, H., Almaw, A., Bayala, J., Malmer, A., Laudon, H. and Ilstedt, U. (2014). The effect of trees on preferential flow and soil infiltrability in an agroforestry parkland in semiarid Burkina Faso. *Water Resources Research* 50:2108–2123.

Appendix 2.6). They are also effective at controlling erosion and landslides and at producing organic matter and cycling nutrients¹⁰.

- Planted forests decrease wind speed and increase the distance over which this influence takes place. This is important for managing water economy in production systems (decreasing losses by evaporation in pastures and in agricultural crops). The planted forests, even those not designed as windbreaks, fulfill these functions:
 - a. Planted forests can reach up to three times the height of Marabu and thereby lengthen the distance of influence of the winds; and
 - b. Planted forests have a complex vertical structure, composed of herbaceous, shrub and other strata that serve as obstacles and barrier to the passage of prevailing winds in the area. These characteristics are absent in Marabu.
- Planted forests are superior in the provision of other services, such as CO₂ sequestration, which is much lower in Marabu due to its slow increase in biomass (Vidal et al. 2015 in Appendix 2.6); the increase in biomass in the planted forest is 12 times higher than in Marabu. The conversion of Marabu to planted forests provides a notable contribution to CC mitigation.

34. GCF investments in support of this activity will consist of the following sub-activities:

- 1.1.1: Acquire and field identified technologies
- 1.1.2: Develop training materials for operations and maintenance
- 1.1.3: Train 68 machinery operators
- 1.1.4: Apply technologies to Marabu eradication on 15,544 ha
- 1.1.5: Establish and implement agroforestry, reforestation and assisted natural regeneration modules

35. Activity 1.2 Restore approximately 20,189 ha of rangeland with compacted soils and increase CC-resilience through improved sylvopastoral systems (mitigation net co-benefit 703,225.3 million t CO₂eq in 7 years of implementation). There are 20,189 ha of degraded grasslands in the two project regions with compacted soils, often with a hardpan layer, into which root systems grow very poorly because of physical resistance and poor moisture movement. These compacted soils do not absorb rainfall, causing accelerated runoff and erosion. During dry periods, the hardpan is an impermeable barrier for plant roots to reach groundwater reserves. To loosen the soil and break the hardpan, the project will introduce low-disturbance sub-soiling, designed for conservation agriculture¹¹, which will restore the soil's pore system, so that rainfall can be absorbed and excess moisture drain away, recharging groundwater tables and making groundwater accessible to roots during dry periods. Soil structure improvement and stabilization, introduction of trees and improved, more drought resistant, deep rooting and nutrient rich pastures, as well as grazing rotation will be achieved through the implementation of the two modules for sylvopastoral systems adapted to climate change, described in Appendix 6.3. The average implementation area for each beneficiary is estimated to be 5.0 ha.

36. GCF investments in support of this activity will consist of the following sub-activities:

- 1.2.1: Acquire and field identified technologies

¹⁰Souza, M. de and Piña-Rodrigues, F. (2013). Desenvolvimento De Espécies Arbóreas Em Sistemas Agroflorestais para Recuperação de Áreas Degradadas na Floresta Ombrófila Densa, Paraty, RJ. Revista Árvore 37(1):89–98

¹¹Livingston and Blade. Texas A&M University System

(http://publications.tamu.edu/FORAGE/PUB_forage_Paratill%20Renovations%20of%20Pastures%20and%20Hayfields.pdf). May 5th 2018.

- 1.2.2: Develop training materials
- 1.2.3: Train 35 machinery operators
- 1.2.4: Implement sub-soiling of 20,189 hectares of compacted rangeland
- 1.2.5: Establish and implement sylvopastoral modules, including improved grazing systems

37. Outcome 2: Strengthened institutional and farmer capacities to improve ecosystem services through agroforestry and forestry systems and enhance the climate-resilience of production landscapes.

Catalyzing the shift from a tightly focused production maximization paradigm to one of climate resilient production systems that enhance ecosystem services, farmers, producers' organizations and institutional staff requires significant capacity building. These stakeholders require technical training to understand climate change and its effects on agro-ecosystems and production landscapes, the role of forests, agroforestry and sylvopastoral systems in the production of ecosystem goods and services, and climate change adaptation in agricultural production. As well, farmers need to develop the skills to adopt and apply resilience-enhancing agricultural practices and systems. Motivation to adopt and apply these systems stems from interest in sale under contract of agricultural products to government programs and the possibility of accessing the supply-and-demand markets. As part of capacity development activities under this outcome, farmers will receive training in how to access the secondary supply-and-demand markets and producers' organizations will work with MINAG to analyze and develop value chains for specific products from climate-resilient production systems. Government will ensure that production contracts are provided to producers' organizations for adequate sale of harvests, and will provide technical assistance to producers to access supply-and-demand markets.

38. Activity 2.1: Increase institutional capacities to support farmers and producers' organizations to establish and maintain agroforestry, sylvopastoral and forestry systems for improved ecosystem services. The project will apply a comprehensive approach to agro-ecosystem management with the aim of maximizing the ability of agroforestry, sylvopastoral and forestry systems to mitigate extremes in water availability and volumes, while maintaining productivity. This approach builds on farmers' knowledge and experience of actual climate conditions, cropping and livestock production systems and water management, incorporates use of resilience-enhancing soil, water and crop cultivation technologies (sub-soiling, zero-till, precision fertilization, drip irrigation, etc.), and promotes application of a package of low-cost agricultural practices based on agro-ecological principles that reduce risk from drought. Adoption of this approach by farmers and producers' organizations will be enabled through training, coaching and technical advice by institutional staff from the Ministry of Agriculture and its affiliated institutes and agencies.

39. GCF investments in support of this activity will consist of the following sub-activities:

- 2.1. Develop training materials
- 2.1.2 Train 450 extension service technicians, agricultural technicians, and cooperative leaders/administrators to lead farmers in gender and age-sensitive learn-by-doing training regarding the implementation, operations and maintenance of their agroforestry or forestry systems. Topics covered may include: no-till cultivation; inter-cropping; cut-and-carry forage feeding; sub-soiling; soil conservation with gabions; gully plugs; bunds; contour farming; agroforestry and sylvopastoral system design; application of efficient irrigation technologies and water harvesting and storage systems; and others.
- 2.1.3 Development of supplementary learning materials and information on CC, ecosystem function and services, agro-ecology, agroforestry and forestry systems, and farm economics.

40. Activity 2.2 Train agricultural producers to collectively revitalize and manage landscape resources through climate resilience-enhancing agroforestry, sylvopastoral and forestry systems for gender-equitable agricultural production and ecosystem services.

41. The long-term construction of climate-resilient production landscapes requires that farmers adopt and apply cropping and livestock systems that improve and maintain ecosystem services and agricultural productivity as they adapt to evolving climate hazards. Aside from the concrete inputs and activities provided under Outcome 1, above, to establish agroforestry and forestry systems, farmers require a substantial body of knowledge of agro-ecology, CC adaptation and mitigation, agroforestry, sylvopastoral and forestry systems management, and basic business economics so that farmers can generate the revenue needed to sustain adopted practices and systems. Farmers, through their day-to-day activities, possess a solid basis of experience and knowledge to build on and complement. At the same time, farmers also need to acquire the practical skills to apply new knowledge to concretely enhance the climate resilience of their production systems. Farmer Field Schools (FFS) are the most effective ways to carry out farmer training. The project will establish an integrated FFS program to cover the seven municipalities and their different agroforestry, sylvopastoral and forestry systems. FFS programs work at multiple scales to build social capital by helping strengthen producer organizations and by contributing to greater organizational capacity along the entire value chain – from financing, post-harvest processing and marketing, to investments.

GCF investments in support of this activity will consist of the following sub-activities:

2.2.1 Establish or strengthen 35 Farmer Field Schools in appropriate locations in the seven municipalities based on type of agroforestry, sylvopastoral or forestry system to be implemented and logistical and other considerations;

2.2.2 Implementation of 35 Farmer Field Schools and training of 30,912 farmers using the learning-by-doing approach.

42. Outcome 3: Effective governance to support climate resilience-enhancing production systems and ecosystem services.

The actions of IRES will be focused on increasing the proportion of incentives from the National Forest Development Fund (FONADEF) to farmers' cooperatives and especially vulnerable smallholders. IRES will also contribute to promoting the rehabilitation of the small-scale diversified productive landscapes by supporting the land usufruct schemes of the individual owners. Through this outcome, FAO will provide the government with assistance in legal and policy matters and facilitate inter-agency dialogue.

43. Activity 3.1 Transform incentive mechanisms to motivate adoption and implementation of agroforestry, sylvopastoral and forestry systems for climate change adaptation and mitigation.

The project will facilitate policy review processes to determine the need for adjustments to or modifications of existing land use, development, environmental or other policy instruments to enhance national scale adoption of agroforestry and forestry systems for CC adaptation and mitigation. This will be achieved through a combination of expert-led desk reviews of the instruments and their implications and provisions; multi-level and multi-sectoral forums informed by the desk reviews with the aim of discussing and prioritizing needs for adjusting the policy instruments and; institution-specific analytical, advisory and orientation support. An inter-institutional working group

will be established, and an operational plan will be developed to adjust public policies and regulatory frameworks as necessary. Corresponding discussion spaces will be established at technical, institutional/ministerial and legislative levels, as well as at local/municipal levels.

44. GCF investments in support of this activity will consist of the following sub-activities:

3.1.1 10 workshops and expertise (three international and national experts) to facilitate inter-institutional analyses and discussions regarding needs and options for the modification of regulatory, policy and planning instruments;

3.1.2 Exchanges to incorporate lessons learned from other experiences internationally;

3.1.3 Awareness raising among institutions regarding modifications to regulatory, policy and planning instruments;

3.1.4 Development of specific proposals for modifications to regulatory, policy and planning instruments;

3.1.5 10 workshops to analyze and develop policies and mechanisms regarding financial mechanisms and economic instruments;

3.1.6 Proposals for a Landscape Resilience Fund to support resilience-enhancing land use by farmers and producers' organizations;

3.1.7 Establishment of Landscape Resilience Fund;

3.1.8 Elaboration of communication strategy and materials and dissemination.

45. Activity 3.2 Strengthen local planning, governance and coordination in support of climate resilient production systems and restoration of ecosystem services.

Enhancement and maintenance of the climate resilience of production landscapes requires effective governance, as well as efficient planning and management of landscape resources – soil, crops, forest habitat, water. This project will train key organizations in the seven target municipalities to participate effectively and collaboratively in planning and decision-making processes that determine the management of the target landscapes to enhance their climate resilience. These organizations will have access to required modeling and visualization technologies to improve their analytical capacities, as well as the most effective tools and instruments for coordinated planning and management of landscape resources from farm to landscape level. Participating organizations include cooperatives and other producers' associations, entrepreneurship groups, etc. Women and youth will receive specific attention to ensure that their interests, concerns and perspectives are represented in these processes both individually as members of organizations, as well as collectively in women and youth organizations.

GCF investments in support of this activity will consist of the following sub-activities:

3.2.1: Train 10 local branches of established organizations (Asociación Cubana de Técnicos Agrícolas y Forestales -ACTAF, Asociación Cubana de Producción Animal -ACPA, Asociación

Nacional de Agricultores Pequeños -ANAP, and Federación de Mujeres Cubanas - FMC) to participate effectively in local planning and decision-making processes;

3.2.2 Multi-level review and analysis of existing landscape planning instruments as a framework for adaptive landscape management;

3.2.3 15 Workshops to strengthen local landscape governance structures for climate change adaptation: *Comisión de Reforestación, Grupo de Bahía, Comisión de Cuencas Hidrográficas, Comisión de Asuntos Agrarios; Grupos Provinciales y Municipales de Tarea Vida.*

3 ENVIRONMENTAL AND SOCIAL BASELINE

3.1 Geographical Location and Topography

46. According to the relief, two major geographical regions stand out in Cuba. The plains, which represent 70% of the territory, are characterized by presenting slopes with angles of 3 degrees and less. The mountainous areas are grouped into 4 mountainous groups: 1 Cordillera de Guaniguanico (in the west), 2. Guamuhaya massif (in the central part), 3. Nipe-Sagua-Baracoa massif (in the north-east) and 4. The Sierra Maestra mountain range (south-east), with the largest elevation of the country (1974 m asl). The rivers are of short course and little flow. The Cauto River stands out as the longest (343 km), forming the largest basin (9 540.20 km²).
47. The project will be implemented in selected areas of 7 Cuban municipalities belonging to 3 provinces located in the Central Zone (4 municipalities) and the Eastern Zone (3 municipalities) characterized by their vulnerability to climate change (see map in Figure 1). Table 2 provides a general description of the implementation area.

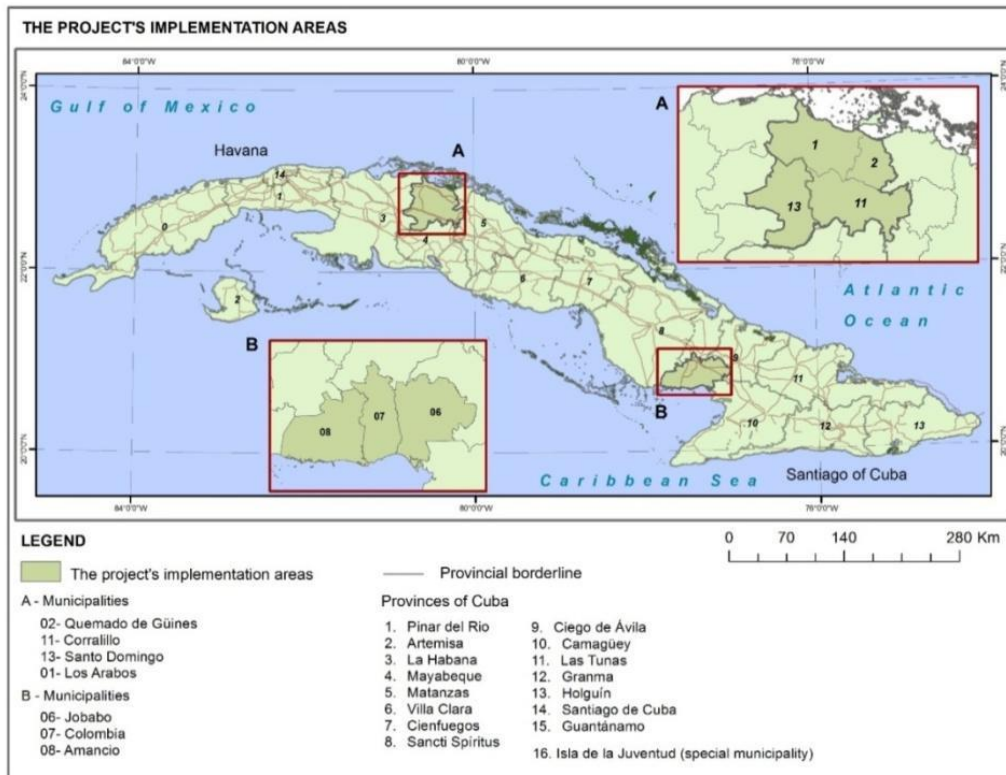


Figure 1. Location of Project Implementation Areas

Source: Prepared for the project by professors of the Faculty of Geography of the University of Havana, May 2019

Table 1. Surface extension, resident population and population density within the municipalities implementing the project. Year 2016.

Municipalities	Surface Extension (Km2)	Total Population (inhabitants)	Density (Hab/km ²)	Masculinity Index (Men per every 1000 women) (a)
Central Region	2 806,5	120 757	43,03	1 029
Los Arabos	758,4	24 274	32,01	1 033
Corralillo	837,3	26 089	31,16	1 031
Quemado de Güines	332,8	21 586	64,86	1 050
Santo Domingo	878,1	50 035	56,98	1 016
Eastern Region	2 298,1	120 182	52,30	1 057
Jobabo	885,6	43 611	49,24	1 072
Colombia	560,0	32 412	57,88	1 042
Amancio	852,5	38 491	45,15	1 051
Total	5 104,6	240 939	47,20	1 043

Source: Prepared from information from the National Statistics and Information Office ONEI (2017). Statistical Yearbook of Cuba 2018. Havana.

48. All the project implementation areas are located on modified ecosystems (agricultural and livestock), meaning they are not natural ecosystems neither areas with significant biodiversity value. The project areas have a long tradition dedicated to livestock and agricultural practices for more than 300 years. The habitats were modified for long time and would not return to the “natural” state. All the selected areas are officially recognized as agriculture, the cattle ranch and the forestry activities in the national Territorial Management Planning.
49. The geomorphology of the implementation areas is characterized by being part of the cumulative marine-fluvial plains and abrasive plains with an average height between 25 and 40 m above sea level (asl) in the eastern region and between 50 and 65 m asl in the central region. (Figure 2)
 - Central Zone: all the municipalities are predominantly flat, and the highest elevations are: Loma de La Vigía, 150 m asl, Corralillo; Loma de Selpa, 114 m asl, Quemado de Güines, Loma de Amaro, 192 m asl, Santo Domingo and Loma de Santa Lucia, 105 m asl, Los Arabos.
 - Eastern Zone: all the municipalities are predominantly flat, and the highest elevations are: Portillo, less than 100 m asl, Amancio Rodríguez; La Loma, 99 m asl, Colombia and Loma de San José, 144 m asl, small, Jobabo.

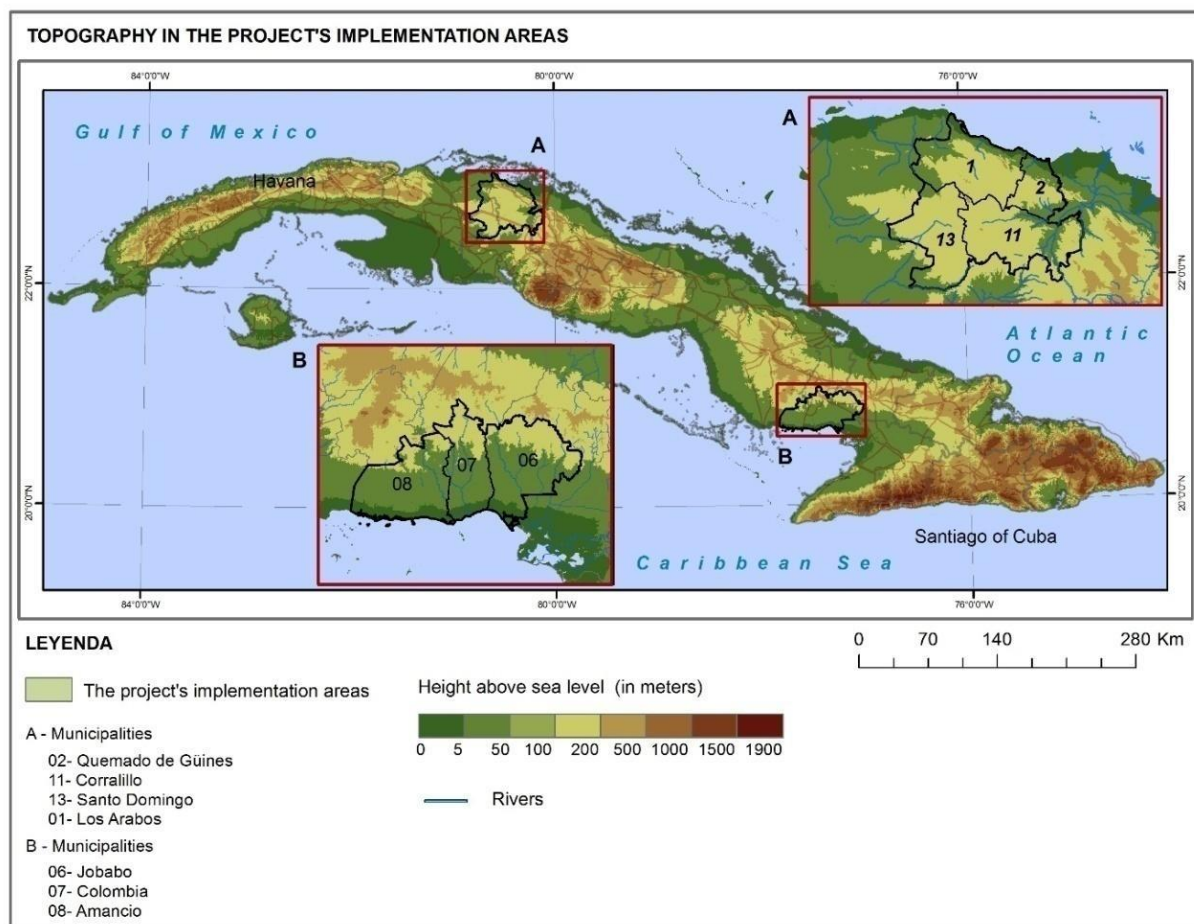


Figure 2. Physical-geographical characteristics of the project implementation areas

Source: Prepared for the project by professors of the Faculty of Geography of the University of Havana, May 2019

3.2 Environmental Features of Proposed Project Area

Country overview

50. Cuba is a Small Island Developing State (SIDS). The Cuban archipelago consists of the island of Cuba, the Isle of Youth (Isla de la Juventud) and more than 1,600 islands, islets and cays, which altogether reach a surface area of 110,922 km². From an administrative point of view, the country is divided into 16 provinces and 168 municipalities, including the special municipality of Isla de la Juventud. From the geo-economic perspective, the country is divided into the Western, Central and Eastern regions.

51. Cuba has four mountainous systems occupying 19,594 km², which corresponds to 18% of the total area of the country. The plains represent 82% of the total country area, where agricultural and forestry activities are developed, according to local potential.

Climate vulnerability

52. The climatic conditions of the Cuban Archipelago are determined by its geographical position, in the northern hemisphere. Cuba receives high levels of solar radiation throughout the year, which

conditions the warm character of its climate. In addition, the country's proximity to the Tropic of Cancer means it is influenced seasonally by both tropical and extratropical atmospheric circulation. Among the factors studied for modeling climate and its variation are the global atmospheric circulation, the sea surface temperature in the North Atlantic Ocean, the cold fronts and particular meteorological events such as tropical storms, hurricanes, as well as the incidence of the ENSO phenomenon / Southern Oscillation (known as "El Niño" and "La Niña").

53. According to the Vulnerability and Climate Change Adaptation Index in the Latin America and Caribbean region, Cuba is classified as a "high risks" country. Observations show that the country's climate has been changing, and studies carried out under the Second National Communication to the UNFCCC (2015) indicate the occurrence of: i) increases in temperature ii) erratic seasonal rains; iii) greater frequency of long and severe droughts; iv) increased frequency and severity of cyclonic activity and; v) moderate and strong coastal floods.

3.2.1 Climate and Meteorology

54. The Cuban archipelago is located at 19 ° 49 'and 23 ° 16' north latitude and 74 ° 08 'and 84 ° 57' west longitude, on the Greenwich meridian, which locates it to the north of the Caribbean Sea and to the south of the Tropic of Cancer. In correspondence with the above, the tropical climate with maritime influence, seasonally humid, predominates. The average annual temperature is 250°C, with a variation of approximately 2 degrees between the plains of the western and central part (240°C) and the coasts and eastern mountainous areas (260°C). The relative humidity is high with values in general higher than 80% and variations of 95% in the interior of the island, up to 60% in the coasts of the eastern part.
55. The average historical precipitation is 1,335 mm, with a marked seasonal character. Eighty percent of the total rainfall is recorded during the rainy period from May to October. Important variations occur in the eastern end of the country where they register more than 3,000 mm to the north and less than 600 mm to the south, mainly due to orographic influences in the circulation. Among the main peculiarities of the Cuban climate is the occurrence of hurricanes, cold fronts and surges that significantly modify the behavior of meteorological parameters. The scenarios foreseen by the science of the impacts of climate change point to a decrease in annual precipitation between 150 and 250 mm per year.
56. Among the factors studied that model the climate of Cuba and its variation are the global atmospheric circulation, the sea surface temperature in the North Atlantic Ocean, the cold fronts and particular meteorological events such as tropical storms, hurricanes, as well as the incidence of ENSO phenomenon / Southern Oscillation (known as "El Niño" and "La Niña"). The surface temperature of the air has increased by 0.9°C since the middle of the last century, conditioned by the increase in the average minimum temperature by 1.9°C. There is a decrease in the diurnal temperature oscillation (see Figure 3). According to the first National communication to the Convention on Climate Change, the climate change scenarios indicate that the magnitudes of the average annual air temperature could increase gradually until reaching magnitudes between 1.6°C and 2.5°C for the year 2100.

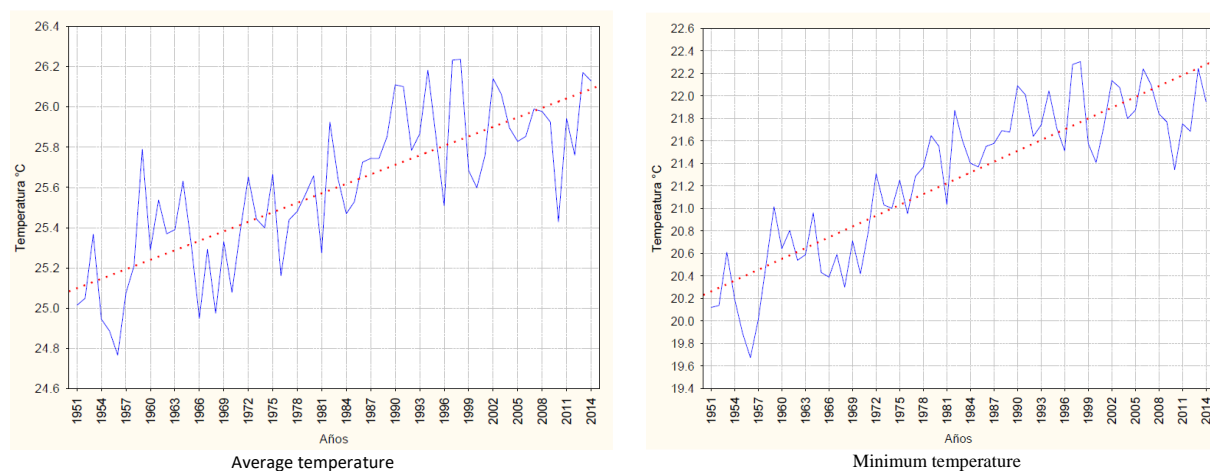


Figure 1: Average and minimum Temperature and its trend
Source: Planos et al (2012)

57. The following graphs provide a general description of precipitation and maximum / minimum temperature trends for each of the two project implementation zones.

58. Central Zone

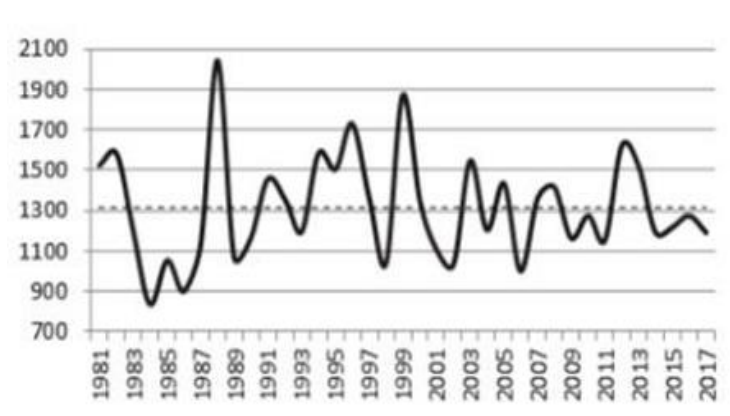


Figure 2: Behavior of rainfall in the Central Zone, in Santo Domingo¹², Villa Clara
Source: Meteorological Station of Santo Domingo

¹² Adopted as a reference meteorological station for the Central Zone

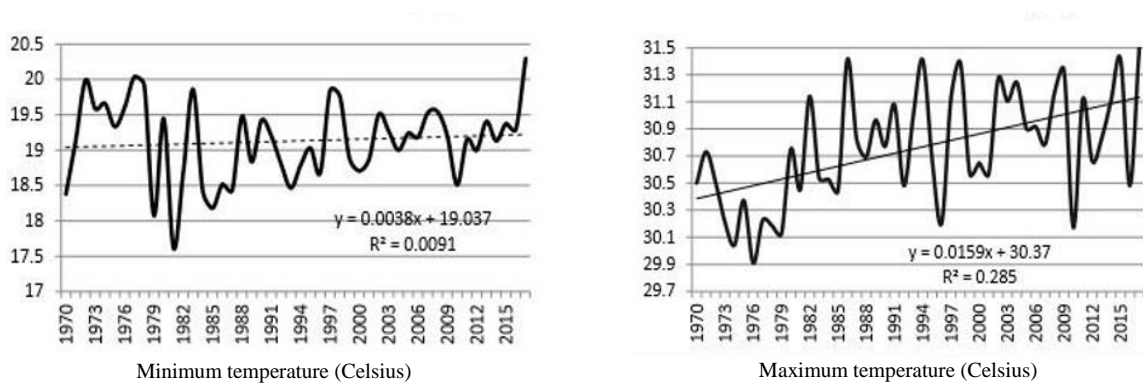


Figure 3 Climatic variables, Central Zone. Meteorological Station of Santo Domingo, Villa Clara

Source: Meteorological Station of Santo Domingo

59. The tendency of rainfall in the Central Zone has increased slightly as a result of the anomalies registered in the non-rainy and rainy periods observed in this period. The temperature increases are consistent with national trends. In particular, the tendency of the Maximum Temperatures reported by the weather station of Santo Domingo, where a growth rate of something more than 1.6% per year between 1970 and 2016 is observed. Trends of the temperatures in the Central Zone.

60.



Figure 4 Behavior of rainfall in the Eastern Zone, Las Tunas¹³

Source: Meteorological Station of Las Tunas

¹³ Adopted as a reference meteorological station for the Area

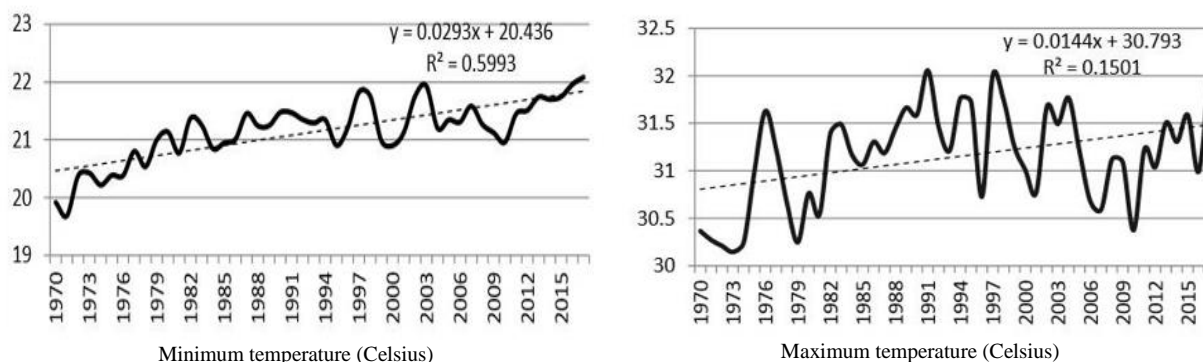


Figure 5 Climatic variables, T min and T max, Eastern Zone. Las Tunas Meteorological Station¹⁴

Source: Meteorological Station of Las Tunas

61. The tendency of rainfall in the Eastern Zone is in slight increase, resulting from the anomalies registered in the non-rainy and rainy periods observed in this period. On the other hand, the behavior of the temperature is to increase, consistent with national trends.
62. The phenomenon of agricultural drought has an important impact on agriculture and livestock in Cuba. In recent dates it has been accentuated due to changes in the behavior patterns of rainfall and its reduction, the increase in evaporation. The map in figure 8 reflects the municipalities most affected by the agricultural drought in the country, with data from 1951 to 2018. The statistics extracted from this map reflect 78 municipalities in the country, which represent an area close to 50,907 km², close to 46% of the national territory. These municipalities tend to have the most intense values of agricultural drought, with more than 50 days of drought a year. This phenomenon is also expressed in the areas of implementation. In both areas, the drought processes have favored the expansion of invasive plants better adapted to water scarcity and the aridity of the soils. Drought has also influenced the exodus of the population from the human settlements and from the rural spaces in these territories.

3.2.2 Soil Quality

63. In the Central Zone of the project, the soil types Yellowish Ferralitic (24.0%), Brown with Carbatos (22.4%), HumicCarbonático (9.8%) and FerraliticQuartziticAmarillo Reddish (8.9%) predominate, while in the Eastern Zone the soils of reddish brown Fersialitic soil (20.8%), yellowish Ferralitic (18.1%), Brown without Carbonates (12.6%), Brown con Carbatos (10.0%) excel.
64. The limiting factors that most affect the soil in the areas of implementation are erosion, low fertility, salinity, acidity, very low content of organic matter, low effective depth and low moisture retention (see Figures 9 and 10).

