



FUNDING PROPOSAL TO THE GREEN CLIMATE FUND

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

APPENDIX 2.7. Analysis of the Legal Framework - Normative and Proposal of Institutional Arrangements for the Implementation of the Project

November 2019

Republic of Cuba

List of Acronyms

ACPA:	Cuban Association of Animal Production
ACTAF:	Cuban Association of Agricultural and Forestry Technicians
AIP:	Project Intervention Area
ANAP:	National Association of Small Farmers
UA:	Urban Agriculture
CAM:	Council of the Municipal Administration
CPA:	Council of the Provincial Administration
CSC:	Credit and Service Cooperatives
CITMA:	Ministry of Science, Technology and Environment
NSC:	National Project Steering Committee
PCC:	Project Coordination Committee
APC:	Agricultural Production Cooperatives
PPCC:	Provincial Project Coordination Committee
UNFCCC:	United Nations Framework Convention on Climate Change
NDC:	Nationally Determined Contribution
NPC:	National Project Coordinator
FWFD:	Forest, Wildlife and Flora Directorate
NPD:	National Project Director
AFC:	Agroforestry Company
NEA:	National Environmental Strategy
FAO:	Food and Agriculture Organization of the United Nations
FLO:	Liaison Officer with the Donor
FONADEF:	National Forestry Development Fund

MPF: Municipal Production Forms

FPMIS: Information System for the Management of Field Programs

GCF: Green Climate Fund

GAF: Agroforestry Group

IAgric: Agricultural Engineering Research Institute

IAS: Institute of Animal Science

FTR: Financial and Technical Reports

INAF: National Agroforestry Institute

TFRI: Tropical Food Research Institute

NIPF: National Institute of Pastures and Forages

NIHR: National Institute of Hydraulic Resources

INSMET: Institute of Meteorology

IGPCC: Intergovernmental Panel on Climate Change

PPR: Project Progress Reports

ARRPT: Annual Review Report of the Project Team

SI: Soil Institute

IPH: Institute of Plant Health

MINCEX: Ministry of Foreign Trade and Foreign Investment

MINAG: Ministry of Agriculture

NOO: National Operations Officer

LTO: Leader Technical Officer

HTO: Headquarters Technical Officer

OCSA: Organizations of the Central State Administration

HOBM: Higher Organism of Business Management

POA: Annual Operating Plan

NPSIC: National Program for Soil Improvement and Conservation

UNDP: United Nations Development Program

PTF: Project Taskforce

RB: Responsible for the Budget

SEF: State Forestry Service

NYAFTW: National Union of Agricultural, Forestry and Tobacco Workers

SDG: Sustainable Development Goals

OSFMU: Operational Support and Project Financial Management Unit

BSTU: Base Scientific-Technological Unit

UEB: Base Business Unit

BUCP: Base Unit of Cooperative Production

MUCP: Municipal Units of Project Management

NMU: National Project Management Unit

MMU: Provincial Management Units

MPCC: Municipal Project Coordinating Committee

PPCC: Provincial Project Coordinating Committee

AE: Accredited Entity

EE: Executing Entity

CEE: Co-Executing Entity

Executive summary

Environmental Agrarian Law, both in the contemporary world and in Cuba, is characterized by having a considerable number of norms of different degrees of hierarchy that intend to organize the relations that occur in the agricultural productive processes, as well as to establish the way to resolve the conflicts that take place around them, having as a premise the economic transformations that are taking place, our idiosyncrasy, participation, education and culture.

The institutional capacity linked to the production of food in Cuba is strong, composed of a large number of central state administration agencies, top business management organizations, universities, research institutes, agricultural enterprises, cooperatives and individual producers. Strategies of adaptation to climate change and sustainable management of natural resources are outlined as its priorities.

This reports aims to set out in summary the main legal regulations that constitute the regulatory framework for the functions of different bodies of the central state administration, top business management organizations and institutions, for dealing with climate change in environmental matters, as well as a general analysis of a proposal for institutional arrangements for the implementation of the project "Increase resilience of vulnerable rural households and communities through the rehabilitation of productive agroforestry landscapes in selected locations of the Republic of Cuba", to generate a paradigm shift within beneficiaries, which represents the basis for projecting the investment of the Green Climate Fund.