¹⁴ Adopted as a reference for the Eastern Zone

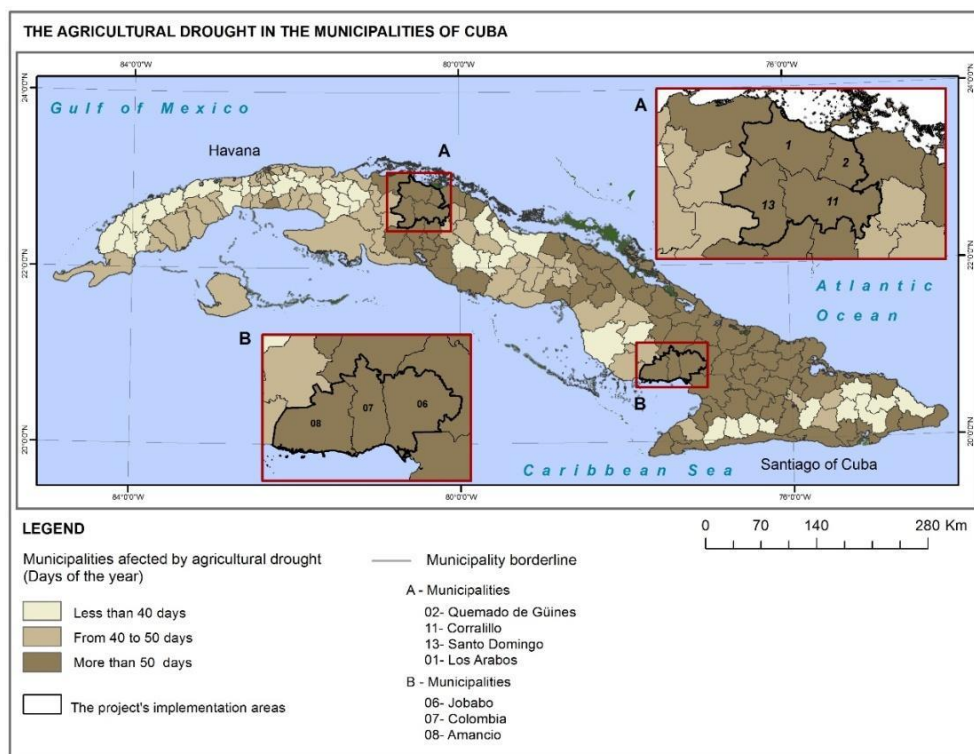


Figure 8. Municipalities of Cuba affected by the agricultural drought

Source: Prepared by the Faculty of Geography from the agricultural drought information in: Centella A, B. Lapinel, O. Solano, R. Vázquez, C. Fonseca, V. Cutié, R. Baéz, S. González, J Sille, P. Rosario and L. Duarte (2006). *The meteorological and agricultural drought in the Republic of Cuba and the Dominican Republic. Volume I*, 172 pp.

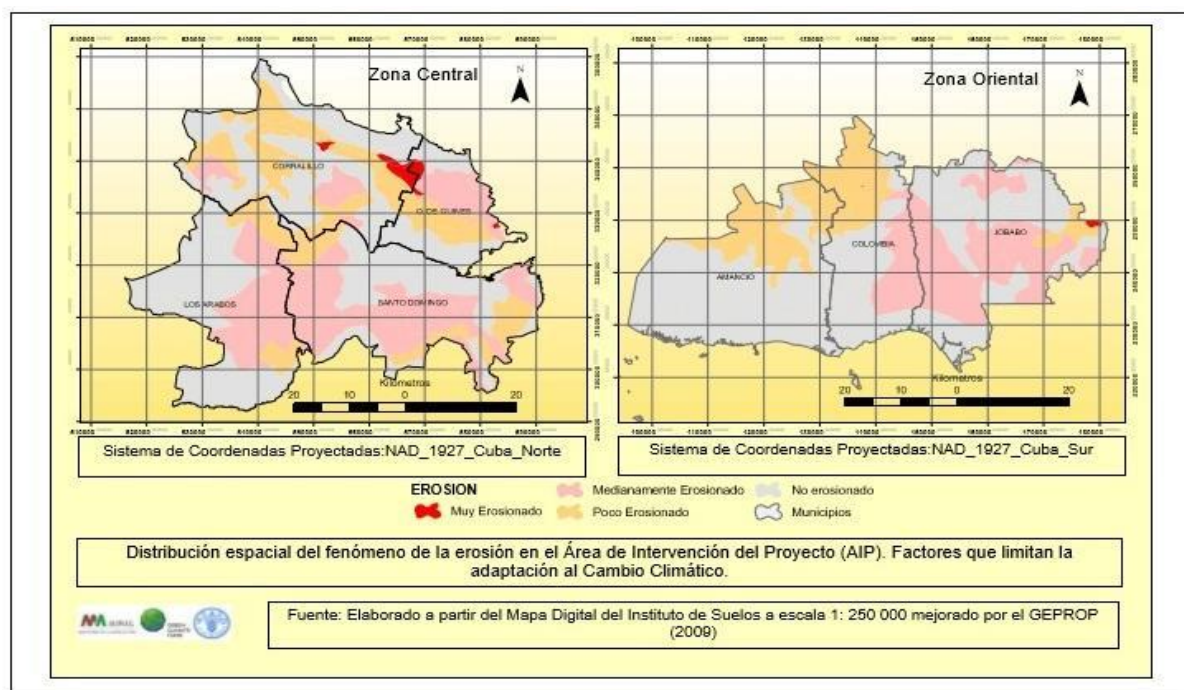


Figure 9. Spatial Distribution of Eroded Areas in the Zones of Implementation

Source: Prepared by Somoza de la ColinaA, 2018

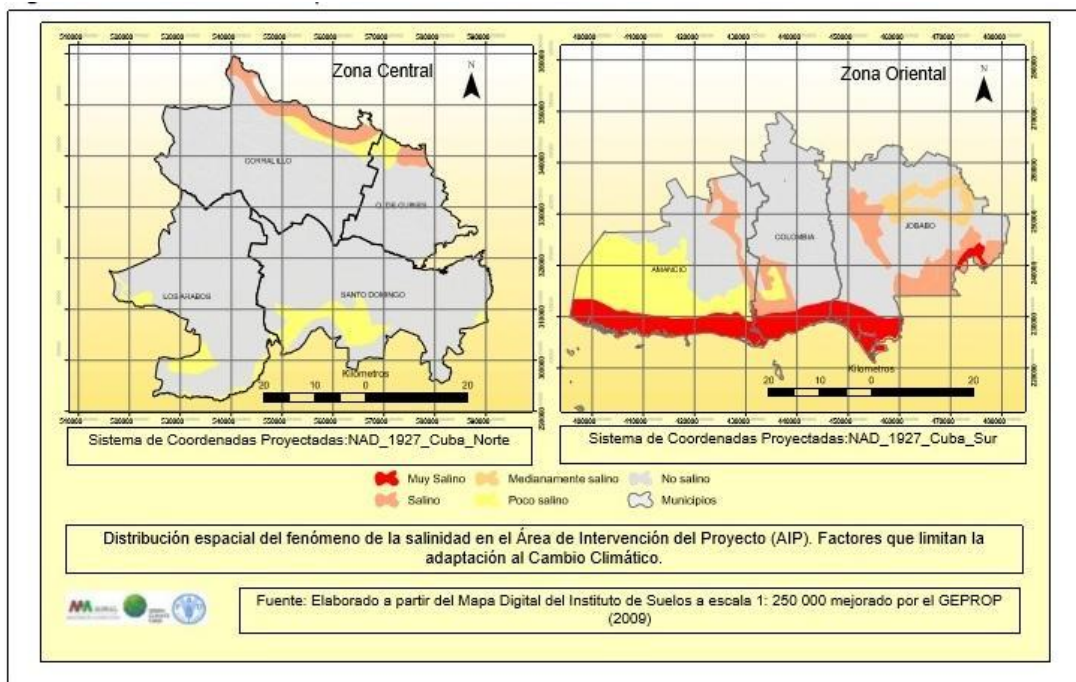


Figure 10. Spatial Distribution of Salinity in both IRES implementation zones

Source: Prepared by Somoza de la ColinaA, 2018

65. The greatest agro productive potential of the Central zone is concentrated in the municipalities of Santo Domingo, Corralillo and Los Arabos, the first two with more than 101,376 ha (62.8%) in the productive to very productive categories and with Los Arabos (41,258 ha) they come to have the greatest productive heritage with more than 88% of their productive soils. (See Figure 11.) In contrast, the Eastern zone has a low agro productive potential grouped in the municipalities of Jobabo and Amancio in 119,723 ha, which represent more than 70% of the low productive categories.
66. Soils are more or less vulnerable to climate change depending on their origin, typology, state of conservation, spatial location and other variables. They may be influenced by factors such as heavy rains, high temperatures and the effect of prolonged droughts. Figure 12 shows the result of a soil climate vulnerability assessment in the implementation areas.
67. In the project areas more than 60% of the soils are in a moderately degraded to degraded stage, particularly affected by the processes of acidification, erosion, compaction, poor drainage, salinity and low natural fertility. As a result of these processes, 67.2% of the surface of the AIP classifies in the categories of areas of medium to very prone to desertification, degradation and salinization, standing out by this indicator the Central zone with 69.3%. (Figure 13). The basic variables used were: Climate, Soil, Vegetation and Human Pressure, this group of variables were those that more accurately typified the areas in processes and / or exposed to desertification, degradation and salinization, which made possible its categorization in the AIP in four levels: not prone, little prone, moderately prone and very prone.

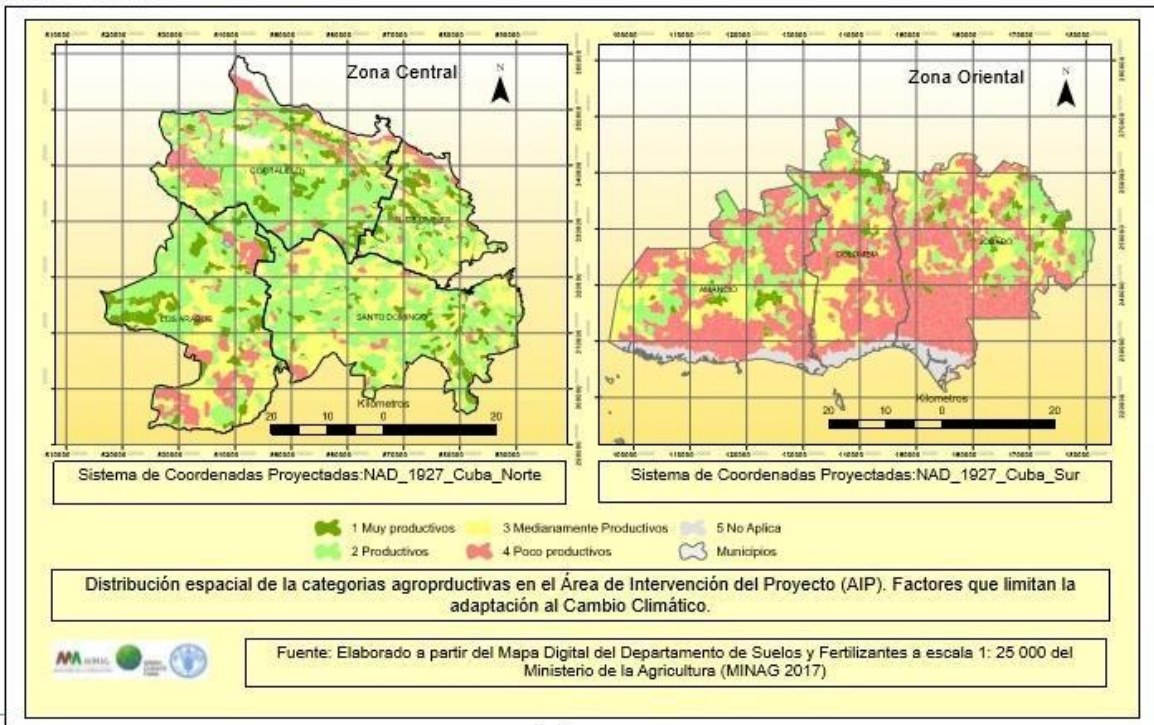


Figure 11. Spatial Distribution of Agro productive Categories of Soil in the implementation areas

Source: Prepared by Somoza de la Colina A, 2018

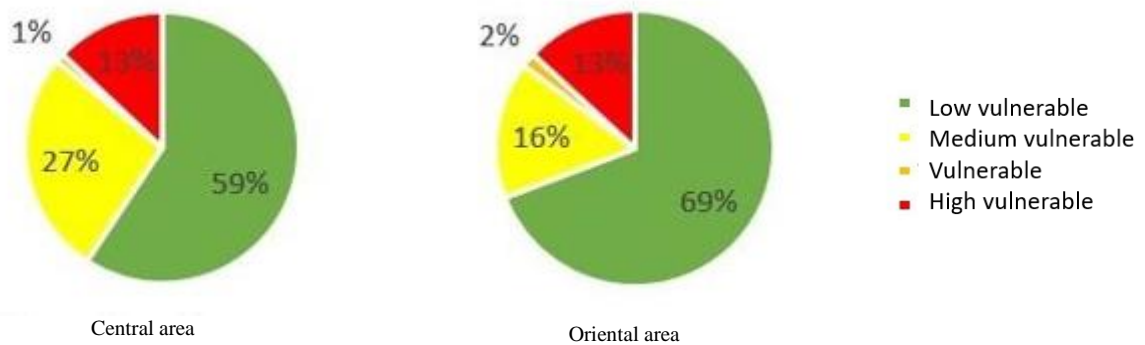


Figure 6 Distribution of soil vulnerability in the implementation areas

Source: Prepared by Somoza de la Colina A, 2018

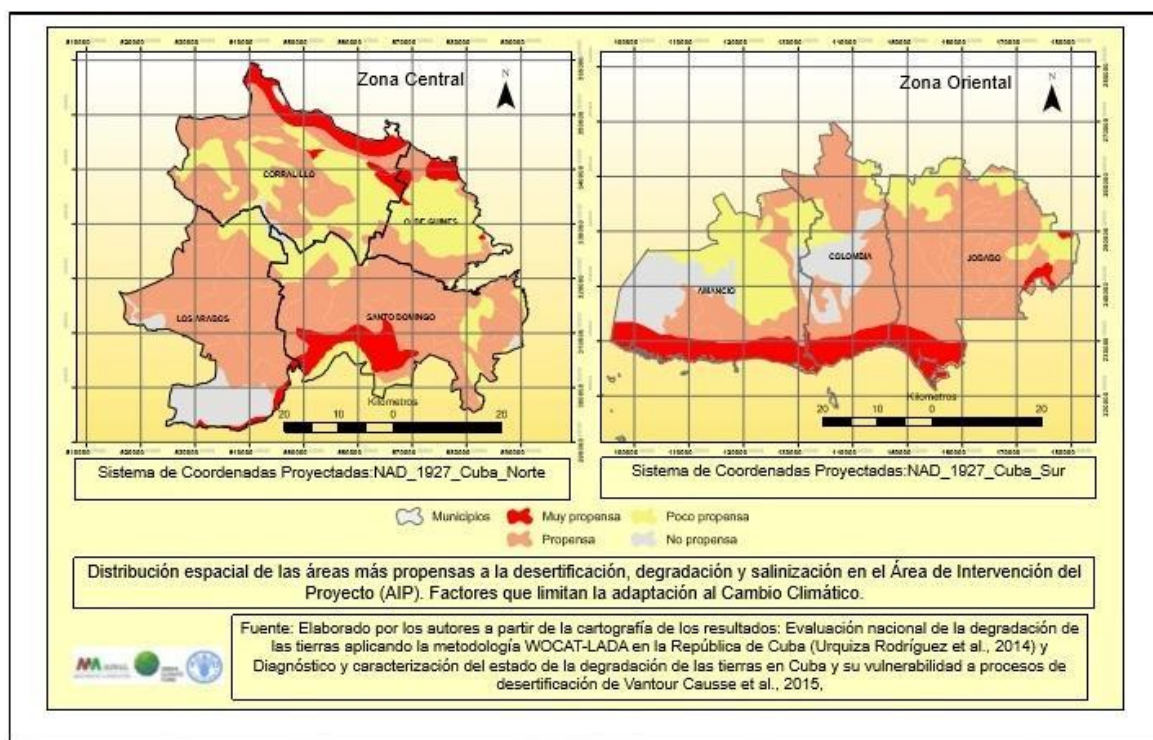


Figure 13. Spatial Distribution of areas more prone to desertification, degradation and salinization in IRES project implementing areas

Source: Prepared by Somoza de la ColinaA, 2018

3.2.3 Land Use

68. The most relevant land uses for the project are sugar cane cultivation, various crops, pastures, forest and idle land. Changes and trends in the behavior of land cover and use in the area of implementation from 2007 to 2013 were analyzed. There has been a decrease in the areas of natural pastures (88,508 ha) and cane (54,626 ha) and moderate growth (by way of conversion to other uses) of the various crops (21,364 ha), notable forest cover (30,797 ha) and idle land (78,257 ha). The idle land amounts to 144,418 ha, resulting from the sum of the area that remains stable (66,161 ha) and the increase of 78,257 ha by conversion at the expense of other uses. The decrease in the area of natural pastures occurred at the expense of conversion to idle land in 45,202 ha and forestry in 18,974 ha, representing 72.5%. In the case of cane, its decrease occurs at the expense of conversion of its area to idle lands (23,998 ha) and natural pastures (20,730 ha — 82%).
69. The changes and trends in the behavior of coverage and land-use detected in the Central zone show a decrease in pasture areas. There has been a notable decrease of 63,335 ha of pasture areas as a result of their conversion into cane (12,486 ha), forestry (16,478 ha), various crops (4,548 ha) and idle land (29,823 ha). The idle land areas are more than 90% occupied by the invasive exotic species Marabu. The increase in this idle land corresponds to a loss of biodiversity. Successive periods of severe droughts and elevation of the temperature as a direct cause of the Climatic Change affected the vulnerable agro systems in the study area.
70. In the Eastern zone (South of Las Tunas) the changes and trends in the behavior of the coverage and use of the detected land indicate cane areas with a notable decrease of 31,143 ha, due to their

conversion into pastures (8,842 ha), various crops (3,373 ha) and idle land (17,872 ha). The increase in the areas of idle lands (Marabu) in the Eastern region has been more significant in relation to its extension and persistence. The drought has particularly affected the areas occupied by cane and pastures, which then decreased by conversion to idle lands in 17,872 ha and 15,379 ha, respectively. The coverage of idle land that has the largest area that remains stable (53,285 ha) plays a buffering role in the balance and trend of changes in coverage and land use in the Eastern zone (Figure 14).

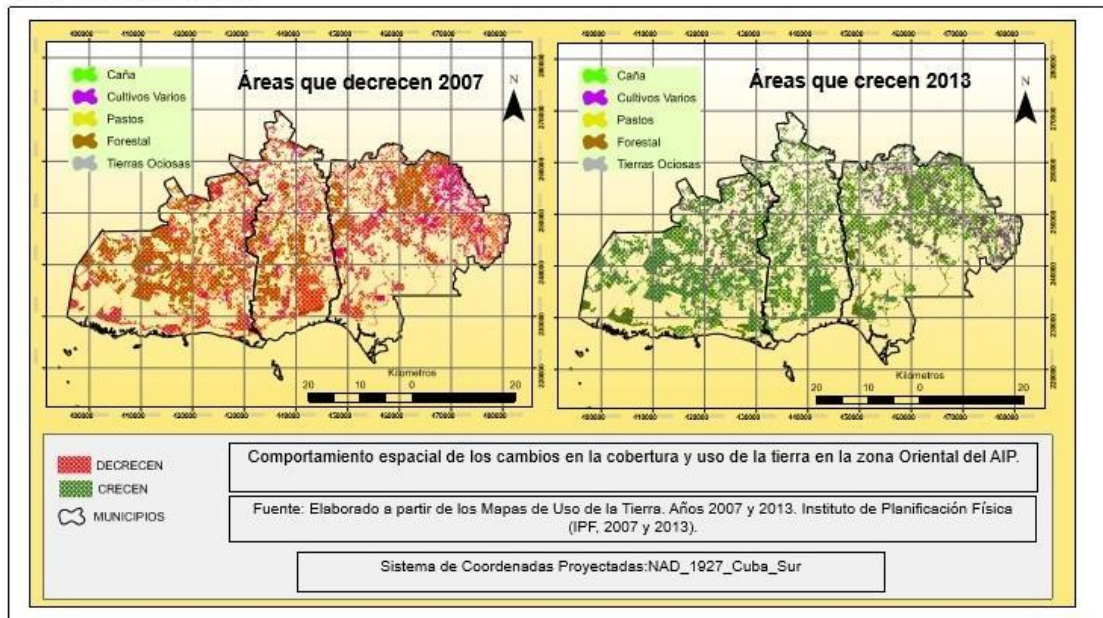


Figure 14. Spatial behavior of the changes in the coverage and use of the land in the Eastern zone

Source: Prepared by Somoza de la ColinaA, 2018

71. In both areas of implementation there is an extremely unfavorable situation of loss of cultivated area. Meteorological and climatic processes and physic-geographic phenomena, particularly drought, are implicated in this process, and have been linked to climate change. For several decades drought has been present in these territories. The loss of agricultural productivity of the soils, the frequency of hurricanes and particularly the expansion of Marabu influence the decrease in the values of cultivated area.

3.2.4 Water Resources

72. The hydrological peculiarities of Cuba are associated with its configuration, the large extent of limestone rocks and the rainfall regime. In this way a central watershed with two slopes, north and south, is established, where rivers of short courses run, 85% of them with lengths less than 40 km that make up hundreds of surface basins of areas less than 200 km². Nine hydrographic basins of national interest stand out. About 90% of the groundwater resources available in the country are located in the heart of Cuba's calcified rocks. The high vulnerability to pollution makes karst one of the most fragile and in-need-of protection ecosystems. The seasonality of rainfall, the only source of food for surface and underground runoff in the archipelago, determines a highly contrasting runoff regime. Cuba's water resources are estimated at 38.1 km³ of water, annually; of these, 31.7 km³ occur through the surface drainage systems of the 632 hydrological basins of the country, 6.5 km³ are found in the 165 hydrogeological units that exist. According to studies carried out, of this potential, 23.9 km³ are

usable, 75% corresponding to surface waters. This volume determines as limit an index of about 2,130 m³ per inhabitant.

73. **Potential Water Resources:** The Potential Water Resources of the project implementation area have been evaluated for more than a decade. They are estimated to amount to a total of 835 million m³ per year. Of these, 490 million are underground distributed in 9 hydrogeological units. The remaining 345 are shallow, distributed in 21 watersheds. (Table 2, Figures 15 and 16)

Table 2. Hydrographic basins located in the Central and Eastern zones

Project Implementation Zone	Basin number	Basin area (Km²)	Potential hydraulic resources(hm³)		
			Current	2050	2100
Surface basins					
Central Region	8	2466	66	55	28
Eastern Region	13	1700	279	232	136
Sub-total	21	4166	345	287	164
Underground basins					
Central Region	6	390	90	75	38
Eastern Region	3	1238	400	333	196
Sub-total	9	1628	490	408	234
Total	30	9589	835	695	398

Source: Prepared by the authors based on information from INRH

74. The potential volume of water in 2050 (Scenario A2 of the IPCC) is reduced in the implementation area to 695 million m³ (17%) and in 2100 to 398 million m³, i.e., reduced by 52% in relation to the current registered average volume. In 2100, the Central zone will have the greatest impact on the reduction of the potential water volume (66 hm³), followed by the reduction in the eastern area of the AIP with 332 hm³, respectively (it is the sum of the subtotal of the surface basins of the area Eastern, 136 hm³ and 196 hm³ of the underground basins), which indicates that in this reference scenario water scarcity will be a critical element. The national per capita water availability has been 1200-1250 m³ in the last decade, but it is estimated that it will decrease to 1050-1080 m³ in 2050.
75. The potential volume of water will almost be halved between 2050 and 2100, according to the climate scenarios used in the projection (A2 of the IPCC), about 13.1 thousand hm³, 40% in relation to the average volume registered between 1961 and 1990. The Central region of Cuba reports the greatest impact on the reduction of the potential water volume (4,426 hm³), followed by the reduction in the Eastern region with 4,278 hm³, which indicates that in the reference scenario the water deficit will be critical, particularly for human and agricultural use.
76. In 2018 the human water consumption reach near 22%, agriculture 60%, cattle 3% and Industry 8%.

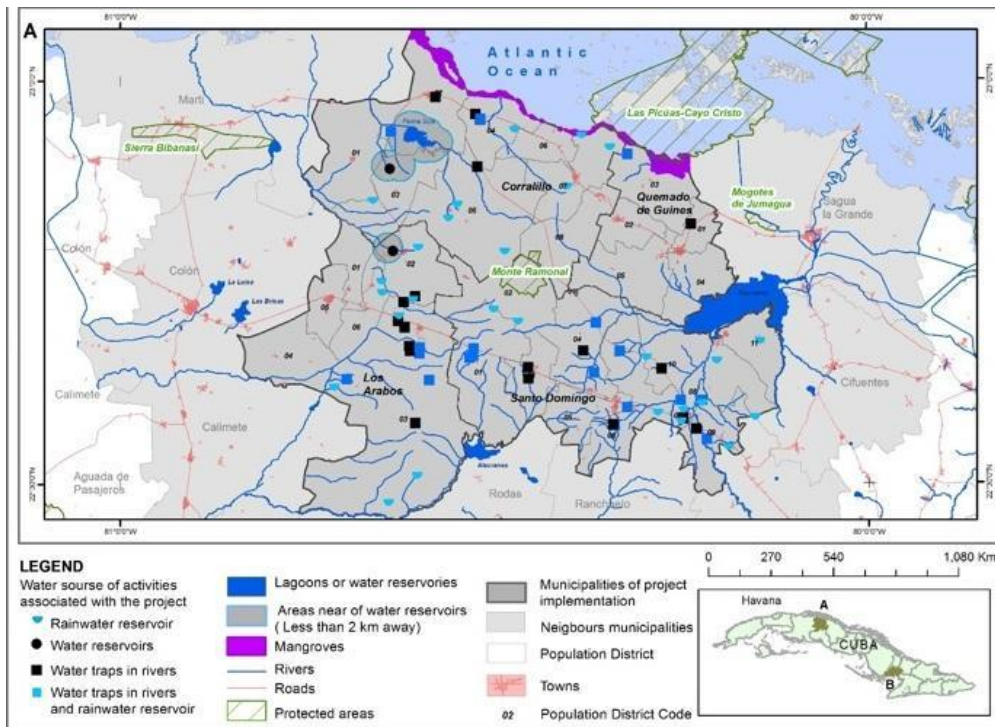


Figure 15. Spatial distribution of surface water resources of the Central Zone

Source: Prepared by the Faculty of Geography of the University of Havana for the project based on official data from INRH, 2019

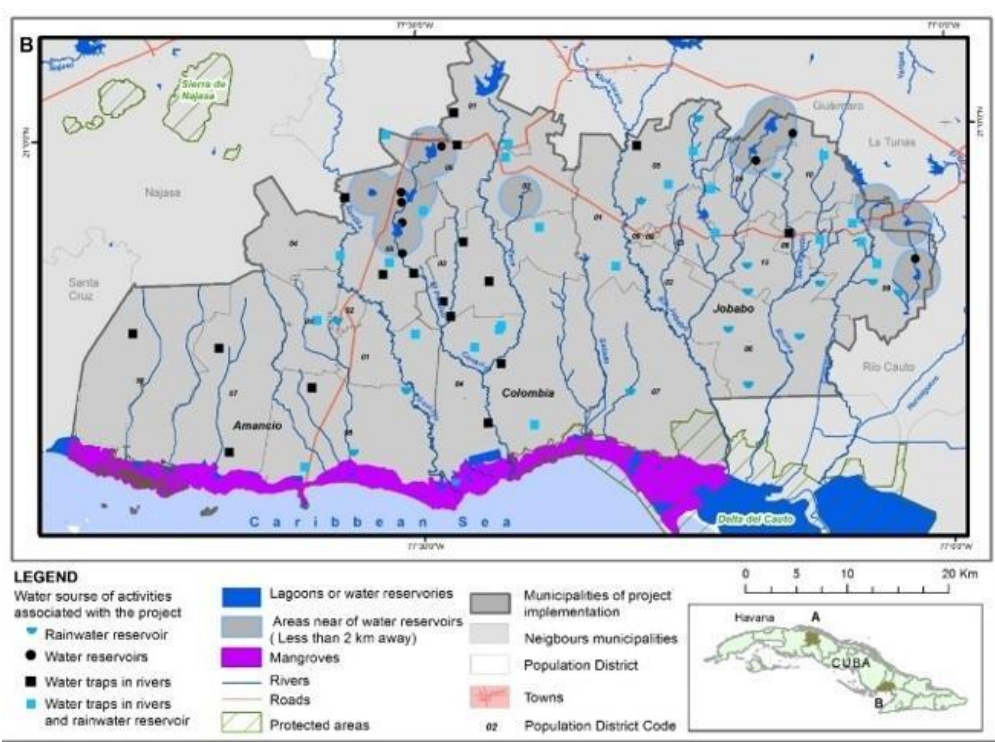


Figure 16. Spatial distribution of surface water resources in the Eastern Zone

Source: Prepared by the Faculty of Geography of the University of Havana for the project based on information from the INRH, 2019

77. Water Quality: One of the problems that affects the availability and quality of water for human consumption, agriculture and livestock in Cuba is the marine intrusion or salinization of coastal aquifers. This leads to a significant reduction in the delivery of groundwater and, in less powerful coastal aquifers, it could represent the final salinization of its reserves. The map in figure 18 reflects the provinces most affected by the saline intrusion up to 2015. The intervention areas of the Project are located in some of the provinces most impacted by this problem. These impacts may worsen in the new context of climate change, where a decrease in the volume of rainfall is forecasted, and a condition that will particularly affect the potential beneficiaries of the project.



Figure 17. Provinces of Cuba affected by saline intrusion

Source: Prepared by the Faculty of Geography of the University of Havana with information from the Second National Communication, Republic of Cuba, 2015

3.2.5 Irrigation System

78. The potential water resources of Cuba reach 38,130 hm³, of them 24,000 hm³ are usable, (75% surface water and 25% underground). By type of source, they are distributed in 53% in reservoirs, 4% in micro-reservoirs, 34% in groundwater and 9% in unregulated runoff. Of this usable water, 60–70% is used in agricultural irrigation. Only 459,008 hectares are irrigated, which represents 7.4% of the agricultural area. Of the areas under irrigation, around 50% are designated for the production of rice and cane. The predominant methods of irrigation are superficial or gravity. These represent 70% of the area

under irrigation, with different techniques used, including flood, furrow and by band. In general, all these effects have low efficiency. Sprinkler occupies 26%, the irrigation potential to reach is 35%. The government plans to increase up to 11% in a period of 15 years and reduce water consumption by 750 million cubic meters, using irrigation systems that allow an average efficiency of 75% and increase the use of hydrometrics.

79. In the project implementation zones (municipalities), the irrigated areas reach only 3% in the Central part and 1.5% in the Eastern part, it means those areas are entirely rain fed areas, but there is reservoir water with potential for irrigation

3.2.6 Agro-Ecological Zones and Eco Regions

80. Agro-ecosystems are characterized by the predominance of locally adapted Plant Genetic Resources (RFG). However, these are mostly from introduced species because most of the crops produced domestically originate in other regions of the world. This also happens with Animal Genetic Resources. Many introduced plants predominate in agricultural and livestock landscapes (more than 12% of Cuban flora is exotic, including most RFGs). The high degree of infestation by Marabu is relevant, mainly in old livestock areas. Jobabo stands out with 35,000 hectares of Marabu-infested area, almost 40% of the total area of the municipality.

3.2.7 Biodiversity and Forests

81. Cuba is among the 35 hotspots of biodiversity of the planet due to its high concentration of ecosystems, species and endemism. The national terrestrial biota sum, excluding protozoa, algae and bacteria, around 25,700 known native taxa. 7,500 taxa of plants are reported, of them 5,778 with seeds, with 51.4% of endemics. It is estimated that there are 11,954 invertebrate species and 655 vertebrate species, making Cuba the most diverse island region in terms of fauna. Within invertebrates, the greatest diversity corresponds to insects with almost 8,500 species.
82. Fragmentation, the impacts of economic sectors (especially agriculture), climate change, invasive alien species, forest fires, and pollution are recognized as fundamental threats to biodiversity.
83. The forest coverage of all the municipalities in the Center Zone is below the national index of 32.2%. The most reforested is the Arabos with 22.8%, followed by Corralillo with 15.1%, then Santo Domingo with 10.7% and finally Quemado de Güines with only 5.7%.
84. Amancio municipality exceeds the national index of forest, cover with 33.5%, in Colombia the forests occupy 24.7% and the most underprivileged is Jobabo with 15.4%.

3.2.8 Natural Habitats and Protected Areas

85. Cuban Biota is conserved in the National System of Protected Areas (SNAP), which covers 211 conservation units (Protected Areas) (Figure 19) and represents more than 20% of the national territory. The insular platform and 17.16% of the land surface provides coverage for 32 of the 34 Cuban plant formations, 3,210 plant species (including 1,386 endemic), of which 1,579 are threatened. It protects 96.7% of the native vertebrate species, 91.6% of endemic species and 90.5% of endangered species. All protected areas have management plans. Fourteen protected areas with international recognition particularly stand out.

Protected Areas with International Recognition		
Biosphere Reserves	Natural World Heritage Sites:	Ramsar Sites:
RB Guanahacabibes	PN Desembarco del Granma	Ciénaga de Zapata
RB Sierra del Rosario		Buenavista
RB Ciénaga de Zapata		Ciénaga de Lanier y Sur Isla de la Juventud
RB Buenavista	PN Alejandro de Humboldt	Gran Humedal del Norte de Ciego de Ávila
RB Baconao		Delta del Cauto
RB Cuchillas del Toa		Río Máximo-Camagüey

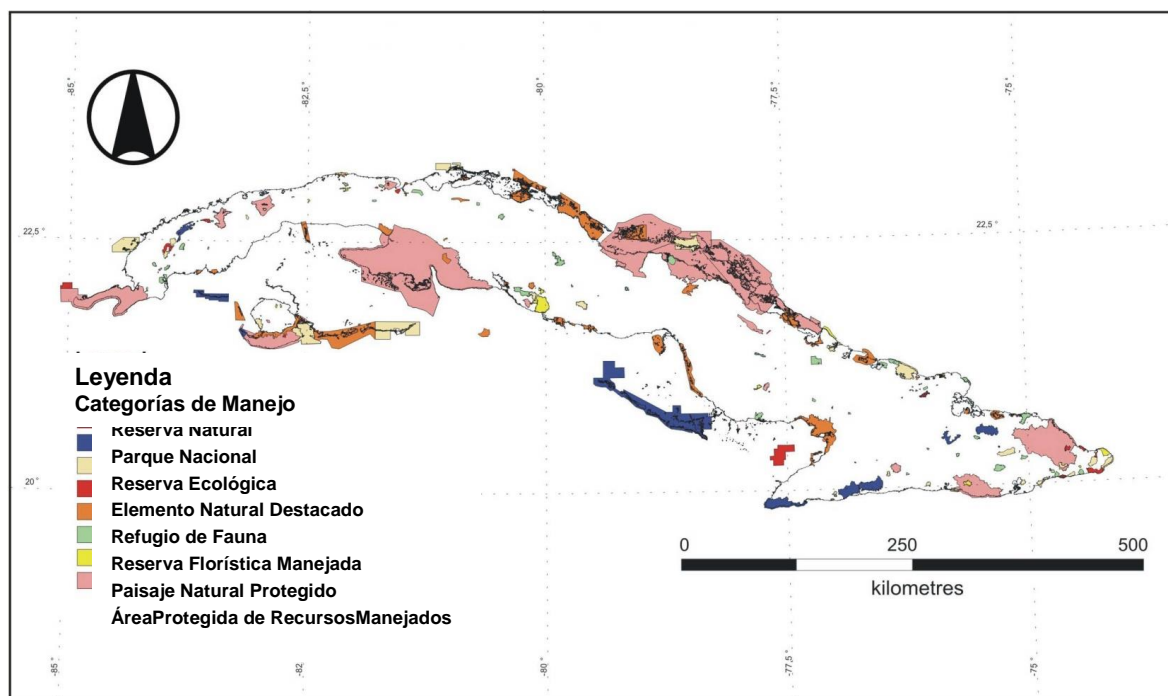


Figure 18. Distribution of protected areas of the National System of Protected Areas of Cuba
Source: National Center for Protected Areas (CNAP),

Central Zone: The highest values of biodiversity are concentrated in the following two Protected Areas

86. Protected Area Wildlife Refuge "The Picúas - Cayo Cristo", has an area of 55,970 ha, of which 40,250 ha are marine and 15,720 ha are terrestrial. It is located on the coast of the municipalities Corralillo (east coast), Quemado de Güines (the entire coast) and Sagua la Grande (west coast). It is the second

most important site in terms of recruiting juveniles of Caribbean flamingos (*Phoenicopterus ruber ruber*, species protected by CITES). Large numbers of water birds nest in its mangroves. It constitutes an adequate habitat and a reproductive bank of Giant Cobi (*Strombus giga*). It has beaches where marine turtles belong to Caribbean metapopulations (species in CITES). The populations of dolphins and manatees are well represented, and in case of the second one it is a species seriously threatened with extinction with possibilities of recovery in the area, under adequate management conditions. The vegetation that dominates is the mangrove forest, 114 species of birds stand out in the area, 5 of them threatened, and 10 species of reptiles, 5 of them threatened.

87. Protected Florid Reserve "Monte Ramonal" located in the North Plain of Villa Clara is part of the municipalities of Santo Domingo and Corralillo. It has an extension of 3,151.40 ha, with a compact, almost circular configuration, formed by a relic of forests and natural savannas, considered an ecological island. This area constitutes an important center of biodiversity for the province, they constitute, in addition, area of important value for the refuge and nesting of birds and other elements of the fauna, where the savannas stand out as an important nesting center in the reserve. The main plant formations are the evergreen forests —microphyllous and mesospheric green, semi-deciduous forest, swamp forest and sable savanna and tall grass. The area is home to 393 species of plants; 83 species of birds, of which 10 are endemic; 17 reptiles and amphibians, of which 9 are endemic; 8 species of mollusks, of which 6 are endemic.

Eastern Zone. The most important sites for biodiversity are concentrated in the "Monte Cabaniguán-Ojo de Agua" Ecological Reserve Protected Area

88. Protected Area "Monte Cabaniguán-Ojo de Agua" Ecological Reserve, which covers the south of the Jobabo and Colombia municipalities. It limits by the south with the Gulf of Guacanayabo. It has a surface area of 11,020 ha, of which 9,485.8 ha are terrestrial and 1,534 ha are marine. The mangroves occupy 57.5% of the total area and the forest and savannah 24.7% and 3.5% respectively. Its values include a virtually unchanged mangrove ecosystem that houses the best national population of *Crocodrillus acutus*, a large and atypical population of arboreal Iguanas. It's also home to colonies of waterfowl with large population sizes and with conserved reproduction sites. This area serves as a refuge and feeding of migratory birds, it also houses mammals of great ecological value such as bats and *Jutía Conga* (*Capromys pilorides*) and presents great diversity of the *Anolis* genus. The terrestrial part is characterized to own a savannah with palms with great representativeness of species of the *Copernicia* genus, four of them threatened. This population of palms, due to its diversity, abundance and distribution, is of importance for Cuba and the rest of the Antilles. 287 species of vascular plants have been inventoried, of which 9.40% are endemic to Cuba. It includes 143 bird species, of which 16 are endemic, and 22 reptile and amphibian species.

3.3 Social Features of the Proposed Project Area

89. In 2013, 76.8% of the Cuban population lived in urban areas. Likewise, in 2013, the total fertility rate dropped to 1.73, below the replacement level; together with a reduction in overall mortality, with a rate of about 8.3 per thousand; and infant mortality (5.5 per thousand), with a consequent increase in life expectancy (78 years). Thus, compared to 2002, the population aged 0 to 14 years decreased in 3.6%; the corresponding to 15-59 years remained stagnated; and the population with more than 60 years grew (representing 18.7% of the total population at the end of 2013). These facts place the country among the Latin America and the Caribbean countries with elderly populations (ONEI, 2014).

90. Cuban law, including the Republic Constitution (2019), recognize equal rights for all Cubans. Article 42 of the 2019 Constitution, states: "All people are equal before the law, receive the same protection and treatment from the authorities, and enjoy the same rights, liberties, and opportunities, without any discrimination for reasons of sex, gender, sexual orientation, gender identity, age, ethnic origin, skin color, religious belief, disability, national or territorial origin, or any other personal condition or circumstance that implies a distinction injurious to human dignity. All people have the right to enjoy the same public spaces and service facilities. Likewise, they receive equal salary for equal work, with no discrimination whatsoever. The violation of this principle is proscribed and is sanctioned by law."¹⁵
91. By the end of 2013, the Cuban economy reached 4.6% growth in its Gross Domestic Product (GDP). Important decisions were made in the areas of agriculture, particularly in food production, tourism, and the reorganization of transport in the country. In 2013 the total expenditure of the state budget decreased by 3% compared to the previous year. Of the total expenditure of the state budget, 14.9% was allocated to health, 11.1% to social security and 17.4% to education. Total net revenues decreased by 4.8% for a negative fiscal balance of 4,513.5 million Cuban pesos (CUP), accounting for 4.8% of GDP. The country ranks among those with high human development (HHD), holding the 44th place, according to the UNDP "Human Development Report 2014."

3.3.1 Demographics

92. According to national censuses, the population of Cuba went from 8,569,121 inhabitants in 1970 to 11,177,743 in 2002, but 10 years later during the last national survey it had decreased to 11,167,325 inhabitants, passing the growth rate (per 1,000 inhabitants) from 21.6 in 1970 to -01 in 2012. It is projected that in 2030 the population will reach 11,288,750, which indicates very low growth due to low birth rates and migration factors. The population growth rate in 2016 was 0.02, the birth rate was 10.4, and the average number of children per woman was 1.63, of which daughters were 0.78, which does not guarantee the replacement rate. The life expectancy at birth is 78.47 years. Cuba is the second oldest country in Latin America and in 2050 it will be one of the 10 oldest countries in the world. The national population density was 102.1 (Hab./Km²), of which almost 77% live in urban settlements.
93. **The Central Zone** reached 127,864 inhabitants in 2009, of them, 65,379 men and 62,485 women, for a masculinity index of 1,046 men for every 1,000 women. The urban population represents 67.04% and the rural population 32.96%. The population aged 60 and over represented 20%, the urban population of 60 years and over 19.88% and the rural population 20.13%. In 2017, approximately eight years later, the population of the four municipalities analyzed was 120,757 inhabitants, 7,107 fewer inhabitants; In its structure there are 61,235 men (4,144 fewer than in 2009) and 59,522 women (2,963 fewer). There is evidence of abandonment by the population from the studied territories, urban rural migration (exodus of the rural population), where women are the most affected, with a variation in the masculinity index that decreases by 17 men per thousand women (1,029). Gender analysis shows that the most unfavorable situation in this region affects women. Men abandon their homes in the area in search of greater and better opportunities for work and life, while the number of women in the area, particularly those 60 years and older, increases. A process of feminization of rural spaces in the municipalities of the Central region is underway. When this analysis is carried out for the population 60 years old and over, there is a population growth of more than 2.5 thousand

¹⁵ Translation courtesy of Constituteproject
(https://www.constituteproject.org/constitution/Cuba_2019.pdf?lang=en)

inhabitants, which highlights this population group increasing in urban spaces by 886 inhabitants and 1,638 in rural areas. As in all the territory studied, it is due to the demographic aging of these municipalities. This demographic shift, in turn, affects the areas' sustainable development. Likewise, a feminization is reported in the evident aging processes of rural spaces, with a percentage growth of the urban population, a decrease in the rural population and an index of masculinity that increases for this population group of 60 years and over, reaching a value of 976 men per thousand women. (Table 3).

Table 3. Selected indicators of the population of the municipalities of the AIP in the Central region, year 2017.

Name	Population			Masculinity Index (Men for every 1000 women)			Percentage	
	Total	Men	Urban	Urban	Rural		Urban	Rural
Los Arabos	24,119	12,257	11,862	14,650	9,469	1,033	60.74	39.26
Population ≥60	5,290	2,683	2,607	3,352	1,938	1,029	63.36	36.64
%	21.93	21.89	21.98	22.88	20.47			
Corralillo	25,834	13,117	12,717	19,039	6,795	1,031	73.70	26.30
Population ≥60	6,031	2,973	3,058	4,401	1,630	972	72.97	27.03
%	23.35	22.67	24.05	23.12	23.99			
Quemado de Güines	21,359	10,942	10,417	13,906	7,453	1,050	65.11	34.89
Population ≥60	5,217	2,597	2,620	3,295	1,922	991	63.16	36.84
%	24.43	23.73	25.15	23.69	25.79			
Santo Domingo	49,445	24,919	24,526	35,905	13,540	1,016	72.62	27.38
Population ≥60	11,562	5,628	5,934	8,351	3,211	948	72.23	27.77
%	23.38	22.59	24.19	23.26	23.71			
Central Region	120,757	61,235	59,522	83,500	37,257	1,029	69.15	30.85
Population ≥60	28,100	13,881	14,219	19,399	8,701	976	69.04	30.96
%	23.27	22.67	23.89	23.23	23.35			

Source: ONEI (2017). Population Aging 2017. Havana

94. In 2009, the population of the municipalities of the Eastern region reached 121130 inhabitants. There were 62,226 men and 58,904 women, with a masculinity index of 1,056 men for every 1,000 women. The urban population represents 57% and rural 43%. The population aged 60 and over represented 15.23%. The urban population of 60 years and more represented 14.51% and the rural 16.18%. In 2017, approximately eight years later, the population of the three municipalities analyzed was 120,182 inhabitants, 948 inhabitants less. There were a reported 62,082 men and 58,730 women, an estimated decrease of 144 men and 174 women. There is evidence of abandonment by the population of the studied territories where women are the most affected, with a variation in the value of the masculinity index that increases by approximately one man per thousand women. When this analysis is carried out for the population of 60 years and more is observed a population growth of 60 years and more than 3.4 thousand inhabitants, where it is highlighted that this population group increases

in urban spaces by 3,668 inhabitants and decreases by 271 in rural areas, as a result of urban-rural migration that is reported. As for all the territory studied, this migration happens in tandem with the demographic aging of these municipalities, which affects their sustainable development. Likewise, an increase in the proportion of women populating an increase in the proportion of women populating is reported alongside the aging population based in rural areas, with a percentage growth of the urban population, decrease of the rural population and an index of masculinity that increases for this group of population of 60 years and more. (Table 4)

Table 4. Selected indicators of the population of the municipalities of the Eastern region, year 2017.

Municipality	Population					Masculinity Index (Men for every 1000 women)	Percentage	
	Total	Men	Urban	Urban	Rural		Urban	Rural
Jobabo	47 350	24 503	22 847	18 012	29 338	1 072	38.04	61.96
Population ≥60	8 394	4 368	4 026	3 788	4 606	1 085	45.13	54.87
%	17.73	17.83	17.62	21.03	15.70			
Colombia	32 185	16 747	16 068	22 564	10 251	1 042	70.11	31.85
Population ≥60	6 342	3 224	3 118	4 666	1 676	1 034	73.57	26.43
%	19.70	19.25	19.41	20.68	16.35			
Amancio Rodríguez	40 647	20 832	19 815	28 360	12 287	1 051	69.77	30.23
Population ≥60	7 104	3 487	3 617	5 250	1 854	964	73.90	26.10
%	17.48	16.74	18.25	18.51	15.09			
Eastern Region	120 182	62 082	58 730	68 936	51 876	1 057	57.36	43.16
Population ≥60	21 840	11 079	10 761	13 704	8 136	1 030	62.75	37.25
%	18.17	17.85	18.32	19.88	15.68			

Source ONEI (2017). *Population Aging 2017. Havana*

3.3.2 Education

95. The national educational indexes are very high. Ninety-nine percent of the population is considered literate — in 1961 the country was declared a territory free of illiteracy. Teaching is universal, free up to university and postgraduate level, and compulsory for children up to 15 years of age. More than 99% of girls and boys attend primary school. In 2015, girls made up 48.7% of the enrollment and boys 51.3%. In middle school, boys and girls are represented 50-50. In university, women were the majority at 59.6%, while men constituted only 41.4%. Cuban universities have graduated more than 1.2 million domestic students in the last 60 years. There are no significant differences in the behavior of education indicators between the different regions of the country.

3.3.3 Health

96. Health indicators in Cuba are very satisfactory. Healthcare is free and affordable for all citizens. The national vaccination scheme protects against 16 diseases. The health system covers a wide network of clinics spread throughout the communities that guarantee primary care. Secondary care is guaranteed by polyclinics located in all municipalities, while tertiary services are concentrated in the provincial capitals, large cities and the capital. The government subsidizes all medicines and secures them at low prices, but those that are supplied in hospitals are free for patients. National industry produces more than half of the medicines in the basic table and the rest are imported by the state. The low indicators of maternal death, and mortality for infants at birth and children under 5 years of age stand out due to their relevance (Tables 5 A, B, and C).

Table 5. Health indicators selected at the national level and from the areas of implementation

A)

Infant Mortality			Mortality in children under 5 years		
Year	At National Level	Total National	Provinces in the Project		
			Province Total Villa Clara	Province Total Las Tunas	Province Total Matanzas
2015	4.3	5.7	4.8	6.5	6.4
2016	4.3	5.5	3.5	4.7	5.8
2017	4.0	5.5	5.6	4.9	7.5

B)

Maternal mortality rate (Per 100 000 live births)			
	Indirect	Direct	Total
Villa Clara (Central Zone)	13.6	13.6	27.2
Matanzas (Central Zone)	27.6	27.6	55.1
Las Tunas (2015) (Eastern Zone)	45.3	30.2	75.5
National	14.5	27.4	41.9

C)

Infant mortality in the project municipalities during 2015		
Zone	Municipality	Rate per thousand live births
Eastern Zone	Amancio	4.0
	Colombia	2.4
	Jobabo	1.7
Central Zone	Los Arabos	2.6
	Corralillo	4.3
	Quemado de Güines	5.7
	Santo Domingo	4.0

Source: Territorial Panorama of Cuba, National Office of Information and Statistics, 2016.

3.4 Labour and Land Tenancy

97. Cuba is considered a country with full employment. Female unemployment is only 2.2% and male unemployment is 1.9%. The state is the largest employer, providing jobs for 71% of the 4,591,100 workers that existed in 2016 (see table 7). There has been a tendency in the last 10 years to decrease the role of state entities in employment and growth in the private sector, due to the boom in self-

employment and the increase in the number of people who have applied for land in usufruct. The phenomenon of child labor does not exist. The Labor Code prohibits child labor and establishes the employment restriction for young people than eighteen (18) years of age.

Table 6: Structure of employment in Cuba in 2016

	Total	Women	Men	% Women	% Men
Total workers (thousands)	4 591.1	1 709.6	2881.5	37.2	62.8
State	3 262.0	1 478.8	1783.2	45.3	54.7
Non State	1329.1	230.7	1098.4	17.4	82.6
Cooperatives	189.9	29.8	160.1	15.7	84.3
1. Agricultural	178.5	27.6	150.9	15.4	84.6
Non Agricultural	11.3	2.2	9.1	19.4	80.6
Private	1 139.2	200.9	938.3	17.6	83.4
Self-employment	540.8	174.8	366.0	32.3	67.7

Source: Prepared from the 2016 Statistical Yearbook of the National Statistics Office.

98. There is almost no conflict in Cuba over land tenure, between farmers and the state, as the phenomenon of latifundia was eliminated in 1959 through the Agrarian Reform Law, which expropriated 85% of the country's arable land, transferring about 75% to the State. Then in the decades of the 1960s and 1970s a process of cooperatives creation of the private land took place. Currently, the state owns 79.3% of agricultural and livestock land. Cooperatives and independent farmers privately own the rest. However, private land management makes up 68.8% of state-owned land and state companies manage only 31.2%. Table 7.

Table 7: Total Areas of the Country According to the Use and Form of Tenure

Surface Concept	Surface (Mha)				Ratios (%)		
	Administration	Usufruct	Property	Total	Administration	Usufruct	Property
Total Surface	6 021.1	3 421.9	1 545.4	10 988.4	54.8	31.1	14.1
Agricultural Surface	1 964.7	3 029.0	1 306.5	6300.2	31.2	48.1	20.7
Temporary Crops	231.6	558.0	361.6	1 151.1	20.1	48.5	31.4
Permanent Crops	205.1	969.7	279.4	1 454.2	14.1	66.7	19.2
Livestock	1 528.0	1 501.3	665.5	3 694.8	41.4	40.6	18.0
Of such:							
Total empty	143.9	224.8	70.1	438.8	32.8	51.2	16.0
Total idle	579.2	265.4	72.6	917.2	63.2	28.9	7.9
Non Agricultural	4 056.4	392.9	238.9	4 688.2	86.5	8.4	5.1
Forestry	2 890.5	269.0	179.9	3 339.4	86.6	8.1	5.4
Non Fit	1 165.9	123.9	59.0	1 348.8	86.4	9.2	4.4
Aqueous	548.5	45.0	14.7	608.2	90.2	7.4	2.4
Other – Non Fit	617.4	78.9	44.3	740.6	83.4	10.7	6.0

Source: Balance of land Ministry of Agriculture, National Office of Statistics and Information 2017

99. Changes in land management are the result of government public policies to provide land for agricultural, livestock and forestry activities, and to provide a productive destination for the high national inventory of idle lands. This was done first during the 1990s to create cooperatives, then since 2007 to be managed in usufruct. The most recent policy grants up to 26.84 hectares of lands in usufruct through contracts to the natural persons who work them and specifically for the larger livestock. For this, the limit is 67.1 ha for a term of 20 years, extendable by the same term. Until 2016, more than 220,000 people accessed this opportunity and more than 1.9 million hectares were delivered. By the beginning of 2018, 289,474 applications had been reached and 2.1 million hectares had been delivered, of which 1.4 million remain in this modality.
100. Idleness of the land is one of the phenomena associated with agricultural and livestock production, which most influences the state of land tenure. This problem is in clear decline due to an increase in the delivery of lands in usufruct. More than 5,000 ha of idle lands exist as part of 53 municipalities, which themselves represent 44.57% of the land area of Cuba. Seven of these municipalities are proposed for the implementation of the project (See figure 19).

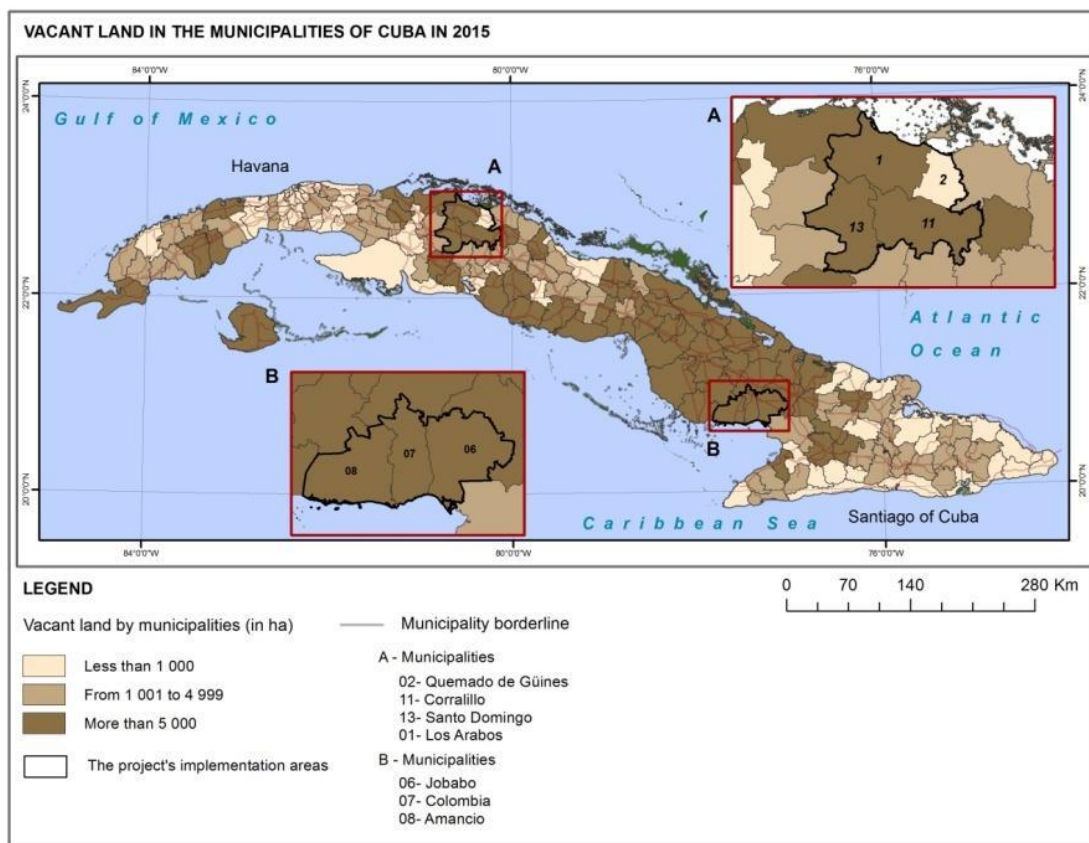


Figure 19. Idle land by municipality in 2015

Source: Prepared by the Faculty of Geography from Balance of use and land tenure of the MINAG (2015).

101. The infestation of agricultural and livestock lands with *Marabu* (exotic invasive plant) is one of the major challenges for land use, production and food security. Its presence and spread is verified in all the municipalities of the country, although its range of infestation varies and it reaches more than 10% of the surface in 34 municipalities, among which are six of the seven municipalities proposed for

the implementation of the project. The seventh of the selected municipalities, belonging to the province of Villa Clara (Quemado de Güines), is covered by 5 to 10% Marabu.

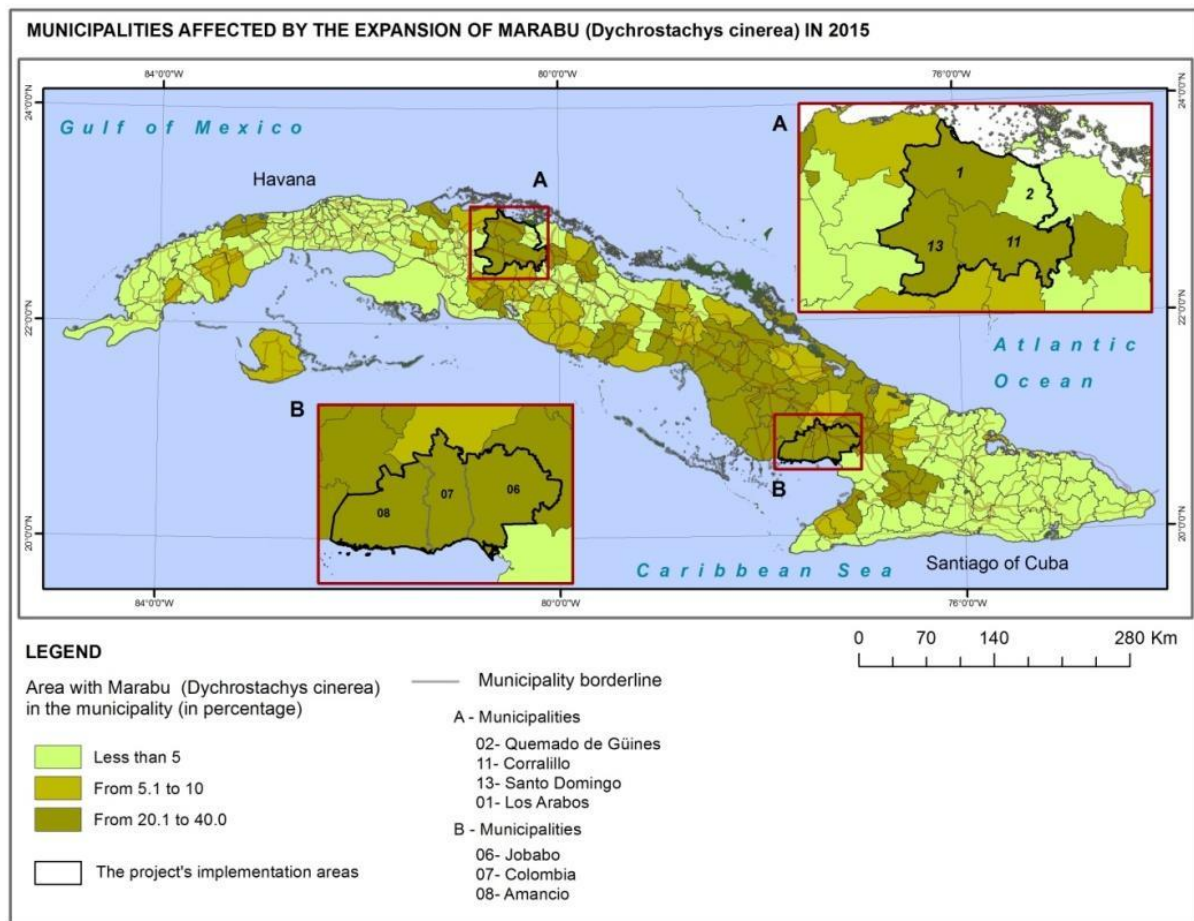


Figure20: Municipalities affected by the expansion of the *Marabu* (*Dychrostachys cinerea*) in 2015

Source: Prepared by the Faculty of Geography based on balance of use and land tenure of MINAG (2015).

3.5 Description of profiles of target beneficiaries

102. There is an urgent need to stop the rural exodus and recover economic activity and food production areas that have been invaded by more than 85% by Marabu. In the broadest sense, this would contribute to the quality of life of the populations included in the project impact area, as well as in surrounding territories. This fact is evident in the total number of direct and indirect beneficiaries of the Project actions. Up to 732 producers and 36,406 people will benefit in the Los Arabos municipality; 9,225 producers and 44,083 people will benefit across the three municipalities of Las Villas province; and in the province of Las Tunas, an estimated 9,820 producers and 157,997 people will benefit.

103. The following describes the general characteristics of the two areas where the project is intended to be implemented: North Zone of Villa Clara/Matanzas, made up of Corralillo, Quemado de Güines, Santo Domingo and Los Arabos municipalities of Matanzas province; and the South Zone of Las Tunas conformed by the municipalities of Amancio Rodríguez, Colombia and Jobabo, all located in the south of the province.

104. The population residing in these two geographical zones totals 238,474 people, 51.2% of whom are women. Of the 55 total CPs (29 CPs in the Central Zone and 26 in the Eastern Zone), 10 CPs are in the category of very vulnerable, 18 CPs are in the vulnerable category and 12 CPs are considered to be of average vulnerability. A total of 34,346 vulnerable households in both areas will directly benefit, or a population of 102,938 vulnerable individuals, 49% of whom are women.
105. The project takes into consideration the specific needs and requirement of all minority ethnic groups present in the targeted communities in order to ensure they are actively involved and their participation is facilitated, in line with national legislation and following FAO¹⁶ and GCF guidelines and following standard practice and experience in Cuba where FAO has been operating for over 40 years.
106. The selection process for beneficiaries, including farmers, is based, among other criteria, on those most threatened by the impacts of climate change, as described in the following sections.

3.5.1 Project Region and Municipalities

Table 8: Population and Agricultural Area of Project Regions

Project Region and municipalities	Total population	Rural population	Total land area (ha)	Agricultural Area (ha)	Agricultural Area (%)
CENTRAL REGION					
Corralillo	26,592	6,970	83,730	66,151	79
Quemado de Güines	21,851	7,687	33,282	29,207	88
Sto. Domingo	50,872	13,692	87,807	73,845	84
Los Arabos	24,604	9,575	75,835	53,889	71
Subtotal	123,919	37,924	280,654	223,092	80
EASTERN REGION					
Amancio Rodriguez	38,900	10,601	85,253	52,212	61
Colombia	32,665	9,578	55,997	42,249	75
Jobabo	44,633	23,886	88,563	70,963	80
Subtotal	116,198	44,065	229,813	165,424	72
TOTAL	240,117	81,989	510,467	388,516	

Source: National Statistical Annual Report. ONEI, 2014. Land Balance MINAG 2016

107. It is important to note that in both areas, the female and male populations are balanced in most municipalities. Females and males make up 49% and 51% of the total population, respectively. There are 132,046 people of working age in both areas. Both territories are classified as aged. These aging statistics are closely related to birth rate. Although the percentage values of aging may seem low (between 17% and 22% relative to the total population), as they relate to low birth rates they put these territories at risk of a labor force deficit in which aging agricultural workers are forced to assume the region's productive tasks with few technologies.

¹⁶ FAO [Policy](#) on Indigenous and Tribal Peoples

108. Regarding the use of land, the data obtained shows that there is a productive potential and a change in use in the areas covered with Marabu, which together reach 87,421 hectares. The southern zone of Las Tunas is the area most covered with this species. The Northern Zone of Villa Clara/Matanzas together with the Southern Zone of Las Tunas, have 197 agricultural cooperative entities that are dedicated to agriculture as fundamental activity in each of the territories where the project will be implemented. These cooperatives gather 18,614 members of which 15% are women.
109. Regarding the state entities of agriculture, in both areas there are more than 40 agricultural institutions or Basic Business Units with more than 4,000 workers, of which 25% are women.
110. Based on the climatic characterization carried out by the team, these two zones clearly show effects due to the climate change that has been affecting Cuba. In summary, they are as follows: a) increase of the air surface temperature, it is considered that there is a stabilization around a very high average value; b) greater frequency of long and severe droughts, especially in summer; c) increase of rainfall totals associated with heavy rainfall events in winter; d) there is a tendency to increase the accumulated in the dry season of the year; e) increase in the occurrence of moderate and strong floods for the coasts of Cuba; f) increase in saline intrusion as a consequence of the elevation of the mean sea level; g) the greater frequency of drought events and hurricanes that affect the country has contributed to making the climate more extreme.

On the general characteristics of the Northern Zone of Villa Clara

111. The three municipalities in the north of Villa Clara base their fundamental economic activity in the sugar industry and agricultural work (livestock and various crops). However, the sugar industry is now declining, with the closure of sugar mills in some of these municipalities. Where there were 2 plants, today there is only one. Corralillo, Quemado de Güines and Santo Domingo have a productive history of grains, mainly beans. However, this has been affected by the rains after Hurricane Irma, as these regions are usually mostly dry. The food production in this area is mainly based on grains, meats, fruit, citrus and vegetables, milk, eggs and meats. All of these are complemented with the development of urban and suburban agriculture programs to grow vegetables.
112. When referring to the access and availability of food, what is produced in this zone is also eaten there, although some basic products also come from other provinces. The livestock production in the private sector stands out. As in the whole country, these foods are available in state markets and/or in non-state squares, highlighting the proliferation of so-called "carretilleros." The stability of the prices is related to the offers in the state markets that force other sellers to maintain attractive prices. Thus, when one seller is out of supply, the products become more expensive in a classic supply-demand relationship. In addition, the commercial routes on local and municipal roads are not in good condition. In this territory, families have found a common way to subsist socially and economically, these socio-economic strategies are fundamentally based on the pig and poultry farming. To a lesser extent, families with patios produce food for their own consumption.
113. Regarding external migration, the three territories are major sources of emigrants to the United States. The perception is that almost all urban-dwelling individuals have at least one family member in the US. A large percentage of these emigrants is young people. Regarding internal migration, people from this area migrate to Santa Clara, the provincial capital. A large percentage, mostly young, migrate to Matanzas, Varadero, and Cárdenas, municipalities that constitute a tourism hub where there are well-paid jobs. There is also a population movement from the most rural areas to the urban areas of

each municipality.

114. The Energy Revolution was a program established in Cuba with a vision to save energy. For this reason, approximately 82–95% of the houses in the municipalities of this area, people cook with electricity, and 3–7% do it with firewood. However, many families with lower incomes must save their electricity consumption and maintain coal or wood stoves in the backyards of households, thus alternating the use of energy to cook food.

115. In the northern part of Villa Clara/Matanzas 19,911 people receive water by pipes during periods of drought. From a gender perspective, women are the most affected by lack of water. Due to this, they state that one of their basic needs is access to potable water, visibly connected with the stereotypes and traditional roles they assume within the home. (See table below). This area has 47,267 homes. The houses in poor condition are located mainly in the rural part of the municipalities of this area, mainly south of each municipality. Typologies of the housing fund in rural areas prevail III and IV. They are more vulnerable to natural disasters, especially hurricanes, strong winds and heavy rains. This typology responds to the construction materials.

Table 9. Potential beneficiaries, selected considering their vulnerability due to water supply and drought in the Central Region of the project.

MUNICIPALITIES	Corralillo	Quemado de Güines	Santo Domingo	Los Arabos	Total
Variable					% Average
Total population supplied by water network	19 998	5 407	35 249	8 192	68 846
% of total population	76	25	70	34	51
Total population supplied with piped water permanently	398	790	1 231	1 488	3 907
% of total population	2	4	2	6	3
Total population supplied with water pipes during drought	388	2 692	11 623	5 208	19 911
% of total population	1	12	23	21	15
Total number of people supplied by wells in the territory		16 259	3 630	2 028	21 917
Total population supplied by individual wells	4 071	4 239	5 664		13 974
Population vulnerable to drought	24 855	29 387	57 397	16 916	128 555
Households vulnerable to drought	8 285	9 796	19 132	5 639	42 852

Source: Prepared by the authors based on data provided by the municipalities.

3.5.2 General characteristics of the South Zone of Las Tunas

116. The three municipalities of south of Las Tunas base their fundamental economic activity on the sugar industry and agricultural work. There is a sugar mill in each of the municipalities. In the case of Colombia, the economy is also based on tobacco and forestry, as well as the food industry, construction materials and shrimp farming. Jobabo also has a tobacco and handicraft factory based in Yarey. Amancio, Colombia and Jobabo have a productive history, producing corn and foods such as plantain and yucca in addition to sugarcane. They recognize that the production of food in this area is based mainly on yucca, corn, plantain, sweet potato, rice, beans, vegetables such as carrots, okra, and

snap beans fostered by urban agriculture.

117. As in the Northern Zone of Villa Clara/Matanzas, the food prices are accessible when food is purchased from the state squares. "Carretilleros" have a price system established by the municipal administration. This creates more affordable prices than are found in other territories. After Hurricane Irma, these municipalities have had to fully self-sustain through contracts with the different productive organizations of the territory (CCS and CPA). However, there are problems with the food transportation and although the marketing circuits are close, storage is not sufficient to move the agreed products. The prices behave in the same way as in the North Zone of Villa Clara. In the area, families have found a common way to support themselves socially and economically. These socio-economic strategies are fundamentally based on pig and poultry farming and, to a lesser extent, families with patios produce food for self-consumption. In Jobabo, it is perceived that accepting Law 250 and 300 to acquire land is one of the most prolific family strategies in the rural areas of this municipality.
118. There has been an exodus of people over recent decades. With the disappearance of the sugar mill, many people linked to the plant in both sugarcane and industrial agriculture moved to urban areas. Some rural communities have even disappeared.
119. In the three municipalities that make up this area since the Energy Revolution, 57–82% of the houses are cooking with electricity. On the other hand, 10–26% in the rural area cook with firewood.
120. In this area, a total of 19,429 people are supplied water via pipes in times of drought. As in the Northern Zone of Villa Clara/Matanzas, women are the most affected by the lack of water because they are the ones who carry the burden of the domestic responsibilities (see table below). This area has 41,223 homes. The houses in poor condition are located mainly in the rural part of the municipalities. Typologies of the housing fund in rural areas consist of TYPE III, IV (at a lower percentage) and V, being more vulnerable to natural disasters, especially hurricanes, strong winds and heavy rains.

Table 10. Potential beneficiaries, selected considering identified vulnerabilities. Eastern Region.

MUNICIPALITIES	Amancio	Colombia	Jobabo	Total
Variable				% Average
Total population supplied by water network	15 651	5 206	10 378	31 235
% of total population	40.4	16	23.5	26.6
Total population supplied with piped water permanently	1 686	2 161		3 847
% of total population	4.4	6.6		5.5
Total population supplied with water pipes during drought	7 872	2 333	16 324	26 529
% of total population	20.3	7.2	36.9	21.5
Total number of people supplied by wells in the territory	2 608	27 331		29 939
Total population supplied by individual wells			16 909	16 909
Population vulnerable to drought	27 817	37 031	43 611	108 459
Households vulnerable to drought	9 272	12 344	14 537	36 153

Source: Prepared by the authors based on data provided by the municipalities.

3.6 Social Protection

121. Social security is prioritized by the state in Cuba. It is governed by the Ministry of Labor and Social Security, which has representatives at the municipal level. Each year, a significant amount is designated and approved by the state for the protection of citizenship through the National Assembly within the Law of National Budgeting. The coverage provided by the Cuban Social Security System is broad and includes a guaranteed pension for disadvantaged people, disabled care and a total subsidy for housing construction for low-income citizens, especially those who have been affected by severe weather events such as hurricanes and floods.
122. Regarding the previous point, it is important to point out that at the same time there is a Civil Defense System that guarantees the protection of human life. It has an effective early warning and risk management system, which managed to evacuate and protect up to 20% of the population of the country in anticipation of afflictions by a severe hurricane, resulting in not a single casualty reported. After experiencing climatic contingencies, the state supports the reconstruction of houses and facilities, subsidizes the sale of construction materials and guarantees food and basic services to evacuees.
123. There is a Social Security Law that protects the most vulnerable groups. As an example, we can mention among the protection measures for women, that the usufructuaries of land in the crops of tobacco, coffee and cocoa, or workers of Agricultural Production Cooperatives, have the right to obtain retirement after 55 years of age, with a minimum contribution of only 10 working years after 46 years. Widowed women who are employed have the right to simultaneously collect the pension for widowhood alongside the salary they receive for their work. If they stop working for legally justified reasons, they can receive the entire pension.

4 LEGAL FRAMEWORKS AND APPLICABLE SAFEGUARD POLICIES

124. The following chapter provides a general description of the current national regulatory framework that is of interest for the application of socio-environmental safeguards and the implementation of the project. It also provides a compendium of the main international environmental treaties of which Cuba is a signatory, and presents the FAO and GCF safeguards that are applicable to the project. The prevalence of policies and national legislation is established. An analysis of the Cuban regulatory framework shows that there is general compatibility between what is regulated nationally with the requirements of the GCF and the FAO, and in any instances where gaps have been identified, the more stringent policy has been applied, as per GCF and FAO requirements. The project should continue the constant dialogue with the environmental authorities in order to reconcile interests.

4.1 Cuban Environmental and Social Legislation

125. Cuba has signed most of the international environmental instruments to date, including the Vienna Convention for the Protection of the Ozone Layer, in 1992; the Montreal Protocol on Substances that Deplete the Ozone Layer, in 1992; the United Nations Framework Convention on Climate Change, in 1994; the Kyoto Protocol of the United Nations within the Framework Convention on Climate Change, in 2002 and the Paris Agreement, also under the United Nations Framework Convention on Climate Change, in 2017; among others.
126. Between 1995 and 2013, a number of fundamental science programs were implemented for the

SNC: “Global Changes and the Cuban Environment” (1995 – 2010) and “Terrestrial and Spatial Climate and Weather Forecast and Analysis” (1999 – 2012). The results informed decision-making processes at various levels. Climate change was one of the priorities under these programs, delivering important scientific results that have enriched CC knowledge. Since 2012, there has been a new national scientific program under implementation called “Climate Change in Cuba: Impact, Mitigation and Adaptation.” All these programs have supported the implementation of the UNFCCC in Cuba and have contributed results and resources to the process of preparation of national communications. At the same time, the country is developing a program to address climate change. It monitors the implementation of measures related to compliance with this Convention at the Executive Committee of the Council of Ministers.

127. Cuba presented its Intended Nationally Determined Contributions (INDCs) on 23 November 2015. They are conceived as an ongoing process to address climate change, which was initiated in 1992 and continues today under the principles and mandates of the Convention, particularly the differentiated obligations stipulated in Article 4 thereof. The INDCs consider adaptation as the main country priority and emphasize reducing coastal and human health vulnerability, recovering mangrove areas, and incorporating the adaptation dimension into programs, plans and projects related to food production, comprehensive water management, land-use planning, forestry, fisheries, tourism and health.
128. Since the Earth Summit in 1992, the Cuban government has developed a set of public policies that have ensured the establishment of appropriate priorities and regulatory frameworks related to climate change and the environment. In 1996 the Ministry of Science, Technology and Environment was created and in 1997 a framework environmental law was promulgated, under the protection of the previous Constitution of the Republic (1976), which determined the duties and rights of citizens and general obligations of the State in relation to the environment, including sustainable development as a guiding principle of development (since the Constitutional reform of 1992).

The following are the most relevant Cuban legal norms for the project:

- Constitution of the Republic of Cuba of 2019¹⁷
- Law 81/1997 Environment Law
- Decree Law 200/1999 Violations in environmental matters
- Resolution 111/2002 Bases for the operation of the National Environmental Monitoring System of the Ministry of Science, Technology and Environment
- Resolution 103/2008 Regulation of the state inspection of environmental regulatory activity, of the Ministry of Science, Technology and Environment
- Resolution 136/2009 Regulations for the integral management of hazardous waste, of the Ministry of Science, Technology and Environment
- Joint Resolution MINSAP-MINAGRI "Regulation containing the provisions governing the use of pesticide formulations in the national territory and the expansion of the functions and structure of the Central Pesticide Registry and of the Specialist Advisory Committee attached to said Register," 2007

¹⁷It is included because it is the *Carta Magna* that serves as a framework for all legislation and its future updating, as well as for its environmental vocation and for including aspects of climate change.

- NC 804:2010 Pesticide Storage
- Resolution 132/2009 Regulation of the environmental impact assessment process, of the Ministry of Science, Technology and Environment
- Resolution 111/96 Regulations on biological diversity, of the Ministry of Science, Technology and Environment
- Decree Law 201 / 1999 The System of Protected Areas
- Resolution 160/2011 Regulations for the control and protection of species of special significance for biological diversity in the country, of the Ministry of Science, Technology and Environment
- Decree Law 212/2000 Management of the Coastal Zone
- Decree 280/2007 Committees of the Turquino Plan, Reforestation System and the National Council of Hydrographic Basins.
- Decree 21/1978 On Physical Planning
- Decree 179/1993 Protection, Use and Conservation of Soils
- Cuban Standard XX: 2011 Sustainable land management. Terms and definitions
- Decree 199/1995 Contraventions of regulations for the protection and rational use of water resources.
- Resolution 287/2015 On rates of water consumption, National Institute for Water Resources
- Decree-Law 138/2017 on land waters
- Law 85/1998 Forestry Law
- Decree 268/1999, Contraventions of forest regulations
- Resolution 1/2000, Creation of the Forest Development Fund, Ministry of Finance and Prices-Ministry of Agriculture
- Resolution 73/2007 National Commission of Reforestation, Ministry of Finance and Prices-Ministry of Agriculture
- Joint Resolution 1/2012 The income that sustains the National Forestry Development Fund, Ministry of Finance and Prices-Ministry of Agriculture
- Resolution 768/2012 Procedures Manual complementary to the Regulations of the National Forest Development Fund, Ministry of Finance and Prices -Ministry of Agriculture
- Directive 1/2010 Planning, organization and preparation of the country for disaster situations
- Decree 175/1992 Regulations on quality of seeds, and their contraventions.
- Resolution 159/1993 Operation of the national system of Plant Genetic Resources, Ministry of Agriculture
- Decree 176 "Protection of Apiculture and Meliferous Resources and their Contraventions", 1992
- Decree Law 190/1999 On biological safety
- Decree Law 137/1993, On Veterinary Medicine

- Decree 169/1992 Contraventions of plant health regulations
- Decree Law 153/1994, On Plant Health Regulations
- Joint Resolution MINSAP MINAG Regulation uses pesticide formulations the functions and structure of the National Pesticide Registry and the advisory committee of specialists.
- Agricultural Mechanization Policy in Cuba(2016)
- The Decree - Law 300/2012 On the delivery of idle state lands as usufruct.
- Law No. 105 of Social Security, 2018
- Law 65, General Housing, 2017
- Law 41 "On Public Health" 1983
- Civil Code Act 1987
- Law 62 Penal Code 1987
- Labor Code, 2013
- Decree-Law 259/2008 Delivery of idle state land for usufruct
- The Decree - Law 300/2012 On the delivery of idle state lands as usufruct
- Decree-Law 358/18 and its Regulation 350/18 Delivery of idle state lands as usufruct

129. **Constitution of the Republic of Cuba of 2019.** In its Chapter I, Article 11, it establishes among its fundamental principles that the State exercises sovereignty and jurisdiction: b) on the environment and natural resources of the country. Linked to international relations in Chapter II, Article 16, f) promotes the protection and conservation of the environment and the confrontation to climate change, which threatens the survival of the human species, based on the recognition of common but differentiated responsibilities; the establishment of a fair and equitable international economic order and the eradication of irrational patterns of production and consumption. On the rights established in Article 75 that all people have the right to enjoy a healthy and balanced environment. The State protects the environment and the natural resources of the country. It recognizes its close connection with the sustainable development of the economy and society to make human life more rational and ensure the survival, wellbeing and security of current and future generations. In Article 90 includes among the duties of citizens j) protect natural resources, flora and fauna and ensure the conservation of a healthy environment.

130. **The Environment Law (No. 081/1997)** aims to establish the principles that govern environmental policy and basic rules for the conservation of agricultural and forestry soils (Article 109, 115) and promote the development of systems Integral management of ecosystems cultivated for sustainable agriculture (Art 132 - 134), in coordination with the Ministry of Agriculture and the Ministry of Science, Technology and Environment, in order to contribute to the sustainable development of the country. It also sets guidelines in the area of mitigation through actions for greater use of renewable energy sources.

131. **Forestry Law No.85/1998** Among its objectives is to establish general principles and regulations for the protection, increase and sustainable development of forest heritage [...], promote reforestation and silvicultural management [...], protect forests against irrational felling, forest fires and other actions [...] (Article 1). MINAG is in charge of directing State policy in the protection and

development of forest heritage in coordination with CITMA and INRH [...], for the protection of watersheds, mangroves, forest species threatened with the participation of communities (Art. 7; a, d, e, h). It has the State Forestry Service as the authority in charge of exercising state control of the forest heritage in provinces and municipalities in accordance with the needs demanded by each territory (Article 10, 11). The Law also includes the National Forest Development Fund (FONADEF), with the objective of promoting and financing projects for inventory, management, protection and research (Art. 12, 13). Art.35 (g, i, j) establishes that afforestation or reforestation will be compulsory in recharge zones of underground basins, in areas exposed to desertification and susceptible to erosion to inventories.

132. **Decree No. 179/1993. Protection, Use and Conservation of Soils** constitutes the basic legal norm regarding the protection of soils. The provisions are applicable to all agricultural and forestry soils, [...] regardless of their tenure regime (Art.1). The main objectives are protection, use and improvement [...], determine the order of their use as well as their characterization and classification [...], protect fertility and productivity [...], from the effects derived from mining, geological, industrial, socioeconomic installations [...] (Art.2, a - ch). MINAG organizes and directs the soil and agrochemical service; determines the form of tillage of the soils according to the predominant slope [...] (Art.4, a, d, i). Users for agricultural or forestry production must comply with the protection systems as well as exploit them rationally [...] (Art.9).
133. **Decree-Law No. 138 of the Terrestrial Waters** Its purpose is to develop basic principles on the rational use of terrestrial and underground water, to establish the norms related to the exploitation, the exploitation, the conservation, the sanitation and the use, rational of terrestrial waters; the protection of the sources, natural channels, works and installations, hydraulic of the country; the preservation of economic and social activities and the natural environment against the harmful effects that terrestrial waters could cause; the activities related to the irrigation and drainage systems of agriculture and of aqueduct, sewerage and storm drainage, as well as the quantification, planning and administration of water resources, as well as regulate, based on these principles: a) the peculiarities regarding the exploitation, exploitation, conservation, sanitation, and rational use of this natural resource; b) the protection of the sources, natural channels, works and hydraulic installations of the country; c) the protection of economic and social activities and the natural environment against the harmful effects that terrestrial waters could cause) the activities related to irrigation and agricultural drainage, as well as to the aqueduct, sewerage and storm drainage systems; and the quantification, planning and administration of water resources. It also establishes that the National Institute of Hydraulic Resources is the rector of the terrestrial waters, and that it will direct and control the activities related to this natural resource.
134. **Resolution No. 873/2007. National Commission of Reforestation** The National Commission of Reforestation (Resolution No. 873/2007), is an Inter-agency Commission subordinated to the Executive Committee of the Council of Ministers, for the increase and development of the forestry activity (Art. 1), has its functions are the short and medium term reforestation plans, which respond to the Forest Development Program, the increase of the forest area in the watersheds, execution of forest management projects, [...] measures against fires in the forests, Promote the program of creation of forest farms, systematize [...] the application of criteria and indicators of sustainable forest management [...], promote the application of scientific results and technological innovation, incorporate the population in training programs, extension and dissemination that contribute to culture, especially of children and young people [...] (Article 3, paragraphs1,5,6,8,15,18,20), with provincial and municipal commissions that comply within the framework of their territories and in

what concerns them the functions of the National Commission (Art. 16-23).

135. **Decree-Law 201 "On the National System of Protected Areas"** Establishes the basic objectives of the National System of Protected Areas and provides that it corresponds to the Ministry of Science, Technology and the Environment to direct and control the activities related to said System, its environmental management integral in the national scope in coordination with other organs and competent organisms, his technical and methodological direction, the control of the fulfillment of the specific objectives by which the protected areas were declared and the administration of those areas that the Law determines. It establishes the legal regime relative to the National System of Protected Areas, the regulations of the exercise of its stewardship, control and administration, the categories of protected areas, its proposal and declaration, the protection regime and the granting of authorizations for the realization of activities in those areas. It establishes the characteristics of the buffer zones and the regime for granting authorizations and carrying out activities in protected areas and their buffer zones.
136. **Resolution No. 132/2009 "Regulation of the environmental impact assessment process".** It establishes the activities for which it is mandatory to carry out the process of Environmental Impact Assessment, the instances of approval, the authorities responsible for the process, the responsibilities of the bodies and agencies, determines the procedure of the environmental impact assessment process, the of the environmental license and the environmental impact study of the non-conformities procedure, the accreditation of the entities to carry out environmental impact studies and the public nature of the environmental impact assessment process. This regulation has successfully developed the national capacity for management and monitoring environmental process
137. **RESOLUTION No. 136/2009 "Regulation for the integral management of hazardous wastes"** Establish the provisions that contribute to ensure the integral management of hazardous waste in the country, by preventing its generation in the sources of origin and the management sure of them throughout their life cycle, in order to minimize the risks to human health and the environment. Norms are also established regarding the trans boundary movements of these wastes.
138. **Joint Resolution Ministry of Agriculture-Ministry of Public Health of 2007.** Establishes the regulations for the approval of the use of pesticide formulations in the national territory, the structure and functions of the Central Pesticide Registry as the body in charge of the study and approval of the formulated pesticides that should be used in the national territory, subordinated to the Ministry of Agriculture and Public Health. It determines the procedure for the approval of the use of pesticide formulations and for the registration of biological pesticides, the respective models and technical information requirements.
139. **Labor Code, 2013** Establishes the fundamental principles that govern the right to work, regulates the labor relations that are established between employers and workers for the fulfillment of the rights and reciprocal duties of the parties, the legal guarantees, perfects the regulations that guarantee the protection of the rights and duties of the workers, duration of the working day, payment systems, hiring regulations, labor justice mechanism. Adopts as a fundamental principle that every woman or man in working condition, without distinction of race, color of skin, sex, religion, political opinion, national or social origin, and any other human dignity, has the right to obtain a job with which it can contribute to the ends of society and to the satisfaction of their needs and those of their family, attending to the demands of the economy and their choice, both in the state and non-state sectors. This code prohibits child labor and employment restriction for youth less than eighteen

(18) years of age.

140. **Decree - Law No. 300/2012. On the delivery of idle state lands as usufruct.** Authorizes the delivery of idle state lands in the form of free usufruct and for a specific period of time to people to exploit them rationally and sustainably according to the aptitude of the soils, in terms of agricultural, forestry and fruit production (Art.1.1.). To these productions, you can associate different crops and animal breeding, as convenient and feasible (Art.1.1. 2). State idle lands are considered those that are not in agricultural production, livestock, forestry or fruit trees, unless they are subject to rest period for the purpose of crop rotation; those that are covered with Marabu [...]; those used for crops or plantations not adapted to the aptitude of the soils, with notable depopulation or low yields [...], and those dedicated to livestock production with low load of animals per hectare (Art. 2, a, b, c, d). Those managed by state companies are included in the idle land fund; in usufruct to state farms, UBPC, CPA and CCS, abandoned for more than six months [...] (Art. 3, a, b, c, d). The maximum extension that can be given in usufruct to natural persons who do not own land in any way, is 13.42 hectares (Art. 7.1.), While the one that owns land in any concept and is linked to a state farm, UBPC or CPA, can increase them with others in usufruct up to a total of 67.10 hectares, always with the condition that it is productive and complies with the corresponding legal provisions (Art.7.1.2).

4.2 Relevant International Conventions and Treaties

141. Cuba is a signatory of several Multilateral Environmental Agreements (MEAs), among the fundamental ones are:

- CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1990)
- Vienna Convention for the Protection of the Ozone Layer 1992
- The Montreal Protocol on Substances that Deplete the Ozone Layer 1992
- Basel Convention 1994
- 1994 Biodiversity Convention
- United Nations Framework Convention on Climate Change 1994
- International Convention to Combat Desertification and Drought 1997
- Kyoto Protocol 2002
- International Treaty on Plant Genetic Resources for Food and Agriculture 200
- Stockholm Convention 2007
- Convention on the Conservation of Migratory Species of Wild Animals 2008
- Rotterdam Convention 2008
- Nagoya Protocol 2015
- Paris Agreement 2016
- Nagoya Protocol / Kuala Lumpur 2017
- Minamata Convention 2018

Of the 26 treaties identified as leading in the field of human rights, Cuba is a State Party to 15, namely:

- Children's rights convention
- Optional Protocol to the Convention on the Rights of the Child on the sale of children, child pornography and child prostitution
- Convention against Torture
- Convention for the elimination of all forms of discrimination against women
- Convention for the Elimination of All Forms of Racial Discrimination
- Convention for the Prevention and Punishment of the Crime of Genocide
- Convention on the Non-Applicability of Statutory Limitations to War Crimes and Crimes against Humanity
- International Convention on the Suppression and Punishment of the Crime of Apartheid
- International Convention against Apartheid in Sports
- Convention on the Political Rights of Women
- Convention on the Nationality of Married Women
- Convention on the Consent to Marriage, the Minimum Age to Contract Marriage and the Registry of Marriages
- Convention on Slavery in 1926 and Protocol to modify the Convention on Slavery
- Supplementary Convention on the Abolition of Slavery, Slave Trafficking and Similar Institutions and Practices
- Convention for the Suppression of Trafficking in Persons and the Exploitation of the Prostitution of Others

In addition, Cuba has signed the following instruments:

- Optional Protocol to the Convention for the elimination of all forms of discrimination against women
- Optional Protocol to the Convention on the Rights of the Child on the Participation of Children in Armed Conflict.

4.3 Applicable Environmental and Social Safeguard Policies

The philosophy of the project directs actions to achieve socio-environmental benefits. The evaluation of the impact of the activities described in section 2 determined a classification of "Moderate" risk (Category "B"). The Socio-Environmental Safeguard Policies that are activated are: ESS1, ESS2, EES3 and ESS5. To comply with these policies, given that sub-activities have not yet been identified during the evaluation phase, specific safeguard instruments were identified in the table below.

Table 11: List of safeguards applied in the project

SAFEGUARD POLICIES	APPLICABILITY	INSTRUMENTS OF SAFEGUARDS AND MITIGATION MEASURES
ESS 1 – Natural Resources Management	YES	agricultural conservation principles will be applied, especially on the use of appropriate implements and minimum tillage, as well as amendment after specific damages resulting from the use of machinery
ESS2 – Biodiversity, Ecosystems and Natural Habitats	YES	ESMF / ESMP with proposals for strict management of the species with the greatest d to planting in silvopastoral modules based on experiences validated by research and mitigation measures. Also with measures to diminish the impacts caused by the incremental use of water, machinery and chemical products.
ESS3– Plant Genetic Resources for Food and Agriculture	YES	ESMF/ESMP, seeds and planting materials free from pests and diseases, locally adapted. Following National Phytosanitary and IPPC Norms.
ESS4 – Animals - Genetic livestock and aquatic resources for food and agriculture	NO	Non eligible activities (Appendix 6.1)
ESS5 – Pest and pesticide control	YES	ESMF / ESMP with Integrated Pest Management (IPM) used in activities, training on safe management and the use of pesticides in cases where it is not possible to avoid them. A tentative Pest Management Plan (PMP) is provided in Appendix 3.
ESS6 – Resettlement and involuntary displacement	NO	Non eligible activities (Appendix 6.1)
ESS7 – Decent Work	NO	Non eligible activities (Appendix 6.1)
ESS8 – Gender Equality	NO	The project incorporates a Gender Analysis and an Action Plan, with specific activities directed to the gender incorporated in the project design.
ESS9 –Indigenous People and Cultural Heritage	NO	Non eligible activities (Appendix 6.1) ¹⁸

142.

143. **ESS1 Natural Resources Management (Moderate risk)** This policy is activated because of temporary and manageable effects of using heavy machinery on soil quality. It will not lead to significant or long-term soil degradation¹⁹. The machinery, has been selected taking in consideration its low soil impact and its versatility for a controlled management in defined types of activities:) equipment for the Marabu control: this new machinery (6 Brush cutter BMH 480 and Rotovators RT 400 implement will be use to eliminate and management in 15,544 ha),it will replace the use of bulldozer (negatively impacting) and will allow better management and use of the residues of the Marabu. The use of this machinery will be carried out only once in each area. The possible compaction impacts will be minimal and will be amended by the use of appropriate agricultural implements. Within the project implementation, the number of activities using machinery for the land preparation will follow the principles of conservation agriculture with minimum tillage tendency and

¹⁹ Additional information on Annex 2 feasibility study, Appendix 2.6: Agroforestry modules for landscape restoration 6.3.4 Operational mechanism for the administration and uses of agricultural machinery and equipment and 7. *Dychochachys Cinerea* (Marabu), Exotic Invasive Species

a strict selection of implements. Agro-ecological actions are foreseen for the improvement of soils, including the use of organic fertilizers and measures to protect against erosion, among others measures from the Cuban National Soil Conservation and Improvement Program.

144. **ESS2²⁰- Biodiversity, Ecosystems natural habitats.** This policy is activated because the project proposes to manage one species that in other conditions manifested **a potential invasive behavior**.
145. Water use poses a moderate risk to the project. The small irrigation systems that will be installed will be supplied only from rainwater harvested in small reservoirs that will be built by the project. No groundwater will be extracted from rivers or other natural sources, therefore the water balance of the territories is not compromised, nor is there competition with the demand for water for people or other destinations. Measures for sustainable water management are adopted in the mitigation plan (chapter 7). More details on the characteristics of irrigation systems can be found in the annex 2 Feasibility Study, Appendix 2.6: Agroforestry Modules for Landscape Restoration, section 6.4.3.
146. The project will not introduce any new IAS. The only potential AIS included in the project (*Moringa oleifera*)²¹, is well-known in the country²² (assessment of management and control measures were a subject of GEF-UNDP project²³). This species already exist in the project areas, and are recommended and promoted in all the Cuban methodological documents and guidelines for livestock management (Manual of Livestock Technology July 28, 2014, Ministry of Agriculture). The technologies designed consider measures evaluated and validated for more than 20 years by Cuban scientific institutions, with the approval of environmental authorities (Ministry of Science Technology and Environment) and ensure that due to the management there are minimal risks for agro-biodiversity and natural biodiversity. The project will support integral silvopastoral systems based on cutting and carrying and grazing at short intervals, controlling and avoiding the possibility of seed production and dissemination, and thus expressing the invasive behavior of the species. Among other mitigation measures, it is proposed to conduct constant monitoring, train extension agents and technicians and develop an Early Warning Protocol linked to the potential expansion of Moringa in the management plans for the detection of invasive behaviors.
147. For the *Moringa oleifera*, a risk assessment on the use of it in Cuba context, is enclosed in the Appendix 2.6 of the Annex 2: Feasibility study, under the supplementary material 2.6.7. Management measures are explained in the technical annex 2.6 of the Feasibility study. Among the measures

²⁰ESS 2 recognizes that agriculture production systems impact on biodiversity and the ecosystem functions they provide and that maintaining these are fundamental to sustainable development. ESS 2 recognizes that biological diversity encompasses the variety and variability of animals, plants and microorganisms at the genetic, species and ecosystem levels that sustain the structure, functions and processes of production systems. FAO requires that biodiversity and ecosystem services are maintained or enhanced and is committed to integrating their sustainable management into its crops, forestry, livestock, fisheries and aquaculture practices

²¹ *M. oleifera* is a perennial tree is now widely introduced and naturalized across the tropics and subtropics. There is conflicting information about the invasive nature and potential spread of this species. It is listed as invasive in the British Indian Ocean Territory, China, Philippines, Palau, the Solomon Islands and Cuba; though there is a lack of information about its invasive nature or its effect on native flora and natural habitats in these countries. Furthermore, despite being listed as a weed in many countries, it has not been observed invading intact habitats or displacing native flora. As a result, *M. oleifera* should be regarded at present as a widely cultivated species with low invasive potential (Invasive species compendium, CABI: <https://www.cabi.org/isc/datasheet/34868#tosummaryOfinvasiveness>) .

²² First half of the 20th century is the probable date of introduction in Cuba

²³ Reports GEF-UNDP project Controlling Invasive Species, 2012

envisaged for the management of the *Moringa oleifera* in the project are the following:

- Periodic monitoring of Moringa's behavior will be carried out.
- Management plans of the species will be elaborated for the different areas of the project.
- Farmers who manage the species will be informed of the risks of the species and will receive training.
- Moringa will be planted away from the boundaries of farms, roads and highways.
- The planted areas will be surrounded by tree barriers (*Guazuma ulmifolia*) to prevent them from being carried by the wind.
- Herbaceous barriers (grasses) will be placed to prevent the water from promoting dispersion, especially where runoff is directed.
- The land-use planning within the farms of the SILSOM module will consider location for the planted areas of Moringa, including siting which is far away from rivers, where their expansion is known to be greater.
- The schedule foreseen for cutting and carrying fodder will be respected, always avoiding periods when the plant produces flowers and fructifies.

148. **ESS3 – Plant Genetic Resources for Food and Agriculture.** This policy is triggered. The proposed project includes activities under Outcome 1 that involve use of seeds for the Farmers, involve management of forest, crops and pasture seeds. The project will not import nor transfer seeds from other regions of the country but will provide them for cultivation from seed farms and local seed sources identified, based on the species and varieties already existing in the municipalities (plus trees of selected forest species and certified by the state forest service in each municipality). Seed farms will contribute to better management, better selection and quality and therefore better indicators of germination and productive yields. The species to be planted are known and managed by the producers; there is no rejection towards any. The phytosanitary measures established for seed management and the National Seed and Plant Genetic Resources Policy and its Certification system will be adopted. There is no risk of claims about distribution and access to benefits resulting from the use of plant genetic resources, there are no national regulations in this regard.

149. **ESS5²⁴ - Management of pests and pesticides.** This policy is activated because the project will

²⁴ESS 5 defines pesticides as any substance, or mixture of substances of chemical or biological ingredients intended for repelling, destroying or controlling any pest or regulating plant growth. A pest is defined as any species, strain or biotype of plant, animal or pathogenic agent injurious to plants and plant products, materials or environments and includes vectors of parasites or pathogens of human and animal disease and animals causing public health nuisance. ESS 5 recognizes that pesticides can contribute to effective crop and food protection during production and in storage. Pesticides are also used in forestry, livestock production and aquaculture to control pests and diseases. At the same time pesticides are designed to be toxic to living organisms, are intentionally dispersed in the environment and are applied to food crops. ESS 5 recognizes that pesticide use poses risks to users, others nearby, consumers of food and to the environment. In LMICs these risks are often elevated by overuse, misuse and lack of effective regulatory control. ESS 5 follows the guidance on the life-cycle management of pesticides as provided by the International Code of Conduct on Pesticide Management and its supporting technical guidelines that are drawn up by a FAO/WHO expert panel and expand on specific articles.

supply herbicides to control the Marabu²⁵. A moderate impact is expected. The applications will be carried out in a restricted way, and only in the areas that require it, depending on the degree of infestation and there commendations of the experts. Pesticides will be used only when the mechanical methods of elimination have been exhausted. Pesticides will be dose limited under supervision and technical evaluation (Agriculture Vegetable Health Department and National Project Management Unit). To mitigate this, the project will use IPM and train producers, among other mitigation measures that will be listed later. The use of highly dangerous herbicides will also be avoided.

150. The final decision on which pesticide to use to eliminate Marabu depends on each situation, cost and viability of follow up operations. During first project year will take place the constitution of a technical group for the acquisition of pesticides (PMU and Agriculture Ministry Vegetable Health Department). The Project will lead each year an environmental technical evaluation of pesticides procurement.

Table 12 – Chemical control alternatives for Marabu with respective efficiency. Source: Van Eck, Swanepoel 2008¹; Hernández-Enríquez et al. 2012²⁶

Active ingredient	Dilution	Method	Efficiency
Triclopyr1	4.8g/l y 2.4g/l	Cut with chainsaw at ground level + immediate spraying of herbicide on cut stump; control of resprouts with lower concentration mix	80% after first treatment 100% after treating resprouts
Picloram + Triclopyr1	2.4g/l y 2.4g/l	Cut with chainsaw 20cm above the ground and immediate spraying of Picloram on cut stump; control or resprouts with Triclopyr	52% after first treatment 90% after treating resprouts until year five
Triclopyr1	2.4g/l	Foliar spray on shrubs up to 1.5m height and resprouts	35% in the first year up to 40% five years later
Picloram + Triclopyr1	1.2g/l y 2.4g/l	Foliar spray on shrubs up to 1.5m height	30% in the first year up to 45% five years later
2,4 D + Picloram + non-ionic surfactant2	Not specified	Not specified; consult with authors at Universidad Sancti Spiritus	Not specified

²⁵The Marabu (*Dichrostachys cinerea*) is considered to be the most invasive and difficult to control invasive exotic species in Cuba and the main physical obstacle to agricultural and livestock development in the areas of project implementation (affects almost half of the areas selected). Eliminating it is an essential action to return these areas to their historic destinations and support the aspirations of producers who see their development impeded due to the lack of sustainable means and strategies to combat it. The invasion by Marabu considered an important cause of the exodus towards the urban nuclei and the abandonment of the countryside, significantly impoverishes the plant biodiversity. Marabu areas are not included in the national balance of GHG emissions, eliminating it does not have a negative impact on the country's carbon sequestration statistics. The experience of dozens of years of the producers and the managements documented in numerous publications, especially those derived from the GEF Project "Improving the prevention, control and management of invasive alien species in vulnerable ecosystems in Cuba", (2011-2015, UNDP), have shown that the application of systemic herbicides is essential to achieve their effective elimination due to their ability to produce numerous sprouts after the cuts of the plant have been made.

151. The project areas will not include any protected area or their buffer zones for the implementation. All the selected areas, were adjusted during project preparation to avoid any kind of risks on this aspect and were conducted in consultation with the environmental authorities.
152. Effects on water quality are expected due to the application of fertilisers and hence a water quality monitoring plan has been developed. Limited applications will be made, in a punctual manner, only in the initial stages of crops, in selected areas, under the supervision of the Department of Soils of the Ministry of Agriculture, which will update the state of soils to determine minimum application doses. The project strategy foresees the progressive and significant application of organic fertilizers following the National Policy of Integrated Fertilizer Management, which establishes, among other principles, the priority for the use of biological fertilizers. National regulations will be followed and the FAO "International Code of Conduct for the Use and Management of Fertilizers" (attention to the use of chemicals is assumed within safeguard 2.3, safeguard 1.6 is not activated).
153. Section 6.4.4 Integral management of soil fertility, of the Appendix 2.6 of the Annex 2: Feasibility study, provides more information related the volume and intensity of the fertilizer application. A monitoring plan for water and soil quality, had been considered, and will be better defined during the start of the implementation phase, in coordination with the Department of Soils of the Ministry of Agriculture.
154. The GCF has provisionally adopted the Performance Standards of the International Finance Corporation (IFC) and the implementing directives to safeguard GCF projects. Under these standards, there are eight that cover the main environmental and social issues that must be considered when initiating a project and determining safeguards, using international best practices. This project has been evaluated according to the social and environmental standards of FAO, ensuring that the project is consistent with the objectives of the GCF Performance Standards (see table below):

Table13: Equivalence of environmental standards GCF-FAO

IFC Performance Standards (PS)	FAO Environmental and Social Safeguards
PS 1 – Assessment and Management of Environmental and Social Risks and Impacts	ESS 1 – Natural Resources Management ESS8 – Gender Equality
PS2 – Labour and Working Conditions	ESS7 – Decent Work
PS3 – Resource Efficiency and Pollution Prevention	ESS5 – Pest and Pesticide Management
PS4 – Community, Health, Safety, and Security	ESS7 – Decent Work (partially)
PS5 – Land Acquisition and Involuntary Resettlement	ESS6 – Involuntary Resettlement and Displacement
PS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS2 – Biodiversity, Ecosystems, and Natural Habitats ESS3 – Plant Genetic Resources for Food and Agriculture ESS4 – Animal – Livestock and Aquatic Genetic Resources for Food and Agriculture
PS7 – Indigenous Peoples	ESS9 – Indigenous Peoples and Cultural Heritage

155. Appendix 6.1 provides an exclusion list (non-eligibility) that details the activities that will not be financed by the project.

4.4 Summary of Objectives and Principles for Implementation of the Gender Action Plan

156. **Gender Action Plan.** To safeguard against issues of gender equality (ESS8) and to ensure mainstreaming of gender throughout the project design, a Gender Action Plan was prepared for the project. Specifically, the plan ensures adequate inclusion and promotion of women throughout the project's activities and helps in preventing missed opportunities.

157. *Objective.* The objective of the Gender Action Plan is to establish clear targets, in a time-bound framework, to ensure the inclusion of women in the project and operationalization of the GCF Gender Policy. The GCF Gender Policy is meant to ensure that the project adopts a gender-sensitive approach so that the GCF-funded project will efficiently contribute to gender equality and achieve greater and more sustainable climate change results, outcomes and impacts.

158. *Principles.* The principles that govern the Gender Action Plan are in accordance with ESS8 – Gender Equality, as well as the GCF's guidance on Gender Action Plans, vis-à-vis their Gender Policy. The following six fundamental principles provide the basis upon which the Gender Action Plan has been developed:

- Commitment to gender equality and equity;
- Inclusiveness in terms of applicability to all GCF-funded activities;
- Accountability for gender and climate change results and impacts;
- Country ownership in terms of alignment with national policies and priorities and inclusive stakeholder participation;
- Competencies throughout the GCF's institutional framework; and
- Equitable resource allocation so that women and men benefit equitably from the Fund's adaptation and mitigation activities.

159. There are six priority areas for the Gender Action Plan, namely:

- Governance and institutional structure;
- Operational guidelines;
- Capacity building;
- Outputs, outcomes, and impact indicators for monitoring and reporting purposes;
- Resource allocation and budgeting; and
- Knowledge generation and communications.

160. The reduction of existing gender equity gaps is focused on a fair and equitable treatment of access

to information and training, and a preferential access to productive resources and jobs generated by the project, from the recognition of the disadvantageous position in which there are women. The work addresses are directed to:

- Promote women's access to productive resources that facilitate their incorporation into paid work, taking into account the problems and potential of each territory
- Develop training processes for local actors for more effective management of equal rights and opportunities for women and men based on recognizing the disadvantages of women
- The collection of information disaggregated by sex and minority ethnic groups
- The inclusion of specific goals, indicators and budgets in the project to encourage the participation of women and the visibility of their contributions through communicative actions

161. Proposal of gender indicators:

- Hectares of land benefited by sustainable practices that increase climate resilience served by women (%)
- New jobs generated by the project occupied by women (%) (nurseries, mini-industries, production, marketing and along the chains)
- Women benefited with productive resources for climate resilience (%)
- Women participating in training actions (%)
- Disseminated evidence on the contribution of women in the increase of climate resilience (reports, brochures, communications)
- Number of households and entities with access to biogas where cooking is facilitated, the process is humanized and allows women to save time to devote to other activities of their interest.

162. The Gender Analysis and Gender Action Plan for this project are provided as separate, stand-alone documents, submitted in complement to this ESMF. FAO, as executing entity, would be responsible for implementation, compliance, and reporting as well as the Cuban government (Agricultural Ministry).

5 STAKEHOLDER ENGAGEMENT

5.1 Stakeholder Identification

163. This project has been subject to a broad consultation process from its inception, from the top management levels to the potential producers. A letter of no objection was issued by the Ministry of Science, Technology and Environment, as the National Designated Authority for the Green Fund. This letter of no objection allowed FAO to start the process of designing the proposal. Among the initial tasks, a mapping of the entities and other stakeholders of potential relevance to the socio-environmental aspects of the project was carried out. The stakeholders would provide technical leadership in the solutions, help manage natural resources and biodiversity and be involved in the main processes of project.

164. Several field visits have been made to the communities and potential areas of implementation to

identify socio-environmental risks and to gain first-hand knowledge of the opinions of producers, community leaders, organizations, women and local authorities, including meetings and visits to the community grounds. However, it is very important to continue the consultation with the interested parties during the first months of implementation, mainly to conclude the identification of risks and guarantee the compliance commitments of the socio-environmental safeguards, because the design process has not yet finished, the activities and sub-activities have not been determined, so the implementation areas and the final beneficiaries have not been specified in detail. New relevant aspects to consult and evaluate may arise.

Table 14: Main stakeholders identified during the IRES design.

KEY STAKEHOLDERS	INTEREST / ROLES WITHIN THE PROJECT
Food and Agriculture Organization of the United Nations (FAO)	Accredited implementing entity
Ministry of Agriculture (MINAG)	Manager of Agricultural and Forestry Development, implementing
Ministry of Science, Technology and Environment (CITMA)	Manager of Environmental Activities
Ministry of Foreign Trade and Foreign Investment (MINCEX)	Manager of International Cooperation
Agroforestry Group	Expertise in forestry issues, provision of services
National Company for the Conservation of Flora and Fauna	Management of the protected areas of the project municipalities
Forest Directorate - Flora and Wildlife of the MINAG	Director of the forestry activity and for the management of flora and wild fauna
Ministry of Labour and Social Security	Manager of employment and salaries
Livestock Management of the MINAG	Management of livestock development and genetic resources
Direction of Seeds of the MINAG	Plant genetic resources and seed management
Direction of Soil of the MINAG	Soil Management
Directorate of Health of the MINAG	Vegetable Health, animal, fertilizers and pesticides
Center of Land Control	Management of land holding
Agroforestry Institute	Expertise in forestry issues, provision of services
Institute of Pastures and Forage	Expertise management of pastures and forages
Institute of Animal Science	Expertise in the management of animal science
Tropical Fruit Institute (IIFT)	Expertise in the cultivation of fruit trees
Tropical Food Research Institute (INIVIT)	Expertise in the cultivation of food and bananas
Institute of Physical Planning	Management of territorial planning and land use
Municipal Governments	Management of territorial development programs. In charge of local decisions, provide spaces for exchange and coordination among institutional actors, mediation in possible conflicts. Rectors of the territorial management of risks
Non-governmental organizations (Cuban Association of Animal Production (ACPA) and Cuban Association of Agricultural and Forestry Technicians)	Providers of technical assistance services and opportunities for organizational development
The National Association of Small Farmers (ANAP)	Represents Producers
National Institute for Water Resources (INRH)	Management of water and watersheds
Federation of Cuban Women (FMC)	Represents women, provides support in gender issues
Institute of Agricultural Engineering (IAGRIC)	Management of agricultural machinery and irrigation
Territorial Companies	Beneficiaries, services providers
Universities of Matanzas, Villa Clara and of Las Tunas	Technology and options developers for the application of scientific knowledge
Bank of Credit and Commerce (BANDEC)	Partner for the financing and granting of credits. Link for the management of environmental funds
Cooperatives and independent producers, farmers and communities	Beneficiaries

5.2 Stakeholder Engagement during Project Preparation/Formulation

5.2.1 Consultations at the National Level

165. The elaboration of this project responds to an interest of the Ministry of Agriculture, with the approval of the Designated National Authority (DNA). The first meetings and discussion of ideas began in 2017 with the participation of FAO and DNA. As a previous step, a consultation process was carried out, including several meetings aimed at reconciling interests, identifying priorities and applying policies and regulations, with the participation of leading entities from the agricultural, environmental and science branches with impact on the project, among them: The Environmental Directorate of CITMA, the Forest and Wildlife Directorate of MINAG, the Agroforestry Institute, the Pastures and Forages Research Institute, the Livestock Directorate of MINAG, the Directorate of Science, Technology and Environment of MINAG, The Soil Institute, Institute of Plant Health and the Institute of Agricultural Engineering.
166. Then followed a national process that has been extended for more than a year, supported by FAO, but coordinated by the MINAG, first of all for diagnosis and then for compiling information, preparing documents and designing the proposals. Governing bodies and national representatives of the project's beneficiaries (the direct executors of the implementation actions) have been continuously consulted. They have provided information and their criteria for the elaboration of the project, in support of the work of the technical design team of FAO. This has made it possible to identify socio-environmental risks, making decisions and adjusting the different proposals so that they are minimized or avoided.

5.2.2 Consultations at Provincial and Village Levels

167. In November 2017, consultations were held in the three provinces that make up the two project areas, as well as in each and every one of the seven municipalities. The consultations focused on meetings with authorities, organizations, cooperatives, producers and communities to provide information on: a) the purposes of the project; b) general information on potential impacts; and c) preliminary ideas of the way the project would be implemented. These meetings were used to exchange on aspects of gender, attention to young people and possible less favored groups, assess the interests and priorities of people and entities, as well as assess support for the project.
168. The consultations of the socio-environmental safeguards at the level of the provinces and municipalities were carried out in December 2017. They had the purpose of: informing the communities, cooperatives, authorities and producers of the possible impacts of the project; gather information and criteria, identify risks and learn from the experiences of people to face them, as well as take advantage of their in-depth knowledge on the characteristics of the areas, about the most important phenomena and their perception of them; evaluate the possible support of the community, organizations and entities to the implementation of the project; in addition to obtaining the approval at the local level of the environmental authorities and rectors of the management of natural resources and social aspects. It is assumed that this procedure should continue during the first months after the launch of the project, once the specific areas and the direct beneficiaries are finally determined.
169. A separate document is available that provides documentary evidence of the completion of the consultations (minutes of meetings and several photos). The criteria of the participants have been very useful and considered in the project design.



Images of consultation actions with interested parties: on the left, with inhabitants of Loma Alta Community of the Central Zone, and on the right with provincial authorities in the Eastern Zone (Delegation of the Ministry of Agriculture in Las Tunas), 2018

5.3 Stakeholder Engagement during Project Implementation

170. Consultation at all levels during implementation is a good practice to assume in order to ensure that potential negative impacts and concerns are adequately addressed during the construction and operation of the project. An extensive consultation with the involved populations is required when the sub-activities could include impacts that would affect the natural resources that sustain the agricultural production of the local population, the generation of income and the livelihoods of the people.
171. Consultations with the interested parties during the implementation of the project will be carried out in three different moments: At the initial phase, immediately after the start of the project (when the definitive activities and sub-activities have been identified), then in the middle of the project (for possible adjustments) and close to the finalization of the project (also for adjustments). The consultation process at the field level will be done by the local project staff while the general consultation program will be coordinated by those in charge of the Safeguards (see below in Chapter 9, Implementation Arrangements). The Project Annex 7 Summary of Consultation provides a general description of the schedule for stakeholder consultations, as well as other safeguard measures, including

5.4 Public Consultation Results

172. Final consultations of this stage are still pending as well as the communication of results from the analysis of safeguards, aiming to its validation and the achievement of the commitments with the interested parties, including the aspects of gender, participation and mechanism for managing complaints.

5.5 Disclosure

173. According to GCF and FAO policies on access to information, all safeguard instruments under this project, including the ESMF and Gender Action Plan must be disclosed online in the English and local language (Castilian Spanish, in the case of Cuba) at least 30 days prior to GCF Board meeting and

approval of the project. Access to the documents must be possible for any locals (i.e. it must be disclosed locally in an accessible place) in a form and language understandable to key stakeholders. Such disclosure of relevant project information helps stakeholders effectively participate. FAO is committed to disclosing information in a timely manner and in a way that is accessible and culturally appropriate, placing due attention to the specific needs of community groups which may be affected by project implementation (e.g. literacy, gender, differences in language or accessibility of technical information or connectivity).

174. For moderate risk projects like this one, FAO releases the applicable information as early as possible, and no later than 30 days prior to project approval. The 30 day period commences only when all relevant information requested from the project has been provided and is available to the public. FAO undertakes disclosure for all moderate risk projects, using a disclosure portal to publicly disclose all of the projects' documentation related to environmental and social safeguards (e.g. Environmental and Social Management Frameworks, Gender Action Plans, Indigenous Peoples Plans, and other relevant documents). The website is: <http://www.fao.org/environmental-social-standards/disclosure-portal/en/>.

175. In order to ensure the widest dissemination and disclosure of project information, including any details related to applicable environmental and social safeguards, local and accessible disclosure tools including audiovisual materials (e.g. flyers, brochures, community radio broadcasts) will be utilized in addition to the standard portal disclosure tool. Furthermore, particular attention will be paid to farmers, indigenous peoples, illiterate or technological illiterate people, people with hearing or visual disabilities, those with limited or no access to internet and other groups with special needs. The dissemination of information among these groups will be carried out with the project counterparts and relevant local actors.

176. In relation to each Category B sub-activity to be funded under the Project, FAO shall disclose fit-for-purpose environmental and social impact assessment, the Environmental and Social Management Plan (ESMP), Social Inclusion Management Plan, and as appropriate any other associated information required to be disclosed in accordance with the GCF Information Disclosure Policy (Project Disclosure Package). FAO shall disclose the sub-activity safeguards information at least 30 calendar days prior to commencing execution of any sub-activities that have been categorized as Category B, in English and in the local language (if not English), on its website and in locations convenient to affected peoples, and provide the Project Disclosure Package to the GCF Secretariat for further distribution to the Board and Active Observers and for posting on the GCF website. Within 180 days of the GCF Board approval of the Project, FAO and GCF Secretariat shall agree on a process to enable communication of any comments to FAO, including from the GCF Board members and Active Observers, on Category B subactivities relating to the Project Disclosure Package, and to take account of such comments in the finalization of such documents.

5.6 Grievance Redress Mechanism

177. The grievance redress mechanism (GRM) is an integral project management element that intends to seek feedback from beneficiaries and resolve complaints on project activities and performance. The mechanism is based on FAO requirements and most importantly, it is based on existing, community-specific grievance redress mechanisms preferred by the local beneficiaries.

FAO's Approach to the GRM:

178. FAO is committed to ensuring that its programs are implemented in accordance with the Organization's environmental and social obligations. In order to better achieve these goals, and to ensure that beneficiaries of FAO programs have access to an effective and timely mechanism to address their concerns about non-compliance with these obligations, the Organization, in order to supplement measures for receiving, reviewing and acting as appropriate on these concerns at the program management level, has entrusted the Office of the Inspector-General with the mandate to independently review the complaints that cannot be resolved at that level.
179. FAO will facilitate the resolution of concerns of beneficiaries of FAO programs regarding alleged or potential violations of FAO's social and environmental commitments. For this purpose, concerns may be communicated in accordance with the eligibility criteria of the Guidelines for Compliance Reviews Following Complaints Related to the Organization's Environmental and Social Standards²⁷, which applies to all FAO programs and projects (Guidelines for Compliance Reviews Following Complaints Related to the Organization's Environmental and Social Standards).
180. Concerns must be addressed at the closest appropriate level, i.e. at the project management/technical level, and if necessary at the Regional Office level. If a concern or grievance cannot be resolved through consultations and measures at the project management level, a complaint requesting a Compliance Review may be filed with the Office of the Inspector-General (OIG) in accordance with the Guidelines. Program and project managers will have the responsibility to address concerns brought to the attention of the focal point.
181. The principles to be followed during the complaint resolution process include impartiality, respect for human rights, including those pertaining to Indigenous peoples, compliance of national norms, coherence with the norms, equality, transparency, honesty, and mutual respect.

Project-level grievance mechanism

182. The project will establish a grievance mechanism at field level to receive complaints. Contact information and information on the process to file a complaint will be disclosed in all meetings, workshops and other related events throughout the life of the project. In addition, it is expected that all awareness-raising material distributed will include the necessary information regarding the contacts and the process for filing grievances.
183. The project will also be responsible for documenting and reporting as part of the safeguards performance monitoring on any grievances received and how they were addressed.

The mechanism includes the following stages:

- The complainant files a complaint through one of the channels of the grievance mechanism. This will be sent to the National Operations Officer to assess whether the complaint is eligible. The confidentiality of the complaint must be preserved during the process.
- The Project Team (PT) will address eligible complaints and the National Operations Officer will be responsible for recording the grievance and how it has been addressed if a resolution was agreed.

²⁷Available online at: <http://www.fao.org/3/a-i4439e.pdf>

- If the situation is too complex, or the complainer does not accept the resolution, the complaint must be sent to a higher level, until a solution or acceptance is reached.
- For every complaint received, a written proof will be sent within ten (10) working days; afterwards, a resolution proposal will be made within thirty (30) working days.
- In compliance with the resolution, the person in charge of dealing with the complaint, may interact with the complainant, or may call for interviews and meetings, to better understand the reasons.
- All complaints received, their response and resolutions, must be duly registered.

Internal process

- Project Team. The complaint could come in writing or orally to the Project Team directly or through the provincial focal points. At this level, received complaints will be registered, investigated and solved by the coordinator.
- FAO Representative. If the complaint has not been solved and could not be solved by the Coordinator, then the assistance of the FAO Representative is requested.
- FAO Regional Office for Latin American and the Caribbean. The FAO Representative will request, as necessary the advice of the Regional Office to resolve a grievance, or will transfer the resolution of the grievance entirely to the regional office, if the problem is highly complex.
- The FAO Regional Representative will request only on very specific situations or complex problems the assistance on the FAO Inspector General who pursues its own procedures to solve the problem.

Resolution

Upon acceptance a solution by the complainer, a document with the agreement should be signed with the agreement.

Local Level	National Operations Officer – FAO Cuba
	Provincial coordinator Center: to be designed
	Provincial coordinator Eastern: to be designed
FAO representation	Must respond within 5 working days, in consultation with Project Team. Mr. Marcelo Resende De Souza FAO-CU@fao.org Marcelo.resende@fao.org
Regional FAO Office for Latin America and the Caribbean	Must respond within 5 working days in consultation with FAO's Representation. Mr. Julio Berdegué

	RLC-ADG@fao.org Julio.Berdegue@fao.org
Office of the Inspector General (OIG)	To report possible fraud and bad behavior by fax, confidential: (+39) 06 570 55550 By e-mail: Investigations-hotline@fao.org By confidential hotline: (+ 39) 06 570 52333

6 EXPECTED PROJECT IMPACTS

6.1 Overview of Environmental and Social Impacts

184. In general, the cumulative impacts of the project are expected to be positive, since its overall objective is to increase sustainable development that is resilient to climate. It seeks to achieve this through innovation and financial incentives to ensure critical ecosystem services of productive landscapes restored in seven municipalities selected for their vulnerability to climate change. The project has been classified as Moderate risk (Category B), due to the minimal risks associated with the use of herbicides in the control of Marabu and the risks of the controlled use of species that can show invasive behavior in other unmanaged conditions. The key findings about possible positive and negative impacts of the project include:

185. **Positive Impacts²⁸:** The socio-environmental benefits are concentrated in the climatic sphere due to the increase in resilience and the growth in carbon capture capacity. The project will also increase connectivity and contribute to the recovery of the capacity of agro systems. These recovered agro systems will provide a range of improved environmental services, including regulation of the hydrological cycle by absorbing torrential rains, preventing the effects of runoff, soil erosion and improving the rates of water infiltration in soils and landscapes to recharge the water table, soil protection from salinization and intrusion of salt water into aquifers. Extension services will train producers on the integrated rehabilitation of landscapes and on measures to adapt to climate change. Actions will be taken to restore landscapes and enrich biodiversity. The means of subsistence will be improved with the increase of sources of employment and expansion of the cultivated areas and production. These will lead to greater local food security and accessibility to food. The project will widely involve women through a Gender Action Plan that ensures the elimination of gender gaps, women's empowerment and equitable incorporation in development processes.

186. **Negative Impacts:** The identified potential negative impacts of the Project are related to the Outcome 1, which provides for the establishment of the 6 agroforestry technology modules and sylvopastoral systems. The moderate risk categorization arises primarily from the fact that module 6 include the use of one alien species, that may exhibit low invasive behavior, under circumstances without monitoring or control. It should be noted that species selection was carried out in close collaboration with Cuban stakeholders, and that all species used already introduced in the Cuban context. The risks associated with this species, as well as the logic behind species selection have been dealt with comprehensively in both the Feasibility Study, and are also included in an Annex to this

²⁸Additional information on annex 2 feasibility study, appendix 2.6: agroforestry modules for landscape restoration and

report²⁹. In order to mitigate the risks associated with the Alien Invasive Species (AIS), both a regular monitoring program, and capacity building in regards to AIS management, will be implemented. That is a management plan for the early detection; control and eradication of IAS will be developed and implemented. Furthermore, training will be provided to the extension agents and technicians in the characteristics and management of IAS, with emphasis on those of the project. Finally, an Early Warning Protocol linked to the expansion of IAS, will also be developed in the management plans.

187. Machines will be used in agricultural work and for the elimination of Marabu (*Dichrostachys cinerea*), with low risk, as appropriate equipment will be acquired to replace inefficient equipment (bulldozers), which are already used for Marabu removal. Equipment use will be managed based on good practices and will guarantee the restoration productive landscapes, and food security.

188. Water management will be carried out efficiently following strict planning and the national regulations established in the "Water Plan"³⁰, without creating competition with the human supply or pressure on the aquifer (no water withdrawals will be made). Water will be used responsibly in small drip irrigation systems and for livestock. Another low risk exists, due to the generation of limited amounts of environmental waste from the application of slow-release chemical fertilizers that do not decompose completely. This risk is considered low as the project's strategy included the use of fertilizers only in the initial phase, followed by the progressive and complete replacement by organic fertilizers, expanding production capabilities. Finally, pesticides will be used to control Marabu along with mechanical methods, however pesticide will only be used in certain areas and only in the initial phase of the project, following integrated management practices (MIP). Highly dangerous pesticides will not be used in the project areas. Pesticides will be managed in a controlled manner with limited risks for agro-biodiversity and natural biodiversity and will be used on certain forest species, forages and pastures that may manifest invasive behavior.

189. Breakdown of Impacts by Outcome

190. A summary of the potential positive and negative impacts broken down by outcome is provided below:

Outcome 1: Increasing CC-resilient land-use through technology and investment

POSITIVE IMPACTS	NEGATIVE IMPACTS
<ul style="list-style-type: none"> • Growth in carbon capture capacity through reforestation, forest management, creation of silvopastoral systems, conservation and reduction of deforestation • Greater connectivity. • Recovery of the capacity of agro ecosystems to provide environmental services such as: (i) Regulation of the hydrological cycle by absorbing torrential rains, preventing the effects of runoff, soil erosion and improving water 	<ul style="list-style-type: none"> • Moderate possible impacts to vegetable agro biodiversity and natural biodiversity due to the management of an AIE that could potentially manifest invasive behavior without management (in the

²⁹Annex 2 Feasibility Study, appendix 2.6, Agroforestry Modules for Landscape Restoration

³⁰ National mechanism for the planning and efficient use of water resources under the control of the National Institute for Water Resources(INRH).

<p>infiltration rates in the soils and landscapes to recharge the water table. (ii.) Soil protection from salinization and intrusion of salt water into aquifers.</p> <ul style="list-style-type: none"> • Restoration of landscapes and enrichment of biodiversity will be carried out. • Promotion of polyculture • Encouragement to establish more efficient irrigation systems. • Increased livelihoods of populations and communities with increased sources of employment, expansion of cultivated areas and production, leading to greater local food security and accessibility to food. • The project will widely involve women through a Gender Action Plan that ensures the elimination of gaps, their empowerment and equitable incorporation in development processes. 	<p>development of the project module number 6).</p> <ul style="list-style-type: none"> • Minor soil degradation due to the use of machinery. • Small amounts of environmental waste will be generated in certain places due to the application of slow release chemical fertilizers that do not decompose completely. • Possible effects on agro ecosystems, water quality and human health due to the application of herbicides to control Marabu. • Potential impacts on water availability and quality in modules without appropriate management controls
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Outcome 2: Strengthened institutional and farmer capacities to enhance the climate-resilience of production landscapes through agroforestry and forestry systems and improved ecosystem services

POSITIVE IMPACTS	NEGATIVE IMPACTS
<ul style="list-style-type: none"> • Extension services will be strengthened and producers trained on the integrated rehabilitation of landscapes and adaptation measures to climate change • Increase in resilience to climate change of producers as a result of training actions • 40,000 producers trained using gender-sensitive learning approaches • Strengthening the capacity of environmental monitoring entities to develop their functions 	

Outcome 3: Effective governance to support climate resilience-enhancing production systems and ecosystem services

POSITIVE IMPACTS	NEGATIVE IMPACTS
<ul style="list-style-type: none"> Processes facilitated for policy revision to modify the current use of the land, the development of policy instruments to scale up the adoption of agroforestry, silvopastoral and forestry systems. The possible transformation of the Forest Development Fund and the Soil Conservation Fund into a Landscape Resilience Fund will allow the country's producers and peasants (mainly from the most vulnerable areas) to access financing for activities that will increase climate resilience beyond the approved destinations of those funds up to now (more beneficiaries and more benefits) 	

7 MITIGATION MEASURES & APPROACH TO ENHANCE POSITIVE IMPACTS

191. This chapter discusses potential risks, recommended mitigation measures and applicable national policies and regulations. The risks are specified in outcome 1, where the most significant potential negative impacts are expected.

POTENTIAL RISK	MITIGATION MEASURES	RELEVANT NATIONAL POLICIES AND/OR LAWS, GAPS THEREIN, AND SUPPLEMENTARY ACTIONS/MEASURES TO BE TAKEN
Possible biological or physical degradation of the soil as a result of the impact caused by the use of machinery.	<ul style="list-style-type: none"> Apply principles of agricultural conservation, especially on the use of appropriate implements and minimum tillage. Amend the specific impacts of heavy machinery use, mainly those derived from the pruning of Marabu. Apply the measures established in the National Soil Conservation and Improvement Program. Carry out soil monitoring to update its characterization and determine the specific measures to be applied for its improvement and the maintenance of its productive capacities. Develop robust systems of organic matter production from crop residues, pruning and other residuals to incorporate them into the soil within the agroecosystems that generate them. 	<ul style="list-style-type: none"> Decree 179/1993 Protection, Use and Soil Conservation National Program of Conservation and Improvement of Soils Cuban Regulation XX: 2011. Sustainable Land Management. Terms and Definitions
Possible impact on the surrounding environment resulting from the use of more machinery,	<ul style="list-style-type: none"> Apply principles of agricultural conservation, especially on the use of appropriate implements and minimum tillage to reduce dust emissions. The selection of machinery will follow concepts of fuel efficiency (lower GHG 	<ul style="list-style-type: none"> Decree 179/1993 Protection, Use and Soil Conservation National Program for the Conservation and Management of Soils. Cuban Regulation XX: 2011. Sustainable Land Management National Program for the Conservation and

<p>water and chemicals with respect to the baseline with potential increases in the amounts of dust particles, gas emissions including GHG (without affecting the total emission balance) and possible effects on water quality and aquatic life.</p>	<p>emissions) and with low gas emissions (with filters).</p> <ul style="list-style-type: none"> • Install small irrigation schemes in correspondence with the low availability of the resource. • Monitor the state of water resources (availability and quality). • Directly harvest rainwater and from runoff in traps and reservoirs to increase its availability in dry periods for irrigation and livestock supply • Water management will be carried out following strict planning and national regulations established in the "Water Plan", without creating competition with human supply or pressure on the aquifer, and in an efficient manner.³¹ • As part of the preparatory activities of project initiation and inception and as deemed necessary through consultation with relevant technical experts, additional technical surveys, assessments, and engineering designs will be developed to determine details and technical specifications for the construction, installation and use of water supply systems, small-scale reservoirs and water points that will be introduced as part of the project. • Promote an Integrated Water Management System as part of the preparation of small farmers and extension services. • Use climate information for the water planning and efficient use of water. • Install hydrometric equipment to monitor and adjust consumption. • Apply the measures established in the National Soil Conservation and Improvement Program and the indicators designed to determine the impact of the measures applied, in addition to taking into account the good practices appraised by the Viñales Forest Station (Pinar del Rio). • Implement Integrated Pest Management. • Prepare a Pest Management Plan that will be part of the Project's Social and Environmental Commitment Plan • Ensure the acquisition and use of the necessary means of protection to ensure the health of the farmers, who will be trained to perform these tasks. The means of application will be appropriate. 	<p>Management of Soils. Terms and Definitions.</p> <ul style="list-style-type: none"> • Policy for Mechanization, Irrigation, Agricultural Drainage and Water Supply to Animals (2018). • National Water Policy (2013) • Decree 280/2007. Commissions of the Turquino Plan, Reforestation system and National Council of Watersheds. • Decree 199/1995. Contraventions of the regulations for the protection and rational use of hydraulic resources. • Resolution 287/2015. On water consumption rates, National Institute of Hydraulic Resource • Resolution 111 / 96.Regulations on biological diversity, of the Ministry of Science, Technology and Environment. • Decree-Law 138/2017 on Land Waters. • Resolution 111/2002. Bases for the operation of the National Environmental Monitoring System, of the Ministry of Science Technology and Environment. • National Pesticide Policy 2018 • Joint resolution MINSAP MINAG, Regulation uses of prepared pesticides, and the functions and structure of the National Pesticide Registry and the advisory committee of specialists. • Decree 169/1992 Contraventions of plant health regulations. • Decree Law 153/1994, on Plant Health regulations. • Decree law 200/1999. Environmental contraventions. • Resolution 136/2009. Regulation for the integrated management of hazardous wastes, of the Ministry of Science Technology and Environment.
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³¹ More information about Cuban Water Plan in ANNEX 2 FEASIBILITY STUDY, Appendix 2.6: AGROFORESTRY MODULES FOR LANDSCAPE RESTORATION

	<ul style="list-style-type: none"> • Entities that store and manage pesticides will develop their management plans. Install efficient irrigation systems (preferably drip irrigation). 	
Use of invasive alien species that could cause damage to biodiversity and agro-ecosystems	<ul style="list-style-type: none"> • Make implementation adjustments to the SILLEC and SILSOM modules to include strips of trees to act as barriers to the expansion of herbaceous IAS. • Adjust SILLEC and SILSOM modules calendars of activities in order to guarantee an adequate planning aimed to minimize risks. • Execute constant monitoring on the behavior of species in the implementation areas and their vicinity. • Establish a management plan³² for the early detection, control and eradication of IAS. • Provide training to the extension agents and technicians in the characteristics and management of IAS, with emphasis on those of the project. • Develop an Early Warning Protocol linked to the expansion of IAS in the management plans. 	<ul style="list-style-type: none"> • National Biodiversity Program. • Resolution 111/2002. Bases for the operation of the National System of Environmental Monitoring, of the Ministry of Science, Technology and Environment. • Decree Law 200/1999. Violations in environmental matters. • Resolution 159/1993. Functioning of the national system of Phylogenetic Resources, Ministry of Agriculture. • Resolution 111 / 96.Regulations on biological diversity, of the Ministry of Science, Technology and Environment. • Decree Law 201/1999. The System of Protected Areas. • Law 85/1998. Forestry Law • Decree 268/1999, Contraventions of forest regulations. • Decree Law 190/1999. On biological safety
Use of pesticides that may cause problems of contamination to soil and water, and affect biodiversity and human health	<ul style="list-style-type: none"> • Implement Integrated Pest Management • Prepare a Pest Management Plan that will be a part of the Project's Social and Environmental Commitments • Ensure the acquisition and use of the means of protection necessary to ensure the health of the producers, who will be trained to perform these tasks. The means of application will be adequate. • The entities that store and handle pesticides will develop their own management plans. 	<ul style="list-style-type: none"> • National Pesticide Policy 2018 • Joint Resolution MINSAP MINAG - Regulation on the uses of pesticide formulations. Functions and structure of the National Pesticide Registry and the Advisory Committee of Specialists. • Decree 169/1992 Contraventions of plant health regulations. • Decree Law 153/1994, On Plant Health Regulations. • Decree Law 200/1999. Violations in environmental matters. • Resolution 136/2009. Regulation for the integral management of hazardous wastes, of the Ministry of Science, Technology and Environment. • Resolution 132/2009. Regulation of the environmental impact assessment process, of the Ministry of Science, Technology and Environment
Phytosanitary risk due to non-compliance with the rules established for seed management	<ul style="list-style-type: none"> • Enhance the local seeds production system (local seed farms). • Accomplish the bio- security and Phytosanitary norms to ensure production areas seed protection. • Guarantee that seeds and planting materials are from locally adapted crops and varieties that are accepted by farmers and consumers. 	<ul style="list-style-type: none"> • Law 85/1998 Forestry Law • Decree 268/1999, Contraventions of forest regulations • Decree 175/1992 Regulations on quality of seeds, and their contraventions. • Resolution 159/1993 Operation of the national system of Plant Genetic Resources, Ministry of Agriculture • Decree Law 190/1999 On biological safety • Decree 169/1992 Contraventions of plant health regulations • Decree Law 153/1994, On Plant Health Regulations

³²Appendix 6.2. Guide to elaborate the Invasive Alien Species Management Plans.

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192. **Summary of Environmental and Social Mitigation Measures:** Environmental mitigation measures will be focused around the risks of possible biological or physical degradation of the soil, the management of the potentially invasive alien species (only one species), possible negative impacts on the surrounding environment resulting from the use of more machinery, water availability and quality and chemicals with respect to the baseline and the use of pesticides. All the risks have been assessed as moderate: the use of machinery will not lead to significant soil degradation, but the project will apply principles of agricultural conservation, especially on the use of appropriate implements and minimum tillage, will amend the specific impacts of heavy machinery use, mainly those derived from the pruning of Marabu, also will apply the measures established in the National Soil Conservation and Improvement Program, carry out soil monitoring to update its characterization and determine the specific measures to be applied for its improvement and the maintenance of its productive capacities and Develop robust systems of organic matter production from crop residues, pruning and other residuals to incorporate them into the soil within the agroecosystems that generate them. The use of one potentially invasive alien species (IAS), *Moringa olifeira*, that could cause damage to biodiversity and agro-ecosystems, and the use of pesticides that may cause problems of contamination to soil and water, and may affect biodiversity and human health. To mitigate the risks associated with the use of invasive alien species (IAS), several measures will be put in place. Trees will be placed to act as barriers to the expansion of herbaceous IAS, and the behavior of species in and near the implementation area will be constantly monitored. An Early Warning Protocol and management plan will be established for the early detection, control and eradication of IAS. Workers will be trained on how to identify and manage the IAS. SILLEC and SILSOM modules activity calendars will be modified in order to guarantee adequate planning aimed to minimize risks.

8 PRINCIPLES AND PROCEDURES TO MITIGATE IMPACTS FOR IMPLEMENTATION

193. In order to ensure that the environmental and social issues are addressed properly in accordance and in compliance with the FAO and GCF Policies, all project activities shall undergo screening, assessment, review, and clearance process before execution of the project activities.
194. This chapter describes the process for ensuring that environmental and social concerns are adequately addressed through the institutional arrangements and procedures used by the project for managing the identification, preparation, approval, and implementation of **sub-activities**.

8.1 Step 1: Defining Sub-Activities

195. By design, the project is expected to have far greater environmental benefits than adverse environmental impacts. The potential adverse environmental impacts from the project are likely to be small and limited. However, it is recognized that such impacts can accrue into larger impacts if they are not identified early during the planning cycle and their mitigation measures integrated into the project planning and implementation.
196. Given that the activities to be implemented in each site will be very similar in nature and scale across the implementation area, it is proposed that screening for potential risks is undertaken at sub-activity level. Sub-activities constitute a valid tool to identify expected impacts and mitigation and

monitoring measures.

197. In this context, sub-activities will be identified during the inception phase in Year 1. For each sub-activity, implementing sites will be identified along with activities, including capacity building/training and stakeholder engagement information specific to each site.

8.2 Step 2: Environmental and Social Risk Screening of Sub-Activities

198. FAO's environmental and social screening checklist (Appendix 6.5) will determine if a sub-activity will require an Environmental and Social Management Plan (ESMP). While the nature, magnitude, reversibility, and location of impacts are main elements in the screening of sub-activities, expert judgment will be a main factor in deciding whether an ESMP is required for a sub-activity or not during the first inception year of the project.
199. For a sub-activity that requires an ESMP, the proposal must include a set of mitigation measures with monitoring and institutional arrangements to be taken during the implementation phase to correctly manage any potential adverse environmental and social impacts that may have been identified.
200. FAO will undertake environmental and social screening following FAO's Environmental and Social Screening Checklist. Once the implementation sites and beneficiaries are determined, a screening checklist will be completed per sub-activity and signed off by the safeguards specialist at the Project Management Unit (PMU). The safeguard specialists will add results of the screenings checklists. This document will be sent to ESM unit in FAO for endorsement.
201. Screening of sub-activities involve:
- Checking that the activities involved are permissible (as per the legal and regulatory requirements of the project);
 - Determining the level of environmental assessment required based on the level of expected impacts.
202. The E&S screening checklist will result in the following screening outcomes: (i) determine the category for further assessment; and (ii) determine which environmental assessment instrument to be applied.
203. Pre-implementation safeguards documents (one per sub-activity) will be prepared by the environmental and social safeguards specialist in the PMU prior to the implementation of activities and sent to ESM Unit in FAO Headquarters for endorsement.
204. The documents will outline the following information relative to each sub-activity:
- a. Description of the activities to be carried out in all sites
 - b. Description of each implementing site:
 - Geography and specificities in terms of activities
 - Beneficiaries and stakeholders

- Map of the site
- c. Description of the stakeholder engagement process that was carried out in the inception phase and the stakeholder engagement plan to be carried during implementation
- d. Breakdown of information by site about the grievance mechanism and disclosure
- e. Aggregated results of the environmental and social screening checklists per sub-activity signed off by the Safeguards Specialist in the Management Unit.
- f. Where applicable, Environmental and Social Management Plans identifying mitigation measures, indicators, responsibilities and timeframe. The ESMP will be added to the monitoring plan to ensure safeguards performance is regularly reported upon along with stakeholder engagement monitoring per site.

8.3 Step 3: Environmental and Social Risk Management (Monitoring and Reporting)

205. Sub-activities classified as medium risk based on the environmental and social risks identified during the screening process will then be required to develop ESMPs that include information on the mitigation actions, the indicators and timeframe where the completion of such mitigation actions are expected.

206. While the nature, magnitude, reversibility, and location of impacts are main elements in the screening of sub-activities, expert judgment will be a main factor in deciding whether an ESMP is required for a sub-activity or not.

207. The ESMP should include:

- **Mitigation Measures:** Based on the environmental and social impacts identified from the checklist, the ESMP should describe with technical details each mitigation measure, together with designs, equipment descriptions and operating procedures as appropriate.
- **Monitoring:** Environmental and social monitoring during the implementation of the sub-activities, in order to measure the success of the mitigation measures. Specifically, the monitoring section of the ESMP provides:
 - A specific description and technical and financial details of monitoring measures that include the parameters to be measured, the methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions.
 - Monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and to furnish information on the progress and results of mitigation, e.g. by annual audits and surveys to monitor overall effectiveness of this ESMF.
- **Institutional Arrangements:** ESMPs should also provide a specific description of institutional arrangements, i.e. who is responsible for carrying out the mitigating and monitoring measures (for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting and staff training). Additionally, the ESMP should include an estimate of the costs of the measures and activities recommended so that the necessary funds are included. The mitigation and monitoring measures recommended in the ESMP should be developed in

consultation with all affected groups to incorporate their concerns and views in the design of the ESMP.

208. Once the ESM unit in FAO Headquarters endorses the pre-implementation documents with ESMPs, the safeguards specialist from the National Project Management Unit(UNGP) will ensure ESMPs are included and reported upon, along with stakeholder engagement in the context of the monitoring plan.
209. In this context, field staff will be responsible for monitoring the progress, as relevant, in the monitoring plan, as well as to identify any potential risks that may emerge through the implementation phase. This information will be compiled in progress reports and templates will include a section on E&S risk management, where the above information will be reported.
210. Information from progress reports will be received by the environmental and social safeguards specialist in the project management unit (PMU) who will compile the information received in the progress reports, as well as that related to grievances to feed in a semi-annual report on Environmental and Social Safeguards Performance to be endorsed by the ESM unit in FAO. In line with the Funded Activity Agreement, the PMU will prepare the project annual work plan and budget (AWPB) for clearance by a Project Oversight Committee each year and will report on the progress of the project against the AWPB on a semi-annual and annual basis. These will feed in to the Semi-Annual and Annual Performance Reports, including financial management reports that FAO will provide to GCF by FAO as the AE for the project.

9 IMPLEMENTATION ARRANGEMENTS

211. The implementation of environmental and social safeguards will be guaranteed based on what is established for the governance and implementation of the project as agreed between national authorities and FAO (Figure 26). Analysis of the legal-regulatory framework and proposals for institutional arrangements for the implementation of the IRES project.
212. For the governance and strategic decisions of the project, a **National Project Steering Committee (CDNP)** will be established, which will be composed of ministers (or delegates) of MINCEX, CITMA, MINAG and the representative of FAO in Cuba, and will be chaired by MINAG. The main function of the CDNP is to coordinate, guide and provide political and strategic guidance for the implementation of the project, as well as to ensure solid inter-institutional coordination. In addition, it will guarantee that the planned co-financing of the government entities will be delivered in a timely manner, verify and approve the annual work plans and, in addition, approve the Financial and Technical Reports (IFT).
213. The governance of the project also includes a **Project Coordination Committee (PCC)** constituted by the National Project Director, technical representatives of MINAG, MINCEX, CITMA and FAO, and the National Project Coordinator (CNP). The CCP will act as a key communication channel between the National Project Management Unit (UNGP) and key local stakeholders and will also assist in the implementation of the stakeholder participation plan. The CCP will be chaired by MINAG, and will be supported by national technical and scientific institutions (extension agents, academia) and 3 provincial coordinators. The MINAG will be responsible for appointing a National Project Director (DNP), whose main function will be to represent the Government in the instances related to the Project, and to convene and coordinate the CDNP and the CCP.

214. For the implementation of the project, a **National Project Management Unit (UNGP)** financed by the government will be established, with the main function of ensuring the coordination and execution of the project through the effective implementation of the annual work plans, following the guidelines of the CDPN and the CCP. The UNGP reports to the CCP through the DNP. The Operational Support and Financial Management Unit of the Project (UAOGF) will support the UNGP, hereinafter **FAO IRES Cuba Unit** (led by the Representation of Cuba), whose main function will be to provide operational, procurement and financial management services for the GCF resources.

215. The UNGP will establish three **Provincial Project Management Units (UPGP-Las Tunas, Villa Clara and Matanzas)** to ensure a solid implementation at the local (provincial) level. Each UPGP will have a Provincial Coordinator, a Logistics and Training Assistant and an administrative assistant. The UPGP will be advised by a **Provincial Project Coordinating Committee (CCPP)**, who will guarantee the effectiveness of actions at the provincial level, in terms of planning, coordination, instrumentation and evaluation of the processes that are required as part of the project.

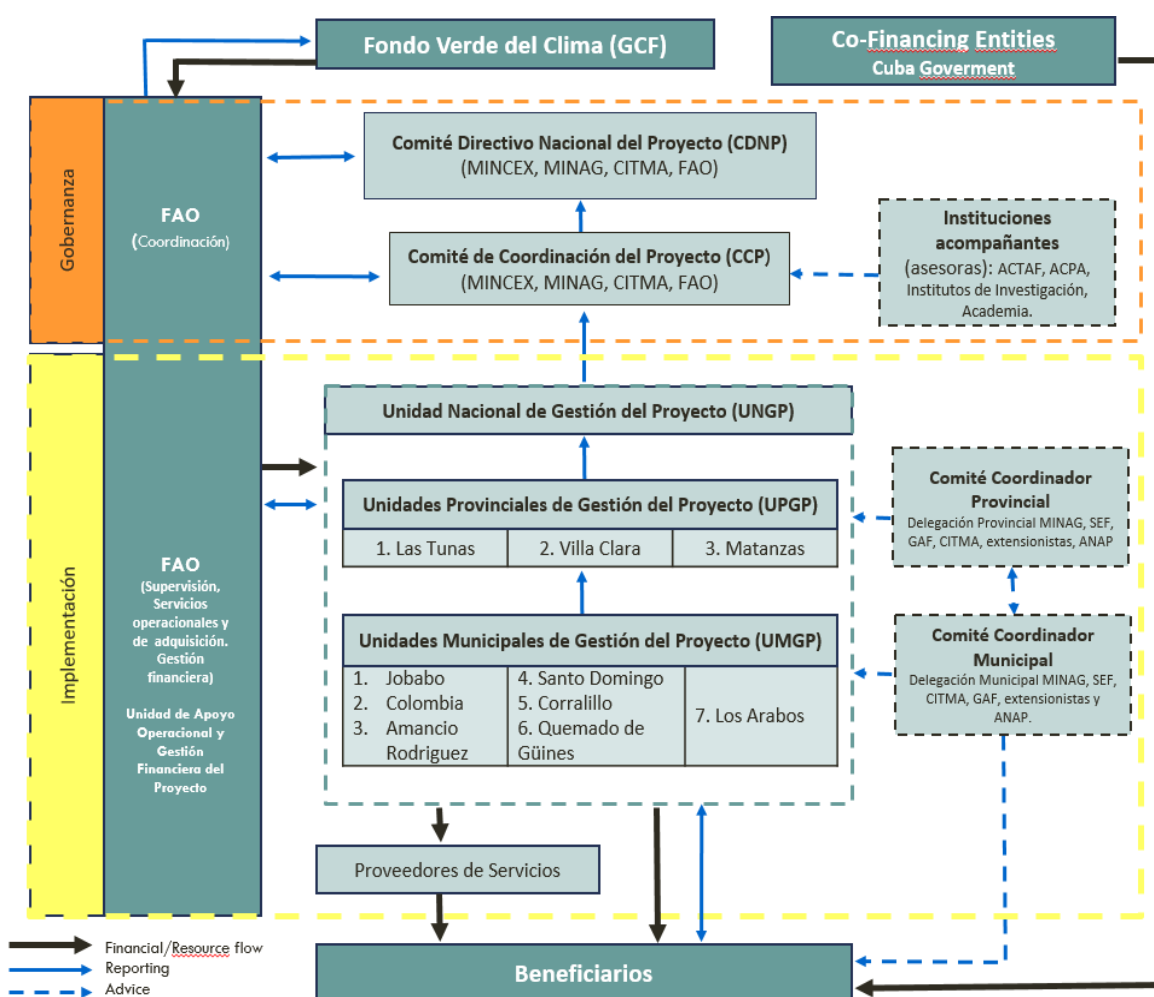


Figure 21. Governance structure and implementation of the IRES Cuba project

216. In addition, the UNGP will establish **7 Municipal Project Management Units (UMGP)** to ensure solid implementation at the municipal level. Each UMGP will have a Municipal Coordinator, a Logistics

and Training Assistant and an Administration Assistant. The UMGP will be advised by a **Municipal Coordinating Committee of the Project (CCMP)**, who will guarantee the effectiveness of the actions at the municipal level and will promote a fluent exchange of information for decision-making processes.

217. The 3 provincial coordinators will be the liaison with the seven municipal coordinators, as appropriate, and will facilitate a fluent exchange of information and decision-making at two specific levels of management and coordination: territorial/national, which will be the essential pillars for the empowerment of producers in vulnerable communities through value chains and improvement of livelihoods through resilience actions in the face of climate change.

218. Project Implementation Arrangement for Safeguards:

219. At national level The National Project Management Unit (UNGP) will include a specialist exclusively dedicated to the attention of the environmental and social safeguards. At the provincial level, the provincial coordinators of the UPGP perform this function. At the municipal level the municipal coordinators of the UMGP carry it out. For this purpose, IRES Appendix 6.5 defines the responsibilities for environmental and social safeguards within the functions of the governance and implementation units of the project and of the members of the Management Units designated in this regard

APPENDIXES

APPENDIX 6.1: NON-ELIGIBILITY LIST

Appendix 6.1. Exclusion List of the IRES Project

The following practices and activities will not be supported by the project:

1. Land management practices that cause degradation (biological or physical) of the soil and water.
2. Development of large irrigation schemes and construction of new reservoirs.
3. Use of wastewater.
4. Actions that represent significant increase in GHG emissions.
5. Use of genetically modified organisms, or the supply or use of modern biotechnologies or their products in crops.
6. Introduction of crops and varieties that previously did not grow in the implementation areas, including seed import/transfer
7. Development of forest plantations.
8. Actions resulting in loss of biodiversity, alteration of the functioning of ecosystems, and introduction of new invasive alien species.
9. Actions within the protected areas or in their buffer zones.
10. Activities that affect gene flows and biological corridors.
11. Collection of wild genetic resources.
12. Landscape model(s) requiring high levels of (mainly) agrochemical inputs.
13. Anything in violation of the Pesticide Code of Conduct.
14. Procurement and/or use of highly hazardous pesticides or those that are not nationally validated or that are internationally regulated, especially by FAO and environmental conventions.
15. Activities that do not consider gender aspects or contribute to exacerbating any inequality or gender gap that may exist.
16. Changes in land tenure or displacement (permanent or temporary) of people from their homes or places of work and subsistence, or restrict their access to them.
17. Child Labour.
18. Activities in areas with cultural, historical or transcendent values for individuals and communities.

APPENDIX 6.2. GUIDE TO ELABORATE THE INVASIVE ALIEN SPECIES MANAGEMENT PLAN.

- The IAS management plans elaboration will be based on Ministry of Science, Technology and Environment of Cuba established methodology, following the results of the GEF project "Improving the prevention, control and management of invasive alien species exotic species in vulnerable Cuban ecosystems", (2011-2015, UNDP).
- It will be done during the first project year, with a budget of 67.000 USD, under the responsibility of the National Project Management Unit and conducted by the specialist in charge of guiding and monitoring the Social and Environmental Safeguards. It will be valid throughout the project implementation and beyond the period financed by the GCF. It will be preceded by a training process, which includes the experts participation and consultants.
- The design and the architecture of animal feeding systems based on silvopastoral systems will consider the species interactions and the environmental areas characteristics.
- Cooperatives that will implement the SILLEC and SILSOM modules (silvopastoral systems) must adjust the IAS management plan.
- A management plans for each species will be developed during the early implementation phase of the project, but also will be necessary to monitoring and manage the changes in species interactions. Should consider these species as part of the agro-ecological ecosystem looking at the impacts of individual species but also on the changes in species interactions after introductions.

The species to be considered are the following:

- *Albizia saman*
- *Moringa Oleifera* (with special focus on this one)
- *Morus sp*
- *Brachiaria brizantha*

Invasive Alien Species Management Plans Template:

- Introduction
- I- Diagnosis
 - Implementing area characterization
 - Nature site characterization
 - Current Implementing areassituation
 - IAS Current situation
 - Values to be Protect
 - Management Plan General objective
 - Management Plan Specific objectives
 - IAS Taxonomy
- Origin
- IAS Biological characterization
- Description: History of its introduction
- Distribution in Cuba
- More frequent damages caused by the IAS in the sector
- Knowledge gaps
- II. Management
 - 2.1 Surveillance and protection
 - 2.2. Species, habitats and ecosystems Management.
 - 2.3. IAS Control
- III. Public use
 - 3.1. Information and Education
- IV. Scientific research and monitoring
- V. Management Resources
- VI. Capacity Building

APPENDIX 6.3: PEST MANAGEMENT PLAN

This annex provides guidance on pest and pesticide management within field projects, as well as a simplified pest management plan.

FAO Guidance Document for Pest and Pesticide Management in Field Project:

This guidance document has been prepared by the FAO Plant Production and Protection Division (AGPM) and replaces a Field Program Circular from 8/92 on Pesticides Selection and Use in Field Projects.

It provides guidance on pest management and the selection and use of pesticides in FAO projects. Its objective is to reduce reliance on pesticides through promotion of Pest Management (PM) and to avoid that pesticides procured by FAO, or on the advice of FAO, cause harm to people, animals, plants or the environment. As such, it also serves to limit reputational risk and liabilities for FAO.

The outlined rules and procedures apply to all pesticide procurement, and advice on pesticide procurement, within the framework of FAO field projects, including emergency assistance and activities implemented by subcontractors. It involves an established procedure for mandatory clearance of such projects and activities, as specified below.

Background

Pesticides require special attention because they are toxic and their distribution and use should always involve managing the risks to human health and the environment. Furthermore, inappropriate use of pesticides may reduce agricultural productivity and result in pesticide residue levels that become a constraint to marketability of crops both on domestic and export markets.

Although most countries have pesticide legislation, many may still lack capacity to ensure appropriate selection, management, use and disposal of pesticides. Circumstances in developing countries often make it difficult for farmers to follow recommended practices regarding personal protection, use and cleaning of application equipment, storage of pesticides, and disposal of obsolete pesticides and empty containers.

In many cases, use of pesticides is still unnecessarily high, uneconomic and unsustainable. Available non-chemical techniques and PM approaches often can help reduce pesticide use.

The overall framework for sound pest and pesticide management is provided by the FAO/WHO International Code of Conduct on Pesticide Management³³ and its accompanying technical guidelines.

Pest Management

The protection of plants from pests is an integral part of agriculture. The presence of pests does not automatically require control measures, as pest populations are usually under some form of natural control and actual economic damage may be insignificant. When plant protection measures are deemed necessary, available non-chemical pest management techniques should be considered with preference before a decision is taken to use pesticides, even if the cost is higher or specialist inputs are required that make use of non-chemical options more complex.

Proper comparison of pest management strategies requires a full assessment of costs that takes into account additional private costs (e.g. personal protection, storage, health effects on users) and public costs (negative effects on public health and the environment).

Where possible, pest management strategies should be based on an IPM approach. Pesticides should only be supplied following a detailed assessment of the actual field situation, the nature and the impact of the pest, and an evaluation of available pest management options.

Selection and Procurement of Pesticides

If pesticides are deemed to be the best or only available option, then careful and informed consideration should be given to the selection of pesticide products. Factors to be taken into account include efficacy and likelihood of development or presence of resistance by the target organism. Overriding importance should be given to reducing negative effects on human health and the environment.

FAO does not maintain a list of permitted or non-permitted pesticides. However, in line with the provisions of the FAO/WHO International Code of Conduct on Pesticide Management and relevant multilateral environmental agreements that include pesticides, the following list of criteria will need to be met in order

³³AGPM Website: FAO/WHO International Code of Conduct on Pesticide Management (2014): <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/code/en/>

for a pesticide to be considered for use in an FAO project:

2. The product should not be subject to the Stockholm Convention on Persistent Organic Pollutants. The list of pesticides concerned can be found at: <http://chm.pops.int>
3. The product should be registered in the country of use. If specified in the registration decision, the product should be permitted for the crop-pest combination concerned.
4. Users should be able to manage the product within margins of acceptable risk. This means that FAO will not supply pesticides that fall in WHO Hazard Class 1 or GHS Class 1 and 2. Pesticides that fall in WHO Hazard Class 2 or GHS Class 3 can only be provided if less hazardous alternatives are not available and it can be demonstrated that users adhere to the necessary precautionary measures³⁴.
5. Preference should be given to products that are less hazardous, more selective and less persistent, and to application methods that are less hazardous, better targeted and requiring less pesticides. Products listed in Annex 3 of the Rotterdam Convention should for instance be avoided.

Any international procurement of pesticides must abide with the provisions of the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Pesticides listed in Annex III of the Convention and subject to the PIC procedure, and requirements of the Convention, can be found at the website of the Secretariat of the Rotterdam Convention: <http://www.pic.int/Implementation/Pesticides/tabid/1359/language/en-US/Default.aspx>

Pesticide Management

The following requirements apply to all pesticides that are being supplied directly by FAO and to pesticides supplied by others within the framework of FAO projects.

6. Procurement of pesticides should be preceded by a thorough risk assessment, which should lead to adequate measures to reduce health and environmental risks to acceptable levels.
7. Quantities to be provided should be based on an accurate assessment of actual needs in order to avoid over-use or accumulation of stockpiles that may become obsolete. Pesticides should not be provided as fixed components of input packages of projects, credit schemes or emergency assistance.
8. Appropriate application equipment and protective gear should be provided in adequate quantities along with the pesticides, unless it is explicitly confirmed that the recommended equipment and gear is already sufficiently available.

³⁴The hazard classification concerns the formulated product. Formulations with a low concentration of active ingredient are less hazardous than formulations with a high concentration of the same active ingredient. The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification (http://www.who.int/ipcs/publications/pesticides_hazard/en/) classifies technical products based on acute oral and dermal toxicity. It includes a conversion table that allows determination of the hazard class for the pesticide formulation under consideration. Towards 2008, this list will be replaced by the Globally Harmonized System of Classification and Labeling of Chemicals, which in addition to acute toxicity also take into consideration chronic health risks and environmental risks (http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html). The term "pesticide formulation" means the combination of various ingredients designed to render the product useful and effective for the purpose claimed; the form of pesticide as purchased by users. The term "active ingredient" means the biologically active part of the pesticide.

9. Training of users may be required to ensure they are capable of handling the supplied pesticides in a proper and responsible manner.
10. Proper storage of pesticides in accordance with FAO guidelines should be ensured for all supplies.

Clearance

The following documents and activities require clearance from the respective FAO Sub- and/or Regional Coordinator and Plant Protection Officer. Review and clearance of pesticide purchase requests including treated seeds and treatment of stored agricultural products will be carried out in close collaboration with FAO HQ based Pest and Pesticide Management Group (AGPMC) (c/o Senior Officer Pesticide Risk Reduction Group (AGPMC)):

- All orders for pesticides to be procured by FAO, regardless of whether bought through Headquarters order, field project order or local purchase.
- Project documents that envisage procurement of pesticides.
- Terminal reports for projects that involved pesticide supply.

Requests for clearance should be submitted to the respective FAO Sub-/Regional Coordinator and Plant Protection Officer (focal point for pesticides and crop protection). Requests for procurement of pesticides must include a completed Request for Procurement of Pesticides for each pesticide.

In addition, clearance must be obtained from the respective FAO Sub-/Regional Coordinator and Plant Protection Officer for any contemplated collaboration with a pesticide company or other entity of the pesticide industry (e.g. in designing or implementing training). This in addition to the established general procedure for OPC approval of collaboration with the private sector as described in DGB 2014/14.

Conditions to be met for purchase and use of pesticides

For the purchase and use of any pesticide product, it must be assured, that the following conditions are met:

- The product must be registered in the *target country* by the respective national authority;
- The company providing the pesticide has to declare that they are observing the **FAO/WHO International Code of Conduct on Pesticide Management**, especially its provisions on labeling³⁵, as well as packaging and transport of pesticides;
- Individuals involved in applying the pesticide will be trained in the use of protective equipment, use of the pesticide application equipment and protection of health and the environment from exposure to pesticides;
- The protective equipment supplied to applicators complies with EC, US or appropriate

³⁵Reference to Guideline on Good labeling practice for pesticides:
<http://www.fao.org/ag/AGP/AGPP/Pesticid/Code/Download/label.pdf>

internationally accepted standards;

- Suitable application equipment that permits pesticide applicators to apply the pesticide in the correct dose without causing human and environmental exposure, will be used or provided if it is not available;
- All empty pesticide containers will be triple rinsed and punctured in accordance with FAO guidelines³⁶

If pesticides are to be purchased for seed treatment (seed storage chemical or seed treatment), the following conditions must be met:

At the seed treatment facility:

- Each pesticide seed treatment product must be cleared by AGP and must be registered in *Countries concerned (importing/exporting country)* by the relevant national authority/authorities.
- The company providing the pesticide has to declare that they are observing the **FAO/WHO International Code of Conduct on Pesticide Management**, especially its provisions on labeling, as well as packaging and transport of pesticides or pesticide-treated seeds.
- Users of seeds treated with pesticides must adhere to the necessary precautionary measures described on the product labels (e.g. wearing a protective mask, goggles and gloves).
- The treatment of seeds must be done in an appropriately equipped facility that ensures full containment of the pesticides.
- Users of seed treatment equipment should be provided with suitable application equipment and instructed on calibration, use and cleaning of the equipment.
- Treated seeds must be dyed using an unusual and unpalatable color to discourage consumption.
- All packages containing treated seeds must be clearly marked "*Not for human or animal consumption*" and with the skull and crossbones symbol for poison.

At the point of use of the treated seeds:

- Those handling treated seeds should be informed that the seeds are treated with pesticides, which can have toxic effects on their health, the health of others and on the environment.
- Handlers should be advised to wear clothes that fully cover their body (long sleeves, long trousers/skirt and closed shoes), and, if not available, be provided with gloves and dust masks and instructed on their use and advised to wash themselves and their clothes after handling

³⁶Reference to Guideline on Management options of empty pesticide containers:
http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Containers08.pdf

the seed.

- Packaging from treated seeds should not be reused for any purpose.

Further guidance

Further guidance on all aspects of pesticide distribution, handling and use, is provided by the International Code of Conduct on Pesticide Management, and the Technical Guidelines that have been produced in support of the Code itself (Copies are available from the AGPMC website: <http://www.fao.org/agriculture/crops/core-themes/theme/pests/en/>).

The Plant Production and Protection Department (AGPM) and Pest and Pesticide management group/Pesticide Risk Reduction team (AGPMC) and Sub-, Regional Plant Protection Officers will be available to provide further clarification.

SAMPLE: Simplified Pest Management Plan (PMP):

This simplified PMP aims to provide basic knowledge to the national, provincial and municipal government, the project implementation team, consultants, village officials, and any private and public sector agencies partnered with for the purposes of the project, with adequate guidance for effectively addressing the safeguard issues in line with ESS5. The process will be implemented as part of the project cycle and fully integrated into the sub-activity selection, approval, implementation, and monitoring and evaluation process. The project ESMF identifies key issues related to the existing use of pesticide and identified mitigation measures required in relation to prohibited items, training, and guidelines on safe use and disposal of pesticides. The PMP will be applicable for Marabu management project activities related mostly to: **Outcome 1** Strengthened adaptive capacity and reduced exposure to climate risks, Activity 1.1 Restore approximately 15,544 ha of farmland from Marabu, and increase CC-resilience through sustainable agroforestry (AF), CTNPFs and assisted natural regeneration.

Responsible agency: The project staff at central and local levels will be responsible for implementation of the PMP and ensuring full compliance, including keeping proper documentation in the project file for possible review by the GCF and FAO.

This document is considered a living document and could be modified and changed as it is appropriated. Close consultation with the GCF and FAO, including final clearance of revisions to the PMP, will be necessary.

SECTION I. POLICY AND REGULATIONS

FAO's safeguard policy on pest management (ESS5):

The ESS5 policy requires that projects involving procurement and/or use of pesticides to prepare and implement a Pest Management Plan to ensure that the handling, transportation, usage, disposal of pesticides is safe for both humans and the environment. This simplified Pest Management Plan was prepared due the use of chemical pesticides just for the Marabu management. To mitigate this potential impact, this simplified PMP has been prepared outlining clear regulations and procedures for management of pesticides and/or toxic chemical as well as providing knowledge and training on health impacts and safe use of pesticides. The simplified PMP follows the Joint Resolution MINSAP-MINAGRI "Regulation containing the provisions governing the use of pesticide formulations in the national territory

and the expansion of the functions and structure of the Central Pesticide Registry and of the Specialist Advisory Committee attached to said Register", 2007, NC 804:2010 Pesticide Storage, Decree 169/1992 Contraventions of plant health regulations and the Decree Law . 153/ 1994 (Vegetable Health). It includes guidelines and best practices and guidelines on Integrated Pest Management (IPM) provided by the Food and Agriculture Organization of the United Nations

Relevant definitions under ESS 5 include the following:

- **Pesticides** as any substance, or mixture of substances of chemical or biological ingredients intended for repelling, destroying or controlling any pest or regulating plant growth.
- **Pest** is defined as any species, strain or biotype of plant, animal or pathogenic agent injurious to plants and plant products, materials or environments and includes vectors of parasites or pathogens of human and animal disease and animals causing public health nuisance.

The ESS5 safeguard recognizes that pesticides can contribute to effective crop and food protection during production and in storage. Pesticides are also used in forestry, livestock production and aquaculture to control pests and diseases. At the same time pesticides are designed to be toxic to living organisms, are intentionally dispersed in the environment and are applied to food crops. ESS 5 recognizes that pesticide use poses risks to users, others nearby, consumers of food and to the environment. In LMICs these risks are often elevated by overuse, misuse and lack of effective regulatory control. ESS5 follows the guidance on the life-cycle management of pesticides as provided by the International Code of Conduct on Pesticide Management and its supporting technical guidelines that are drawn up by a FAO\WHO expert panel and expand on specific articles. Given that there is controlled use of pesticides in the project areas, particularly with regard to Marabumangement, this policy is being triggered. To mitigate against this, the project will be using IPM and also avoiding the use of any Highly Hazardous Pesticides.

The Project staff will work closely with the Vegetable Health Department of the Agriculture Ministry to apply the Pest Management Plan and subsequent IPM.

SECTION II. KEY ISSUES AND MITIGATION MEASURES

Key issues related to use of pesticide and chemical fertilizer:

The PMP is developed to support project community and a responsibility of all parties to support the implementation and proper applicability of the ESS5. Negative impacts from the use of pesticides are expected to be minor and localized and could be mitigated during the planning and implementation of the project. The project will promote IPM to avoid inappropriate use of these inputs. However, it is important for the PMU, government staff, and local communities to understand the nature of such activities to encourage farmers to reduce the risks of uses of pesticides. Just the Marabu management could be associated with the uses of pesticides under the Project.

Actions for mitigation:

The negative impacts from the use of pesticides from project activities would be minor and localized and could be mitigated during the planning and implementation of the project. During the consultation stage with cooperatives, there are opportunities to enhance positive impact during the planning and selection of the sub-activities. Below summarize the activities to be carried out during the planning and

implementation of the project as they relate to pest management.

a) Prohibition

- Anything in violation of the Pesticide Code of Conduct.
- Procurement and/or use of highly hazardous pesticides or those that are not nationally validated or that are internationally regulated, especially by FAO and environmental conventions.

b) Project and Government Staff Training

The project will continue providing basic knowledge on alternative options for climate-resilient agriculture development and /or livelihood activities, including safe use of pesticides. Budget is allocated under Outcome 2: Strengthened institutional and farmer capacities to improve ecosystem services through agroforestry and forestry systems and enhance the climate-resilience of production landscapes, specially the project staff training

c) Providing Training and Knowledge to Farmers

The training on pest management should be provided by experts in Farmer Field Schools on the following areas:

- **Pest management training:** The objective is to provide basic knowledge to the target farmer on prohibited pesticides, the negative impacts of the use of pesticides on environmental and human health, and how to mitigate their negative impacts. It is also to inform farmers that the project is not intended to support the use of any pesticides and chemical fertilizers in any agricultural productivity but promote climate resilient agriculture and conservation agriculture instead. However, the country has enough experienced about the usage of pesticides..
- **Training on Government of Cuba regulations:** The project will train target farmers on national rules/regulations pertaining to pesticide use before any sub-activities are implemented, subject to compliance with ESS5.
- **Technical training:** This training would aim at enabling target farmers to clearly understand the technical aspects of pesticides, and skills in using them (e.g. what are the eligible and prohibited items of pesticides in Cuba, the level of negative impacts for each eligible item, how to properly use them, how to protect and minimize the negative impacts while using them, how to keep them before and after use, etc.). Trainers would be someone from FAO or relevant specialists from the Vegetable Health department from de Agriculture Ministry who is knowledgeable on the topic.
- **Procurement, storage, and usage of pesticides:** That said, any pesticides currently used in the project areas would require proper storage and usage monitoring throughout the course of the project, and this responsibility will lie fully with FAO and/or contracted parties at the village level (when/where applicable). FAO and any contracted parties should strictly follow The Resolution No. 132/2009 "Regulation of the environmental impact assessment process",

the Resolution No. 136/2009 "Regulation for the integral management of hazardous wastes", and the NC 804:2010 Pesticide Storage particularly concerning transportation, storage, trans-boundary transportation of pesticides, and the safe use of pesticides.

- Continued monitoring of pesticide use: As part of the regular monitoring of project activity, the UNGP) safeguard specialist will lead the monitoring activities but at municipal level will delegate its responsibilities to one member of the project local team. These delegates will monitor changes in pesticide use in all project areas. Programs and trainings will be specifically amended to address any such changes.

d) Promotion of non-chemical agriculture:

The project has been designed also to promote good agricultural practices and conservation of natural resources based on expected climate changes. It is anticipated that linking the climate-resilient agriculture activities with conservation agriculture techniques will be important for improving quality of life and climate-resiliency among farmers. Sustainable use of natural resources would be critical for farmers' livelihood development and poverty reduction. In this context, a "conservation agriculture technique" should be introduced for target communities, if and when applicable. During the planning process, actions will be carried out by FAO and any contracted implementation parties to plan and train farmers.

Implementation arrangement and budget

(a) Planning and implementation

In close cooperation with the Vegetable Health Department of Agriculture Ministry, the UNGP staff will be responsible for providing training to project staff at the provincial and local levels, including any local facilitators that may be used for the purposes of consultation and planning. Budget for training will be included in the sub-activity cost or capacity building as appropriate, under outcome 1 and 2 .

(b) Monitoring

Project staff at the local level will work with the representative of the Vegetable Health Department of Agriculture Ministry staff for the monitoring of the use of pesticides in target communities ensuring pesticides are properly kept and transported to the target areas; c) ensuring training delivery to the user before distribution; and d) monitoring compliance and usage of pesticide according to the Cuban Government regulations. The safeguard specialist in the UNGP will carry out periodic review missions (e.g. every six months) to check for compliance.

APPENDIX 6.4: CHANCE FIND PROCEDURES

The following "*chance find*" procedures must be included in all third-party contracts (e.g. Letters of Agreement), in instances where the contracted party is assisting with implementation of Outcome 1 :

If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards

and/or individual graves during project implementation, the Contractor shall:

- Stop the activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the National Culture Ministry take over;
- Notify the supervisory Safeguards Specialist within the UNGP who, in turn, will notify the responsible local and provincial authorities immediately (within 24 hours or less);
- Responsible local and/or provincial authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by government approved archeologists. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
- Decisions on how to handle the finding shall be taken by the responsible local and provincial authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities; and
- Project activities could resume only after permission is given from the responsible local or provincial authorities concerning safeguard of the heritage.

Note that the reporting of chance finds only occurs when an item/area/etc. of cultural significance is found, and is only carried out insofar as what is detailed above (i.e. reporting the find, reporting how the item/area will be treated moving forward). Reporting begins with the local level implementer (e.g. staff tasked to the implement the project within a village) notifying the Safeguards Specialist, after which, the Safeguards Specialist guides the process according to the instructions above (e.g. notifying the relevant government authorities).

APPENDIX 6.5 ENVIRONMENTAL AND SOCIAL SCREENING FORM

Every sub-activity will must undergo an initial screening, utilizing FAO's Safeguards Screening Checklist, found at the end of this annex. Based on the screening, sub-activities will be categorized as low, moderate, or high risk. Based on the screening, sub-activities will either be approved for implementation, or will be amended to meet the requirements detailed within this ESMF (specifically, all sub-activities must have low-to-moderate impact; high risk sub-activities will not be allowed under the project, nor will sub-activities which involve elements listed in the Appendix 6.1 Non-Eligibility List of this document).

Guidance and Examples for Sub-Activity Categorization

Categorization: To ensure that the extent of the review is commensurate with the nature of risk, categorization is a useful step in procedures where based on basic information about a project such as sector and scale, the level of environmental and social (E&S) risk the project could pose is determined. This also enables the UNGP Safeguards Specialist to determine the extent and sophistication of the E&S review required. Categorization may be low, moderate or high. For the purposes of this project, all sub-activities are expected to be Category B (Medium) or Category C (Low) risk.

High Risk (Category A) Sub-Activity

The location of the farmers/project enterprise or activity may be:

- In regions where there are conflicts in natural resources allocation;
- Near watercourses, aquifer recharges areas or in reservoirs used for potable water supply; or in or close to lands or waters containing valuable resources.

Examples of sensitivity issues are those where the sub-activity can:

- Cause adverse global or regional environmental impacts;
- Lead to toxic waste disposal.

Examples where the nature of the sub-activity may:

- Cause irreversible degradation or unsustainable exploitation of natural resources; or
- Pose serious risks of significant harm to human health and safety.

Examples of the magnitude of the sub-activity where:

- A high amount of scarce resources may be put at risk;
- The timing and duration of the negative impacts are long; or
- The cumulative effects of many similar, but individually small transactions together lead to serious impacts.

Category A sub-activities are perceived to have significant adverse environmental and/or social impacts,

and are not permitted to form part of the target portfolio.

Medium Risk (Category B) Sub-Activity

Transactions with a limited number of potentially adverse environmental or social impacts that are generally site-specific, largely reversible, and readily addressed through mitigation measures that reduce the risk to moderate or low levels are normally classified as Category B. The following characteristics indicate a Category B:

- Environmental and social risks for the most part are mostly limited to and readily mitigated through application of good practice as described in relevant Environmental, Health and Safety Guidelines;

Low Risk (Category C) Sub-Activity

Sub-activity proposals that are perceived to have minimal or no adverse environmental or social impacts are classified as Category C, and no further environmental or social assessment work needs to be done after initial screening and categorization.

Environmental and Social Risk Identification – Screening Checklist

TRIGGER QUESTIONS:

	Question	YES	NO
1	Would this project: <ul style="list-style-type: none"> • result in the degradation (biological or physical) of soils or undermine sustainable land management practices; or • include the development of a large irrigation scheme, dam construction, use of waste water or affect the quality of water; or • reduce the adaptive capacity to climate change or increase GHG emissions significantly; or • result in any changes to existing tenure rights³⁷ (formal and informal³⁸) of individuals, communities or others to land, fishery and forest resources? 	✓	
2	Would this project be executed in or around protected areas or natural habitats, decrease the biodiversity or alter the ecosystem functionality, use alien species, or use genetic resources?	✓	
3	Would this project: <ul style="list-style-type: none"> • Introduce crops and varieties previously not grown, and/or; • Provide seeds/planting material for cultivation, and/or; • Involve the importing or transfer of seeds and or planting material for cultivation <u>or</u> research and development; • Supply or use modern biotechnologies or their products in crop production, and/or • Establish or manage planted forests? 	✓	

³⁷ Tenure rights are rights to own, use or benefit from natural resources such as land, water bodies or forests

³⁸ Socially or traditionally recognized tenure rights that are not defined in law may still be considered to be 'legitimate tenure rights'.

	Question	YES	NO
4	Would this project introduce non-native or non-locally adapted species, breeds, genotypes or other genetic material to an area or production system, or modify in any way the surrounding habitat or production system used by existing genetic resources?		✓
5	<p>Would this project:</p> <ul style="list-style-type: none"> • result in the direct or indirect procurement, supply or use of pesticides³⁹: <ul style="list-style-type: none"> ▪ on crops, livestock, aquaculture, forestry, household; or ▪ as seed/crop treatment in field or storage; or ▪ through input supply programmes including voucher schemes; or ▪ for small demonstration and research purposes; or ▪ for strategic stocks (locust) and emergencies; or ▪ causing adverse effects to health and/or environment; or • result in an increased use of pesticides in the project area as a result of production intensification; or • result in the management or disposal of pesticide waste and pesticide contaminated materials; or • result in violations of the Code of Conduct? 		
6	Would this project permanently or temporarily remove people from their homes or means of production/livelihood or restrict their access to their means of livelihood?		✓
7	Would this project affect the current or future employment situation of the rural poor, and in particular the labour productivity, employability, labour conditions and rights at work of self-employed rural producers and other rural workers?		✓
8	Could this project risk overlooking existing gender inequalities in access to productive resources, goods, services, markets, decent employment and decision-making? For example, by not addressing existing discrimination against women and girls, or by not taking into account the different needs of men and women.		✓
9	<p>Would this project:</p> <ul style="list-style-type: none"> • have Indigenous peoples* living outside the project area¹ where activities will take place; or • have Indigenous peoples living in the project area where activities will take place; or • adversely or seriously effect on Indigenous peoples' rights, lands, natural resources, territories, livelihoods, knowledge, social fabric, traditions, governance systems, and culture or heritage (physical² and non-physical or intangible³) inside and/or outside the project area; or • be located in an area where cultural resources exist? <p>* FAO considers the following criteria to identify Indigenous peoples: priority in time with respect to occupation and use of a specific territory; the voluntary perpetuation of cultural distinctiveness (e.g. languages, laws and institutions); self-identification; an experience of subjugation, marginalization, dispossession, exclusion or discrimination (whether or not these conditions persist).</p> <p>¹The phrase "Outside the project area" should be read taking into consideration the likelihood of project activities to influence the livelihoods, land access and/or rights of Indigenous Peoples' irrespective of physical distance. In example: If an Indigenous community is living 100 km away from a project area where fishing activities will affect the river yield which is also accessed by this community, then the user should answer "YES" to the question.</p>		✓

³⁹ Pesticide means any substance, or mixture of substances of chemical or biological ingredients intended for repelling, destroying or controlling any pest, or regulating plant growth.

Question	YES	NO
<p>²Physical defined as movable or immovable objects, sites, structures, group of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance located in urban or rural settings, ground, underground or underwater.</p> <p>³Non-physical or intangible defined as "the practices, representations, expressions, knowledge and skills as well as the instruments, objects, artifacts and cultural spaces associated therewith that communities, groups, and in some cases individuals, recognize as part of their spiritual and/or cultural heritage"</p>		

Second Level Questions

Safeguards listed here are those designated as applicable to this project — see table in Executive Summary.

SAFEGUARD 1 NATURAL RESOURCES MANAGEMENT

Question	Management of soil and land resources	No	Yes	Comments
1.1	Would this project result in the degradation (biological or physical) of soils	LOW RISK	<p>MODERATE RISK</p> <p>Demonstrate how the project applies and adheres to the principles of the World Soil Charter</p>	<p>MODERATE RISK Even though the project is suggesting the use of heavy machinery, it will not lead to long-term significant soil degradation. The heavy machinery has been selected taking in consideration its low soil impact and, versatility for a controlled management in defined types of activities: equipment for the Marabu control: this new machinery, will replace the use of bulldozer (negatively impacting) and will allow better management and use of the residues of the Marabu. The use of this machinery will be carried out only once in each area. The possible compaction impacts will be minimal and will be amended by the use of appropriate agricultural implements. Within the project implementation, the number of activities using machinery for the land preparation will follow the principles of conservation agriculture with minimum tillage tendency and a strict selection of implements. Agroecological</p>

				actions are foreseen for the improvement of soils, including the use of organic fertilizers and measures to protect against erosion, among others measures from the Cuban National Soil Conservation and Improvement Program.
1.2	Would this project undermine sustainable land management practices?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK: better practices will be introduced and promoted

	Management of water resources and small dams	No	Yes	Comments
1.3	Would this project develop an irrigation scheme that is more than 20 hectares or 1000 m3/day of water?	LOW RISK	MODERATE RISK Specify the following information: a) implementation of appropriate efficiency principles and options to enhance productivity, b) technically feasible water conservation measures, c) alternative water supplies, d) resource contamination mitigation or/and avoidance, e) potential impact on water users downstream, f) water use offsets and demand management options to maintain total demand for water resources within the available supply. g) The ICID-checklist will be included, as well as appropriate action within the project to mitigate identified potential negative impacts. h) Projects aiming at improving water efficiency will carry out thorough water accounting in order to avoid possible negative impacts such as waterlogging, salinity or	LOW RISK: The development of new irrigation schemes that is more than 20 ha or withdraws more than 1000 m3/day of water are not included. ⁴⁰ Groundwater will not be extracted from rivers or other natural sources, but only rainwater harvested in small reservoirs that will build the project will be used for irrigation. Measures are established for the efficient use of water in the mitigation plan, chapter 7

⁴⁰ See more information on irrigation in the ANNEX 2 Feasibility Study, APPENDIX 2.6, Agroforestry Modules for Landscape Restoration

	Management of water resources and small dams	No	Yes	Comments
			reduction of water availability downstream.	
1.4	Would this project develop an irrigation scheme that is more than 100 hectares or withdraws more than 5000 m3/day of water?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK: The development of new Irrigation schemes that is more than 100 ha or withdraws more than 1000 m3/day of water are not included.
1.5	Would this project aim at improving an irrigation scheme (without expansion)?	LOW RISK	MODERATE RISK The ICID-checklist will be included, as well as appropriate action within the project to mitigate identified potential negative impacts. Projects aiming at improving water efficiency will carry out thorough water accounting in order to avoid possible negative impacts such as waterlogging, salinity or reduction of water availability downstream.	LOW RISK: It will be managed in small irrigation systems and for animal supplies
1.6	Would this project affect the quality of water either by the release of pollutants or by its use, thus affecting its characteristics (such as temperature, pH, DO, TSS or any other)?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK: no significant effects on water quality are expected as a result of the limited application of fertilizers, its use will be punctual, in selected areas, under the supervision of the Department of Soils of the Ministry of Agriculture, which will carry out a status update of the soil to determine minimum application rates. National regulations in this regard will be followed and the "International Code of Conduct for the Use and Management of Fertilizers" of FAO, (attention to the use of chemicals is assumed within safeguard 2.3, safeguard 1.6 is not activated) the use of pesticides is as well analyzed in safeguards 2.3 and 5
1.7	Would this project include the usage of wastewater?	LOW RISK	MODERATE RISK	LOW RISK: The use of wastewater was not included

	Management of water resources and small dams	No	Yes	Comments
			Demonstrate how the project applies and adheres to applicable national guidelines or, if not available, the WHO/FAO/UNEP Guidelines on Safe Usage of Waste Water in Agriculture	
1.8	Would this project involve the construction or financing of a dam that is more than 15 m. in height?	LOW RISK	CANNOT PROCEED	LOW RISK: Dams construction was not included.
1.9	Would this project involve the construction or financing of a dam that is more than 5 m. in height?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK: Dams construction was not included.

	Tenure	No	Yes	Comments
1.10	Would this project permanently or temporarily remove people from their homes or means of production/livelihood or restrict their access to their means of livelihood?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK: No
1.11	Would this project permanently or temporarily deny or restrict access to natural resources to which they have rights of access or use	LOW RISK	PROCEED TO NEXT Q	LOW RISK: No
1.11.1	Would the denial or restriction of access be voluntary and with the agreement of the affected people?	CANNOT PROCEED	MODERATE RISK Demonstrate how the project applies and adheres to the principles/framework of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT)	No
1.12	Would the project bring about consolidation or adjustment of tenure rights?	LOW RISK	PROCEED TO NEXT Q	LOW RISK: No
1.12.1	Would the consolidation or adjustment of tenure rights be voluntary and with the agreement of the affected people?	CANNOT PROCEED	MODERATE RISK Demonstrate how the project applies and adheres to the principles/framework of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the	No

			Context of National Food Security (VGGT)	
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	Climate	No	Yes	Comments
1.13	Would this project result in a reduction of the adaptive capacity to climate change for any stakeholders in the project area?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK:
1.14	Would this project result in a reduction of resilience against extreme weather events?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK:
1.15	Would this project result in a net increase of GHG emissions beyond those expected from increased production?	LOW RISK	PROCEED TO NEXT Q	LOW RISK:
1.15.1	Is the expected increase below the level specified by FAO guidance or national policy/law (whichever is more stringent)?	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK	LOW RISK:
1.15.2	Is the expected increase above the level specified by FAO guidance or national policy/law (whichever is more stringent)?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK:

SAFEGUARD 2 BIODIVERSITY, ECOSYSTEMS AND NATURAL HABITATS

	Protected areas, buffer zones or natural habitats	No	Yes	Comments
2.1	Would this project be implemented within a legally designated	LOW RISK	HIGH RISK A full environmental and social impact assessment is required.	LOW RISK:

	protected area or its buffer zone?		Please contact the ESM unit for further guidance.	
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	Biodiversity Conservation	No	Yes	Comments
2.2	Would this project change a natural ecosystem to an agricultural/aquacultural/forestry production unit with a reduced diversity of flora and fauna?	LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK:
2.3	Would this project increase the current impact on the surrounding environment for example by using more water, chemicals or machinery than previously?	LOW RISK	MODERATE RISK Demonstrate in the project document what measures will be taken to minimize adverse impacts on the environment and ensure that implementation of these measures is reported in the risk log during progress reports.	MODERATE RISK: The project will not result in significant negative impacts on surrounding areas by higher usage of water, chemicals and machinery. The water management will follow the Cuban "Water Plan" 41 established regulations, without creating competition with the human water supply or pressure on the aquifer basins (without extracting underground water, or using water from rivers or other natural sources),and also without affecting the ecological flow. Rainwater harvest will be promoted and sustainable managed, in small irrigation systems (smaller than 6 Ha) that will be installed in specially selected areas, also for nurseries and animal supplies. In addition, efficient irrigation systems will be promoted. Small amounts of environmental waste could be generated due to the application of slow-release chemical fertilizers that do not completely decompose. The project's strategy is addressed to use the fertilizers just in some specific areas, just during the initial phase, and then replacing it by organic fertilizers, expanding its production. The heavy machinery will be mainly used to eliminate the Marabu (<i>Dichrostachys cinerea</i>). The

⁴¹ Water Plan: Official National mechanism for the water efficient management planning; under the National Water Resources Institute (INRH) for supervision.

	Biodiversity Conservation	No	Yes	Comments
				equipment will be acquired to replace the inefficient machinery (bulldozers), and the selection will be following well-defined selection criteria taking in consideration the principles of conservation agriculture. Its use will guarantee the landscapes restoration, the recovering of the local lands productive capacities and will help to reach the food security. It will be apply conservation agriculture principles and minimum tillage, including an adequate implements selection addressing to reduce the negative impacts on the soil.

	Use of alien species	No	Yes	Comments
2.4	<p>Would this project use an alien species which has exhibited an invasive* behavior in the country or in other parts of the world or a species with unknown behavior?</p> <p>*An invasive alien species is defined by the Convention on Biological Diversity as “ an alien species whose introduction and/or spread threaten biological diversity” ⁴²</p>	LOW RISK	<p>HIGH RISK</p> <p>A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.</p>	<p>MODERATE RISK: From the original design of the project, all species proposed were checked in order to identify the ones with the high potential invasiveness risk, the ones identified were excluded and substituted by others native or not invasive with high potential. At the end, only one specie had been proposed with a moderate risk of invasiveness. This specie in other conditions manifest a potential to be an invasive alien species. In the case of the implementation area of the project; the specie already exist embedded in agroecosystems and livestock systems. The technologies designed consider measures evaluated and validated for more than 20 years by Cuban scientific institutions, with the approval of environmental authorities and guarantee that due to the management there are minimal risks for agrobiodiversity and natural</p>

⁴² see <https://www.cbd.int/invasive/terms.shtml>.

				biodiversity. In order to keep monitoring and assessing any possibility of invasiveness, management measures have been proposed. See Annex 2, Appendix 2.6 for more details in the project proposal.
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	Access and benefit sharing for genetic resources	No	Yes	Comments
			MODERATE RISK	
			Ensure that the following issues are considered and appropriate action is taken. The issues identified and the action taken to address them must be included in the project document and reported on in progress reports.	
			For plant genetic resources for food and agriculture (PGRFA) falling under the Multilateral System of Access and Benefit-sharing (MLS) of the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty), ensure that Standard Material Transfer Agreement (SMTA) has been signed and comply with SMTA provisions.	
			For genetic resources, other than PGRFA falling under the MLS of the Treaty:	
2.5	Would this project involve access to genetic resources for their utilization and/or access to traditional knowledge associated with genetic resources that is held by indigenous, local communities and/or farmers?	LOW RISK	<ol style="list-style-type: none"> 1. Ensure that, subject to domestic access and benefit-sharing legislation or other regulatory requirements, prior informed consent has been granted by the country providing the genetic resources that is the country of origin of the resources or that has acquired the resources in accordance with the Convention on Biological Diversity, unless otherwise determined by that country; and 2. Ensure that benefits arising from the utilization of the genetic resources as well as subsequent applications and commercialization are shared in a fair and equitable way with the country providing the genetic resources that is the country of origin of the resources or that has acquired the resources in accordance with the Convention on Biological Diversity; and 	LOW RISK:

	Access and benefit sharing for genetic resources	No	Yes	Comments
			<p>3. Ensure that, in accordance with domestic law, prior informed consent or approval and involvements of indigenous and local communities is obtained for access to genetic resources where the indigenous and local communities have the established right to grant such resources; and</p> <p>4. Ensure that, in accordance with domestic legislation regarding the established rights of these indigenous and local communities over the genetic resources, are shared in a fair and equitable way with the communities concerned, based on mutually agreed terms.</p> <p>For traditional knowledge associated with genetic resources that is held by indigenous and local communities:</p> <p>1. Ensure, in accordance with applicable domestic law, that knowledge is accessed with the prior and informed consent or approval and involvement of these indigenous and local communities, and that mutually agreed terms have been established; and</p> <p>2. Ensure that, in accordance with domestic law, benefits arising from the utilization of traditional knowledge associated with genetic resources are shared, upon mutually agreed terms, in a fair and equitable way with indigenous and local communities holding such knowledge.</p> <p>Ensure that the project is aligned with the Elements to Facilitate Domestic Implementation of Access and Benefit Sharing for Different Subsectors of Genetic Resources for Food and Agriculture when it is the case</p>	

SAFEGUARD 3 PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

	Introduce new crops and varieties	No	Yes	Comments
			MODERATE RISK	
3.1	Would this project introduce crops and varieties previously not grown?	LOW RISK	<ul style="list-style-type: none"> Follow appropriate phytosanitary protocols in accordance with IPPC Take measures to ensure that displaced varieties and/or crops, if any, are included in the national or 	LOW RISK The project proposal will not introduce non-existent crops or varieties in the country or in the implementation areas. The species that will be managed by the project

			international <i>ex situ</i> conservation programmes	are those of wide national distribution (whether native or not), they all exist in the areas. Forest, cultivated and exotic species have been present in these areas for a long time (more than 40 and almost 400 years) It is not reported that exotic species constitute a risk of substitution or pests for any of the crops, nor that they have a negative phytosanitary impact, on the contrary, the proposed systems (silvopastoral and agroforestry) provide different habitats for insect species, since a microclimate is created which favors its development; in addition, it allows complex interactions to be established , which will imply a greater balance between phytophagous and bioregulators, favoring the latter, as well as other beneficial organisms.
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	Provision of seeds and planting materials	No	Yes	Comments
3.2	Would this project provide seeds/planting material for cultivation?	LOW RISK	PROCEED TO NEXT Q	LOW RISK
3.2.1	Would this project involve the importing or transfer of seeds and/or planting materials for cultivation?	LOW RISK	<p>MODERATE RISK</p> <ul style="list-style-type: none"> • Avoid undermining local seed & planting material production and supply systems through the use of seed voucher schemes, for instance • Ensure that the seeds and planting materials are from locally adapted crops and varieties that are accepted by farmers and consumers • Ensure that the seeds and planting materials are free from pests and diseases according to agreed norms, especially the IPPC • Internal clearance from AGPMG is required for all procurement of seeds and planting materials. Clearance from AGPMC is required for chemical treatment of seeds and planting materials • Clarify that the seed or planting material can be legally used in the country to which it is being imported 	<p>MODERATE RISK</p> <p>The project will not import nor transfer seeds from other regions of the country but will provide them for cultivation from seed farms and local seed sources identified, based on the species and varieties already existing in the municipalities (plus trees of selected forest species and certified by the state forest service in each municipality). Seed farms will contribute to better management, better selection and quality and therefore better indicators of germination and productive yields. The species to be planted are known and managed by the producers; there is no rejection towards any. The phytosanitary measures established for seed management and the National Seed and Plant Genetic Resources Policy</p>

			<ul style="list-style-type: none"> Clarify whether seed saving is permitted under the country's existing laws and/or regulations and advise the counterparts accordingly. Ensure, according to applicable national laws and/or regulations, that farmers' rights to PGRFA and over associated traditional knowledge are respected in the access to PGRFA and the sharing of the benefits accruing from their use. Refer to ESS9: Indigenous peoples and cultural heritage. 	and its Certification system will be adopted. There is no risk of claims about distribution and access to benefits resulting from the use of plant genetic resources, there are no national regulations in this regard.
3.2.2	Would this project involve the importing or transfer of seeds and/or planting materials for research and development?	LOW RISK	<p>MODERATE RISK</p> <p>Ensure compliance with Access and Benefit Sharing norms as stipulated in the International Treaty on Plant Genetic Resources for Food and Agriculture and the Nagoya Protocol of the Convention on Biodiversity as may be applicable. Refer also to ESS2: Biodiversity, Ecosystems and Natural Habitats.</p>	LOW RISK: The project will manage just local seeds, for strictly productive purposes and from local seed farms. There are not regulations about GRs Access and Benefit Sharing in Cuba, it is expected to do not have any kind of conflicts.

	Modern biotechnologies and the deployment of their products in crop production	No	Yes	Comments
3.3	Would this project supply or use modern plant biotechnologies and their products?	LOW RISK	<p>MODERATE RISK</p> <ul style="list-style-type: none"> Adhere to the Cartagena Protocol on Biosafety of the Convention on Biological Diversity to ensure the safe handling, transport and use of Living Modified Organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. Adhere to biosafety requirements in the handling of Genetically Modified Organisms (GMOs) or Living Modified Organisms (LMOs) according to national legislation or⁴³ Take measures to prevent gene flow from the introduced varieties to existing ones and/or wild relatives 	<p>LOW RISK:</p> <p>The project will not import nor transfer seeds for research and development.</p>

⁴³Food and Agriculture Organization of the United Nations. 2011. Biosafety Resource Book. Rome, <http://www.fao.org/docrep/014/i1905e/i1905e00.htm>

	Planted forests	No	Yes	Comments
			MODERATE RISK	
3.4	Would this project establish or manage planted forests?	LOW RISK	<ul style="list-style-type: none"> Adhere to existing national forest policies, forest programmes or equivalent strategies. The observance of principles 9, 10, 11 and 12 of the Voluntary Guidelines on Planted Forests suffice for indigenous forests but must be read in full compliance with ESS 9- Indigenous People and Cultural Heritage. Planners and managers must incorporate conservation of biological diversity as fundamental in their planning, management, utilization and monitoring of planted forest resources. In order to reduce the environmental risk, incidence and impact of abiotic and biotic damaging agents and to maintain and improve planted forest health and productivity, FAO will work together with stakeholders to develop and derive appropriate and efficient response options in planted forest management. 	LOW RISK: The project will establish agroforestry systems, and silvopastoral systems, but not forest plantations.

SAFEGUARD 4 ANIMAL (LIVESTOCK AND AQUATIC) GENETIC RESOURCES FOR FOOD AND AGRICULTURE

	Introduce new species/breeds and change in the production system of locally adapted breeds	No	Yes	Comments
4.1	Would this project introduce non-native or non-locally adapted species, breeds, genotypes or other genetic material to an area or production system?	LOW RISK	PROCEED TO NEXT Q	LOW RISK:
4.1.1	Would this project foresee an increase in production by at least 30% (due to the introduction) relative to currently available locally adapted breeds and can monitor production performance?	CANNOT PROCEED	LOW RISK	LOW RISK:

	Introduce new species/breeds and change in the production system of locally adapted breeds	No	Yes	Comments
4.1	<p>altered organisms, e.g. through selective breeding, chromosome set</p> <p>Altered organisms, e.g. through selective breeding, chromosome set manipulation, hybridization, genome editing or gene transfer and/or introduce or use experimental genetic technologies, e.g. genetic engineering and gene transfer, or the products of those technologies?</p>		<p>Please contact the ESM unit for further guidance.</p>	
4.2	Would this project introduce a non-native or non-locally adapted species or breed for the first time into a country or production system?	LOW RISK	<p>MODERATE RISK</p> <p>A genetic impact assessment should be conducted prior to granting permission to import (cover the animal identification, performance recording and capacity development that allow monitoring of the introduced species/ breeds' productivity, health and economic sustainability over several production cycles)</p> <ul style="list-style-type: none"> http://www.fao.org/docrep/012/i0970e/i0970e00.htm ftp://ftp.fao.org/docrep/fao/012/i0970e/i0970e03.pdf 	LOW RISK:
4.3	Would this project introduce a non-native or non-locally adapted species or breed, independent whether it already exists in the country?	LOW RISK	<p>MODERATE RISK</p> <ul style="list-style-type: none"> If the project imports or promotes species/breeds with higher performance than locally adapted ones, ensure: feed resources, health management, farm management capacity, input supply and farmer organization to allow the new species/breeds to express their genetic potential Follow the OIE terrestrial or aquatic code to ensure the introduced species/breed does not carry different diseases than the local ones Include a health risk assessment and farmer/veterinary capacity 	LOW RISK:

	Introduce new species/breeds and change in the production system of locally adapted breeds	No	Yes	Comments
			development in the project to ensure the introduced species/breed do not have different susceptibility to local diseases including ecto-and endo-parasites than the locally adapted/native species/breeds.	
4.4	Would this project ensure there is no spread of the introduced genetic material into other production systems (i.e. indiscriminate crossbreeding with locally adapted species/breeds)?	MODERATE RISK Introduce a) animal identification and recording mechanism in the project and b) develop new or amend existing livestock policy and National Strategy and Action Plan for AnGR	LOW RISK	LOW RISK:

	Collection of wild genetic resources for farming systems	No	Yes	Comments
4.5	Would this project collect living material from the wild, e.g. for breeding, or juveniles and eggs for on-growing?	LOW RISK	MODERATE RISK Guidance to be provided	LOW RISK:

	Modification of habitats	No	Yes	Comments
4.6	Would this project modify the surrounding habitat or production system used by existing genetic resources?	LOW RISK	MODERATE RISK Guidance to be provided	LOW RISK:
4.7	Would this project be located in or near an internationally recognized conservation area e.g. Ramsar or World Heritage	LOW RISK	MODERATE RISK Guidance to be provided	LOW RISK:

	Site, or other nationally important habitat, e.g. national park or high nature value farmland?				
4.8	AQGR	Would this project block or create migration routes for aquatic species?	LOW RISK	MODERATE RISK Guidance to be provided	LOW RISK:
4.9		Would this project change the water quality and quantity in the project area or areas connected to it?	LOW RISK	MODERATE RISK Guidance to be provided	LOW RISK:
4.10	Would this project cause major habitat / production system changes that promote new or unknown chances for geneflow, e.g. connecting geographically distinct ecosystems or water bodies; or would it disrupt habitats or migration routes and the genetic structure of valuable or locally adapted species/stocks/breeds?		LOW RISK	HIGH RISK A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.	LOW RISK:
4.11	Would this project involve the intensification of production systems that leads to land- use changes (e.g. deforestation), higher nutrient inputs leading to		LOW RISK	MODERATE RISK Guidance to be provided	LOW RISK:

	soil or water pollution, changes of water regimes (drainage, irrigation)?			
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SAFEGUARD 5 PEST AND PESTICIDES MANAGEMENT

	Supply of pesticides by FAO	No	Yes	Comments
5.1	Would this project procure, supply and/or result in the use of pesticides on crops, livestock, aquaculture or forestry?	LOW RISK	<p>MODERATE RISK</p> <ul style="list-style-type: none"> Preference must always be given to sustainable pest management approaches such as Integrated Pest Management (IPM), the use of ecological pest management approaches and the use of mechanical/cultural/physical or biological pest control tools in favour of synthetic chemicals; and preventive measures and monitoring, When no viable alternative to the use of chemical pesticides exists, the selection and procurement of pesticides is subject to an internal clearance procedure http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/E_SS5_pesticide_checklist.pdf The criteria specified in FAO's ESM Guidelines under ESS 5 must be adhered to and should be included or referenced in the project document. If large volumes (above 1,000 litres of kg) of pesticides will be supplied or used throughout the duration of the project, a Pest Management Plan must be prepared to demonstrate how IPM will be promoted to reduce reliance on pesticides, and what measures will be taken to minimize risks of pesticide use. It must be clarified, which person(s) within (executing) involved institution/s, will be responsible and liable for the proper storage, transport, distribution and use of the products concerned in compliance with the requirements. 	<p>MODERATE RISK :The applications of herbicides for the management of the <i>Dichrostachys cinerea</i>, will be carried out in a restricted manner, and only in the areas that require it, according to the degree of infestation and the recommendation of the experts, when the mechanical variants of elimination have been exhausted and under supervision and technical evaluation. Limited doses will be used for once, after the clearing. To mitigate this, the project will use IPM and train producers, among other mitigation measures. The use of highly hazardous herbicides will also be avoided.</p>
5.2	Would this project provide seeds or other materials treated with pesticides (in the field and/or in storage)?	LOW RISK	<p>MODERATE RISK</p> <p>The use of chemical pesticides for seed treatment or storage of harvested produce is subject to an internal clearance procedure [http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Cod</p>	<p>LOW RISK The project will not use pesticides treated seeds. The seed management will be ecological, by using biological products; it is not foreseen to acquire chemical</p>

	Supply of pesticides by FAO	No	Yes	Comments
			e/E SS5 pesticide checklist.pdf]. The criteria specified in FAO's ESM Guidelines under ESS5 for both pesticide supply and seed treatment must be adhered to and should be included or referenced in the project document.	products for their conservation.
5.3	Would this project provide inputs to farmers directly or through voucher schemes?	LOW RISK	MODERATE RISK <ul style="list-style-type: none"> FAO projects must not be responsible for exposing people or the environment to risks from pesticides. The types and quantities of pesticides and the associated application and protective equipment that users of a voucher scheme are provided with must always comply with the conditions laid out in ESS5 and be subject to the internal clearance procedure [link]. These must be included or referenced in the project document. Preference must always be given to sustainable pest management approaches such as Integrated Pest Management (IPM), the use of ecological pest management approaches and the use of mechanical or biological pest control tools in favour of synthetic chemicals 	LOW RISK
5.4	Would this project lead to increased use of pesticides through intensification or expansion of production?	LOW RISK	MODERATE RISK <p>Encourage stakeholders to develop a Pest Management Plan to demonstrate how IPM will be promoted to reduce reliance on pesticides, and what measures will be taken to minimize risks of pesticide use. This should be part of the sustainability plan for the project to prevent or mitigate other adverse environmental and social impacts resulting from production intensification.</p>	LOW RISK
5.5	Would this project manage or dispose of waste pesticides, obsolete pesticides or pesticide contaminated waste materials?	LOW RISK	HIGH RISK <p>A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.</p>	LOW RISK

SAFEGUARD 6 INVOLUNTARY RESETTLEMENT AND DISPLACEMENT

		No	Yes	Comments
6.1	<p>Would this removal* be voluntary?</p> <p>*temporary or permanent removal of people from their homes or means of production/livelihood or restrict their access to their means of livelihoods</p>	CANNOT PROCEED	<p style="color: red; text-align: center;">HIGH RISK</p> <p>A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.</p>	LOW RISK

SAFEGUARD 7 DECENT WORK

		No	Yes	Comments
7.1	Would this project displace jobs? (e.g. because of sectoral restructuring or occupational shifts)	LOW RISK	<p style="color: red; text-align: center;">HIGH RISK</p> <p>A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.</p>	LOW RISK
7.2	Would this project operate in sectors or value chains that are dominated by subsistence producers and other vulnerable informal agricultural workers, and more generally characterized by high levels “working poverty”?	LOW RISK	<p style="color: blue; text-align: center;">MODERATE RISK</p> <p>Take action to anticipate the likely risk of perpetuating poverty and inequality in socially unsustainable agriculture and food systems. Decent work and productive employment should appear among the priorities of the project or, alternatively, the project should establish synergies with specific employment and social protection programmes e.g. favouring access to some social protection scheme or form of social insurance. Specific measures and mechanisms should be introduced to empower in particular the most vulnerable /disadvantaged categories of rural workers such as small-scale producers, contributing family workers, subsistence farmers, agricultural informal wage workers, with a special attention to women and youth who are predominantly found in these employment statuses. An age- and gender-sensitive social value chain analysis or livelihoods/employment assessment is needed for large-scale projects.</p>	LOW RISK
7.3	Would this project operate in situations where youth work mostly as unpaid contributing family workers, lack access to decent jobs and are increasingly	LOW RISK	<p style="color: blue; text-align: center;">MODERATE RISK</p> <p>Take action to anticipate likely risk of unsustainably ageing agriculture and food systems by integrating specific measures to support youth empowerment and employment in agriculture. A youth livelihoods/employment assessment is needed.</p>	LOW RISK

		No	Yes	Comments
	abandoning agriculture and rural areas?		Complementary measures should be included aiming at training youth, engaging them and their associations in the value chain, facilitating their access to productive resources, credit and markets, and stimulating youth- friendly business development services.	
7.4	Would this project operate in situations where major gender inequality in the labour market prevails? (e.g. where women tend to work predominantly as unpaid contributing family members or subsistence farmers, have lower skills and qualifications, lower productivity and wages, less representation and voice in producers' and workers' organizations, more precarious contracts and higher informality rates, etc.)	LOW RISK	MODERATE RISK Take action to anticipate likely risk of socially unsustainable agriculture and food systems by integrating specific measures to reduce gender inequalities and promote rural women's social and economic empowerment. A specific social value chain analysis or livelihoods/employment assessment is needed for large-scale projects. Facilitation should be provided for women of all ages to access productive resources (including land), credit, markets and marketing channels, education and TVET, technology, collective action or mentorship. Provisions for maternity protection, including child care facilities, should be foreseen to favour women participation and anticipate potential negative effects on child labour, increased workloads for women, and health related risks for pregnant and breastfeeding women.	LOW RISK
7.5	Would this project operate in areas or value chains with presence of labour migrants or that could potentially attract labour migrants?	LOW RISK	MODERATE RISK Take action to anticipate potential discrimination against migrant workers, and to ensure their rights are adequately protected, with specific attention to different groups like youth, women and men.	

		No	Yes	Comments
7.6	Would this project directly employ workers?	LOW RISK	MODERATE RISK FAO projects will supposedly guarantee employees' rights as per UN/FAO standards as regards information on workers' rights, regularity of payments, etc. Decisions relating to the recruitment of project workers are supposed to follow standard UN practices and therefore not be made on the basis of personal characteristics unrelated to inherent job requirements. The employment of project workers will be based on the principle of equal opportunity and fair treatment, and there will be no discrimination with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, etc.	LOW RISK
7.7	Would this project involve sub-contracting?	LOW RISK	MODERATE RISK Take action to anticipate likely risk of perpetuating inequality and labour rights violations by	LOW RISK

			introducing complementary measures. FAO projects involving sub-contracting should promote, to the extent possible, subcontracting to local entrepreneurs – particularly to rural women and youth – to maximize employment creation under decent working conditions. Also, FAO should monitor and eventually support contractors to fulfil the standards of performance and quality, taking into account national and international social and labour standards.	
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		No	Yes	Comments
7.8	Would this project operate in a sector, area or value chain where producers and other agricultural workers are typically exposed to significant occupational and safety risks ⁴⁴ ?	LOW RISK	<p>MODERATE RISK</p> <p>Take action to anticipate likely OSH risks by introducing complementary provisions on OSH within the project. Project should ensure all workers' safety and health by adopting minimum OSH measures and contributing to improve capacities and mechanisms in place for OSH in informal agriculture and related occupations. For example, by undertaking a simple health and safety risk assessment, and supporting implementation of the identified risk control measures. Awareness raising and capacity development activities on the needed gender-responsive OSH measures should be included in project design to ensure workers' safety and health, including for informal workers. Complementary measures can include measures to reduce risks and protect workers, as well as children working or playing on the farm, such as alternatives to pesticides, improved handling and storage of pesticides, etc.</p> <p>Specific provisions for OSH for pregnant and breastfeeding women should be introduced. FAO will undertake periodic inspections and a multistakeholder mechanism for monitoring should be put in place.</p>	LOW RISK
7.9	Would this project provide or promote technologies or practices that pose occupational safety and health (OSH) risks for farmers, other rural workers or rural populations in general?	LOW RISK	<p>HIGH RISK</p> <p>A full environmental and social impact assessment is required. Please contact the ESM unit for further guidance.</p>	LOW RISK

⁴⁴Major OSH risks in agriculture include: dangerous machinery and tools; hazardous chemicals; toxic or allergenic agents; carcinogenic substances or agents; parasitic diseases; transmissible animal diseases; confined spaces; ergonomic hazards; extreme temperatures; and contact with dangerous and poisonous animals, reptiles and insects.

		No	Yes	Comments
7.10	Would this project foresee that children <u>below</u> the nationally-defined minimum employment age (usually 14 or 15 years old) will be involved in project-supported activities?	LOW RISK	CANNOT PROCEED	LOW RISK
7.11	Would this project foresee that children <u>above</u> the nationally-defined minimum employment age (usually 14 or 15 years old), but under the age of 18 will be involved in project-supported activities?	LOW RISK	<p>MODERATE RISK</p> <p>Take action to anticipate likely risk of engaging young people aged 14-17 in child labour⁴⁵ by changing design or introducing complementary measures.</p> <p>For children of 14 to 17 years, the possibility to complement education with skills-training and work is certainly important for facilitating their integration in the rural labour market. Yet, children under the age of 18 should not be engaged in work-related activities in connection with the project in a manner that is likely to be hazardous or interfere with their compulsory child's education or be harmful to the child's health, safety or morals. Where children under the age of 18 may be engaged in work-related activities in connection with the project, an appropriate risk assessment will be conducted, together with regular monitoring of health, working conditions and hours of work, in addition to the other requirement of this ESS. Specific protection measures should be undertaken to prevent any form of sexual harassment or exploitation at work place (including on the way to and from), particularly those more vulnerable, i.e. girls.</p>	LOW RISK
7.12	Would this project operate in a value chain where there have been reports of child labour?	LOW RISK	<p>HIGH RISK</p> <p>A full environmental and social impact assessment is required.</p> <p>Please contact the ESM unit for further guidance.</p>	LOW RISK
7.13	Would this project operate in a value chain or sector where there have been reports of forced labour ⁴⁶ ?	LOW RISK	<p>HIGH RISK</p> <p>A full environmental and social impact assessment is required.</p> <p>Please contact the ESM unit for further guidance.</p>	LOW RISK

⁴⁵Child labour is defined as work that is inappropriate for a child's age, affects children's education, or is likely to harm their health, safety or morals. Child labour refers to working children below the nationally-defined minimum employment age, or children of any age engaging in hazardous work. Hazardous work is work that is likely to harm the health, safety or morals of a child. This work is dangerous or occurs under unhealthy conditions that could result in a child being killed, or injured and/or made ill as a consequence of poor health and safety standards and working arrangements. Some injuries or ill health may result in permanent disability. Countries that have ratified ILO Convention No.182 are obligated to develop National lists of hazardous child labour under Article 4.

⁴⁶Forced labour is employed, consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty. It includes men, women and children in situations of debt bondage, suffering slavery-like conditions or who have been trafficked. "In many countries, agricultural work is largely informal, and legal protection of workers is weak. In South Asia, there is still evidence of bonded labour in agriculture, resulting in labour arrangements where landless workers are trapped into exploitative and coercive working conditions in exchange for a loan. The low wages associated with high interest rates make it quite difficult for whole families to escape this vicious circle. In

SAFEGUARD 8 GENDER EQUALITY

		No	Yes	Comments
8.1	Could this project risk reinforcing existing gender-based discrimination, by not taking into account the specific needs and priorities of women and girls?	LOW RISK	MODERATE RISK Take action to anticipate likely risk of perpetuating or reinforcing inequality by conducting a gender analysis to identify specific measures to avoid doing harm, provide equal opportunities to men and women, and promote the empowerment of women and girls.	LOW RISK
8.2	Could this project not target the different needs and priorities of women and men in terms of access to services, assets, resources, markets, and decent employment and decision-making?	LOW RISK	MODERATE RISK Take action to anticipate likely risk of socially unsustainable agriculture practices and food systems by conducting a gender analysis to identify the specific needs and priorities of men and women, and the constraints they may face to fully participate in or benefit from project activities, and design specific measures to ensure women and men have equitable access to productive resources and inputs.	LOW RISK

SAFEGUARD 9 INDIGENOUS PEOPLES AND CULTURAL HERITAGE

		No	Yes	Comments
9.1	Are there <i>indigenous peoples*</i> living <i>outside the project area**</i> where activities will take place? ^{47?}	LOW RISK	GO TO NEXT QUESTION	LOW RISK
9.1.1	Do the project activities influence the Indigenous Peoples living outside the project area?	LOW RISK	MODERATE RISK A Free, Prior and Informed Consent Process is required Project activities should outline actions to address and mitigate any potential impact Please contact the ESM/OPCA unit for further guidance.	LOW RISK
9.2	Are there indigenous peoples living in the project area where activities will take place?	LOW RISK	MODERATE RISK A Free Prior and Informed Consent process is required. If the project is for indigenous peoples, an Indigenous Peoples' Plan is required in addition to the Free Prior and Informed Consent process. Please contact the ESM/OPCA unit for	LOW RISK

Africa, the traditional forms of “vestiges of slavery” are still prevalent in some countries, leading to situations where whole families (adults and children, men and women) are forced to work the fields of landowners in exchange for food and housing. In Latin America, the case of workers recruited in poor areas and sent to work on plantations or in logging camps has been widely documented by national inspection services and other actors.” (ILO, *Profits and poverty: the economics of forced labour* / International Labour Office. - Geneva: ILO, 2014)

*FAO considers the following criteria to identify indigenous peoples: priority in time with respect to occupation and use of a specific territory; the voluntary perpetuation of cultural distinctiveness (e.g. languages, laws and institutions); self-identification; an experience of subjugation, marginalization, dispossession, exclusion or discrimination (whether or not these conditions persist).

** The phrase “Outside the project area” should be read taking into consideration the likelihood of project activities to influence the livelihoods, land access and/or rights of Indigenous Peoples’ irrespective of physical distance. In example: If an indigenous community is living 100 km away from a project area where fishing activities will affect the river yield which is also accessed by this community, then the user should answer “YES” to the question

		No	Yes	Comments
			<p>further guidance.</p> <p>In cases where the project is for both, indigenous and non-indigenous peoples, an Indigenous Peoples' Plan will be required only if a substantial number of beneficiaries are Indigenous Peoples. project activities should outline actions to address and mitigate any potential impact.</p> <p>Please contact ESM/OPCA unit for further guidance.</p> <p>A Free, Prior and Informed Consent Process is required</p>	
9.3	<p>Would this project adversely or seriously affect on indigenous peoples' rights, lands, natural resources, territories, livelihoods, knowledge, social fabric, traditions, governance systems, and culture or heritage (<i>physical*</i> and <i>non-physical or intangible**</i>) inside and/or outside the project area?</p> <p><i>*Physical defined as movable or immovable objects, sites, structures, group of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance located in urban or rural settings, ground, underground or underwater.</i></p> <p><i>**Non-physical or intangible defined as "the practices, representations, expressions, knowledge and skills as well as the instruments, objects, artifacts and cultural spaces associated therewith that communities, groups, and in some cases individuals, recognize as</i></p>	LOW RISK	<p>HIGH RISK</p> <p>A full environmental and social impact assessment is required.</p> <p>Please contact the ESM unit for further guidance.</p>	LOW RISK

		No	Yes	Comments
	<i>part of their spiritual and/or cultural heritage"</i>			
9.4	Would this project be located in an area where cultural resources exist?	LOW RISK	MODERATE RISK To preserve cultural resources (when existing in the project area) and to avoid their destruction or damage, due diligence must be undertaken to: a) verify that provisions of the normative framework, which is usually under the oversight of a national institution responsible for protection of historical and archaeological sites/intangible cultural heritage; and b) through collaboration and communication with indigenous peoples' own governance institutions/leadership, verifying the probability of the existence of sites/intangible cultural heritage that are significant to indigenous peoples. In cases where there is a high chance of encountering physical cultural resources, the bidding documents and contract for any civil works must refer to the need to include recovery of "chance findings" in line with national procedures and rules.	LOW RISK

APPENDIX 6.6 Environmental and Social Analysis for Moderate Risk Projects

Outline

Executive summary

- Project description
- Significant risks/impacts
- Stakeholder engagement
- Mitigation

Introduction

- Project overview and justification
- E&S process

1. Project description

- Project location and siting
- Description of project activities
- Identification of stakeholders/beneficiaries

2. E&S baseline

- Current state of the environment and current socio-economic conditions in the project site area
- Potential future changes foreseen as a result of the planned activities

3. Impact assessment

- Key E&S risks/impacts
- Rank E&S risks/impacts by significance
- Alternatives to project to avoid/minimize impacts

4. Mitigation

- Identify applicable recognized good management and/or pollution abatement practices
- Demonstrate record of the prior successful use of identified good management and/or pollution

abatement practices in the project area or other justification

4.3 Indicators to monitor mitigation effectiveness

4.4 Review of applicable legislation

4.5 FAO ESS 1 to 9

5. Stakeholder consultation/engagement

5.1 Stakeholder consultation/engagement

5.2 Consultations on E&S mitigation

5.3 Grievance mechanism

6. Recommendations

6.1 Proceed/do not proceed with project

6.2 Recommendations

APPENDIX 6.7 LIST OF CONSULTATIONS

Actividades de consulta con los interesados (s)	Fecha	Participantes	Ubicación	Cantidad de personas consultadas
MISIÓN # 1 Recorrido por las provincias de Villa Clara y Matanzas Reunión Provincial	15-11-2017	CITMA Provincial; Delegación Provincial del MINAG, Villa Clara; Centro Meteorológico Provincial, Villa Clara; Estación de Pastos, Villa Clara; Dirección Provincial de Economía y Planificación Física; ANAP Provincial; Instituto de Investigaciones de Viandas Tropicales (INIVIT); Empresa Agroforestal Villa Clara.	Delegación Provincial de la Agricultura (Villa Clara);	17
MISIÓN # 1 Recorrido por las provincias de Villa Clara y Matanzas Reunión No 2	16-11-2017	Delegación Provincial del MINAG; Delegación Municipal del MINAG; PCC Municipal (Miembro del Buró, Esfera Agroalimentaria); ANAP Municipal (Presidente); FMC Municipal; ANEC Municipal (Presidente); CITMA Municipal (Especialista municipal); Consejo de la Administración Municipal (CAM); Centro Universitario Municipal (CUM); Empresa Aprovechamiento Hidráulico; Flora y Fauna; Empresa de Proyecto e Ingeniería del MINAG (ENPA).	Municipio Quemado de Güines	16
MISIÓN # 1 Recorrido por las provincias de Villa Clara y Matanzas Reunión No 3	16-11-2017	Delegación Provincial del MINAG; Delegación Municipal del MINAG; CITMA Provincial; UEB Silvícola Corralillo; ENPA (Oficina Central); FMC Municipal; Acueducto y Alcantarillado, Corralillo; Empresa Agropecuaria; CUM; Asamblea Municipal del Poder Popular (DMPP).	Municipio Corralillo	17
MISIÓN # 1 Recorrido por las provincias de Villa Clara y Matanzas Reunión No 4	17-11-2017	Delegación Provincial del MINAG; Delegación Municipal del MINAG; Empresa Agroforestal, Provincia Villa Clara; FMC Municipal; CTC; UEB Silvícola; Servicio Forestal Estatal (SEF); Cuerpo de	Instituto de Investigación de Viandas Tropicales (INIVIT), Mun	30

		Guardabosques; INIVIT; ENPA (Oficina Central); ACPA; Estación de Pastos; ANAP; Consejo de la Administración Municipal (CAM); CITMA; ACTAF; CUM.	icipio Santo Domingo	
MISIÓN # 1 Recorrido por las provincias de Villa Clara y Matanzas Reunión No 5	17-11-2017	CAM (Sub Delegada); Servicio Estatal Forestal; Delegación Municipal del MINAG; ACTAF; ANAP Municipal; UEB Integral Agropecuaria, Los Arabos; CTC Municipal; CUM.	Provincia Matanzas, Municipio: Los Arabos	15
MISIÓN # 1 Recorrido por las provincias de Villa Clara y Matanzas Reunión No 6	18-11-2017	Instituto de Investigaciones de Pastos y Forrajes "Indio Hatuey", (Investigador: Dr. Jesús Manuel Iglesias Gómez	IIPF- Indio Hatuey provincia Matanzas.	11
MISIÓN # 2 Recorrido por la provincia de las Tunas Reunión # 1, Provincial	21-11-2017	Delegación provincial del MINAG; ENPA (Oficina Central); ENPA, UEB Las Tunas; Subdelegación Ganadera; Empresa Agroforestal; Departamento de suelos; Sanidad Vegetal; Empresa Integral Agropecuaria; Cuerpo de Guardabosques; Instituto Nacional de Recursos Hidráulicos, Las Tunas; CITMA Provincial; ANEC Provincial; Departamento Forestal, Flora y Fauna Silvestre; ACTAF; UEB Flora y Fauna; EEPF "Indio Hatuey"; Movimiento Cooperativo	Delegación Provincial de la Agricultura (Las Tunas);	23
MISIÓN # 2 Recorrido por la provincia de las Tunas Reunión # 2	22-11-2017	Delegación municipal del MINAG; CITMA; Poder Popular; ANAP; ENPA; IPF; UEB Agroforestal; UEB Agropecuaria; FMC; BANDEC; ANEC; Empresa de Flora y Fauna.	MunicipioA mancio	17
MISIÓN # 2 Recorrido por la provincia de las Tunas Reunión # 3	23-11-2017	Delegación Provincial del MINAG; Delegación Municipal del MINAG; Consejo Administración Municipal (CAM), Municipio Jobabo; UEB Agroforestal Jobabo; Área protegida Flora y Fauna; Instituto de Planificación Física (IPF); FMC, Jobabo; CITMA Municipal, Jobabo; Centro de Gestión y Desarrollo Local, Jobabo; Educación Municipal, Jobabo (Director).	MunicipioJo babo	23
MISIÓN # 2 Recorrido por la provincia de las Tunas Reunión # 4	23-11-2017	Delegación Municipal del MINAG; Proyecto de Desarrollo Local; CAM (Vicepresidente); AZCUBA; PCC (Miembro del Buró Agroalimentación); Servicio Estatal Forestal (SEF); UEB Agroforestal; Registro Agropecuario; UEB Granja Urbana; UEB Integral Agropecuaria Colombia; Departamento de Suelo; Cultivos Varios; Sanidad Animal.	Municipio Colombia	21
MISIÓN # 3: "Recorrido integral	4-12-2017	Delegación provincial del MINAG; CITMA Provincial; Delegación Provincial	Delegación Provincial de	41

por las posibles zonas de intervención del proyecto Reunión # 2		(Genética y Registro Pecuario);Delegación Provincial de Cooperativas; Departamento de Sanidad Vegetal (Delegación Provincial del MINAG); Departamento de Ganadería; Departamento Sanidad Animal; Banco (BANDEC); Cultivos Varios; Delegación Provincial de Planificación Física (DPPF); Departamento de Agronomía; Departamento de Suelos; ACTAF; Empresa Agroforestal Las Tunas (EAF); Servicio Estatal Forestal Provincial (SEF); Departamento de Semillas; FMC Provincial; UEB ENPA Las Tunas; INRH (Provincial);DPFFS.	la agricultura de Las Tunas	
Visita a la finca Agroforestal “Los Vélez”	4-12-2017	Equipo nacional Finqueros Autoridades provinciales del MINAG	Municipio las Tunas	56
Visita a la finca Agroforestal “Majibacoa”	4-12-2017	Equipo nacional Finqueros Autoridades provinciales del MINAG	Municipio Majibacoa, Las Tunas	32
Visita de campo al polígono demostrativo de aguas, suelos y bosques MINAG	5-12-2017	Equipo nacional Finqueros Autoridades provinciales del MINAG	Municipio las Tunas	37
Intercambioteórico	5-12-2017	Delegación Municipal del MINAG, CITMA, Poder Popular, ANAP, ENPA, IPF, UEB Agroforestal, UEB Agropecuaria, FMC, BANDEC, ANEC y Empresa de Flora y Fauna.	Hotel las Tunas	19
Reunión # 4: Encuentro en la Delegación municipal del MINAG	6-12-2017	Delegación provincial y municipal del MINAG; CITMA; Poder Popular; ANAP; ENPA; Estación de Pastos; INIVIT; Centro Meteorológico, IPF; Empresa Agroforestal; FMC.	Delegación municipal del MINAG, Quemado de Güines	17
Actividad # 5: Visita a comunidad pesquera Norte de Villa Clara	7-12-2017	Delegación Provincial y Municipal del MINAG; Comunidad pesquera.	Quemado de Guines, Villa Clara	46
Visita a zona bananera para visualizar el sistema de riego por goteo.	7-12-2017	Delegación municipal del MINAG; Cooperativa Bananera (Dirección y trabajadores de la cooperativa)	municipio Quemado de Güines, Villa Clara	28
Visita al Bosque Modelo	8-12-2017	Delegación municipal del MINAG; UEB “El Espinal” (Bosque Modelo).	municipio Santo Domingo, Villa Clara	87
Visita al Instituto de Investigación de	8-12-2017	OLPP (Presidenta del gobierno); INIVIT (Sub Directora e investigadores);	municipio Santo	19

Viandas Tropicales (INIVIT).		Delegación Provincial del MINAG; Centro Meteorológico; Empresa Agroforestal; Cuerpo de guarda – bosques; ANEC; CTC; UEB Silvícola.	Domingo, Villa Clara	
Reunión en el municipio Corralillo.	8-12-2017	OLPP (Presidente del gobierno); MINAG Provincial y Municipal (Delegada municipal MINAG); CITMA Municipal; ANAP; Centro Meteorológico; Empresa Agroforestal.	Delegación municipal del MINAG, municipio Corralillo	11
Visita Comunidad Costera	8-12-2017	OLPP (Presidenta del gobierno); Delegación municipal del MINAG (Delegada del MINAG y otros funcionarios); Comunidad costera.	Comunidad costera municipio Corralillo	68
Reunión en la provincia Matanzas, municipio “Los Arabos”.	8-12-2017	OLPP (Presidenta del gobierno); MINAG municipal (Sub delegado); Poder Popular; ANAP; SEF Los Arabos; ACTAF; CPA Mario Muñoz; UEB Instituto Agropecuario.	Delegación municipal del MINAG, municipio “Los Arabos”.	17
Visita Comunidad Agropecuaria	8-12-2017	OLPP (Presidenta del gobierno municipal); Delegación municipal del MINAG (Delegado del MINAG municipal y otros funcionarios); Comunidad agropecuaria.	Comunidad agropecuaria municipio Los Arabos	56
Taller nacional para la formulación del proyecto	14 -12-2017 15 -12-2017	Cuerpo de Guardabosques, Universidad Agraria de La Habana, Instituto de Meteorología, Asociación Cubana de Producción Animal, Empresas Forestales Provinciales, CITMA Provinciales y Municipales, Registro de la Tierra, Instituto de pastos y Forrajes, Sanidad Animal, Flora y Fauna, Consejo de Administración Municipal, Centro de Gestión de Desarrollo Local, Empresa Nacional de Proyectos Agropecuarios, Instituto de Ciencia Animal, Facultad Forestal de la Universidad de Pinar del Río, Dirección Nacional de ganadería del MINAG, Genética Camilo Cienfuegos, Instituto de Investigaciones Agroforestal, Estación de Pastos y Forrajes Indio Hatuey.	Hotel Meliá Habana	32
Reuniones , talleres para el ajuste y diseño del proyecto , aspectos uso del agua, maquinaria, especies de los módulos	14 al 21 de diciembre de 2018	Equipo FAO Habana vinculado a IRES, equipo internacional de diseño, Dirección Nacional Forestal, Grupo Agroforestal, Instituto de Pastos y Forrajes, Instituto Agroforestal, Instituto de Ingeniería Agrícola, consultor salvaguardas socio ambientales.	Oficina FAO Habana	17

Videoconferencia para consulta sobre especie a manejar el IRES	14 de febrero 2019	Equipo FAO Habana vinculado a IRES, Agencia de Medio Ambiente del Ministerio de Ciencia Tecnología y Medio Ambiente, consultora experta en especies exóticas invasoras Sílvia R. Ziller, consultor salvaguardas socio ambientales.	Oficina FAO Habana	1
Videoconferencia para consulta sobre especie a manejar el IRES	22 de febrero de 2019	Equipo FAO Habana vinculado a IRES, Instituto Agroforestal, Dirección Nacional Agroforestal, Grupo Agroforestal, Instituto de Investigación en Pastos y Forrajes, consultora experta en especies exóticas invasoras Sílvia R. Ziller, consultor salvaguardas socio ambientales	Oficina FAO Habana	5
Reuniones , talleres para el ajuste y diseño del proyecto , aspectos uso del agua, maquinaria, especies de los módulos, manejo de suelos, agroquímicos, manejos en los módulos y especies	Del 8 al 18 de abril de 2019	Equipo FAO Habana vinculado a IRES , equipo internacional de diseño, Dirección Nacional Forestal, Grupo Agroforestal, Instituto de Pastos y Forrajes, Instituto Agroforestal, Departamento Nacional de Suelos, Instituto de Ingeniería Agrícola, Instituto de Ciencia Animal, consultor salvaguardas socio ambientales	Oficina FAO Habana	31
Total de personas consultadas				810

APPENDIX 6.8: ESMF TIMELINE AND BUDGET

IFM PROJE CT	ACTIVITY	INDICAT OR	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5				COST US \$	RESPON SIBILITY
			Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4		
1. Project Environmental Commitment Plan (PCAS)																								
	1.1 Elaboration of an updated Plan of Socio-Environmental Commitments of the Project (PCAS)	PCAS Document	X																				1500	FAO / MINAG/ Safeguard Specialist
	1.2 Identification of sub-activities[1]. Environmental Partners	List of sub-activities	X																					FAO / Safeguard Specialist
	1.3 Revision of socio-environmental activities	Socio-environmental detection checklist s	X																					FAO / MINAG Safeguard Specialist
	1.4 Socio-environmental assessment and drafting of documentation related to safeguards for compliance	Pre-imple mentation docume nts by sub-activity	X																				3000	Safeguard, Gender and Biodivers ity Specialist s
2. Capacity Development																								
	2.1 Training of project staff on safeguards[2]	Reports of	X																				500	Safeguard d

[illegible]

[illegible]

	6.1	Management plans of exotic species of the municipalities with cooperatives that develop the silvopastoral modules	7 Plans				X																		14000	FAO / MINAG
	6.2	Preparation and implementation of an Early Warning Protocol linked to the expansion of IAS in the management plans.	Document on the Early Warning Protocol of EEI				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		17000	FAO / MINAG
7. Pest Management																										
	7.1	Constitution of a technical group for the acquisition of pesticides	Constitution Report, Minutes				X																			FAO / MINAG
	7.2	Environmental technical evaluation of pesticides procurement	Meeting Reports				X				X			X			X									FAO / MINAG
		7.3 Preparation and implementation of a Pest Management Plan[4]	Document				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		10500	FAO / MINAG
	7.4	Preparation and implementation of pesticide management plans by the entities that store and manage them	Document of each selected entity				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		7000	FAO / MINAG
8. Water Management																										
	8.1	Expert and stakeholder consultation on reservoir and water	Document	X																					11,000	FAO / Water specialist

[illegible]

- [1] Sub-activities have not been defined at the time of performing the socio-environmental analysis
- [2] Must be done before the elaboration of the updated PCAS
- [3] See recommendations of the socio-environmental analysis
- [4] Will be part of the Socio-Environmental Commitment Plan of the Project