To do this, the method of reviewing the existing bibliography was used through a general view of the current state of the subject, enriched by a consultation process developed in the three provinces and seven municipalities involved in the Project: Las Tunas (Municipalities Amancio Rodríguez, Jobabo and Colombia), Villa Clara (Municipalities Quemado de Güines, Corralillo and Santo Domingo) and Matanzas (Municipality of Los Arabos), where more than 25 government institutions and society in general were involved, as well as about 330 people among specialists, researchers, farmers, students, innovators, extension agents, project managers and decision makers, agreed on in 14 dialogue tables and three workshops.

As a result, a balance of the antecedents related to the adaptation to climate change in Cuba is obtained and resolutions are identified and comprised in current programmatic instruments such as the Guidelines of the Economic and Social Policy of the Party and the Revolution, the Conceptualization of the Economic and Social Cuban Model, the National Environmental Strategy, the Environmental Education Strategy, the Climate Change Confrontation Program for the Agricultural and Forestry Sector and the Life Project: a State Plan for confronting climate change in Cuba, among others.

There are acknowledged and consolidated achievements, but at the same time there are prevailing insufficiencies associated with the lack of culture, systematicity, discipline and the lack of integrated approaches that have limited the introduction of science and technology results, as well as the environmental dimension in the policies, plans and programs, especially in the agricultural and forestry sector, with the perspective of achieving a sustainable, resilient and low carbon agroforestry development in the Cuban agrarian landscape.

Elements for the governance of the landscape are pointed out; as well as in the context of the implementation of the Project, which will be led by the Ministry of Agriculture, through a National Steering Committee chaired by the Agroforestry Group, which will be set up as the highest level of management and comprised by representatives from various Ministries and of the Provincial Delegations of Agriculture (Matanzas, Villa Clara and Las Tunas) and Agroforestry Companies at such level, as well as the Representation of FAO in Cuba.

The project execution strategy will be developed through a Provincial Coordination Committee (PCC) represented by the provincial delegations of MINAG (SEF and GAF), provincial delegations of CITMA, ANAP, CAP, CAM and academic and scientific institutions. This PCC will be responsible for the implementation of the agroforestry modules by the municipal production forms in the intervention areas of the project; that are formed by the Base Business Units (forestry) and by the cooperative system associated to them; that will promote decision-making at two levels: territorial/national, constituting the essential pillars for the empowerment of producers in vulnerable communities through value chains and the improvement of livelihoods.

Strengthening of institutional capacity through dialogue, the complementarity of different sectors (agriculture, livestock, forestry, fishing, among others), the participation of rural communities benefited in the project, can generate mechanisms to reduce the drivers of degradation and transformation of ecosystems and their associated services, as well as the manifestation of socio - environmental conflicts for use and access to natural resources in the institutional and regulatory framework.

Many times, reference is made to the "economic limitations" of Cuba, however, in social, environmental and disaster risk reduction, this country is an example of investment on economic amounts allocated for improving living conditions and preserving and protect the population from the impact of extreme weather events.

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Background

The following are the main instruments and actions developed by the Cuban Government to face the consequences of climate change; supported by existing capacities in related programs such as food security, reforestation, energy revolution and research, which express the variety of institutional conditions as well as the legal and regulatory framework available in the country, to generate a paradigm shift with respect to the environmental functions that the agroforestry landscapes provide.

The "Guidelines of the Economic and Social Policy of the Party and the Revolution:" approved on April 18, 2011 by the VI Congress of the Cuban Communist Party , give way to new policies and strategies for confronting climate change and disaster risk reduction.

The National Plan for Economic and Social Development until 2030: Proposed vision of the nation, strategic axes and sectors of Cuba, which are consistent with the documents of the 7th. Congress of the Cuban Communist Party approved by May 2017 represents the guiding document with a strategic and consensual vision in the medium and long term composed of: i) Conceptualization of the Cuban Social and Economic Model of Socialist development; ii) Bases of the National Economic and Social Development Plan until 2030. Vision of the Nation, Axes and Strategic sectors; and iii) Guidelines for the Economic and Social Policy of the Party and the Revolution for the period 2016 - 2021. In the strategic axis: Natural resources and the environment, it indicates that "the establishment of policies for the effective management of risks and adaptation will be promoted" of the country to climate change "[...]," promoting the strengthening of comprehensive programs for the protection of the environment, with actions aimed at the management of watersheds, mountain ranges, biological diversity; the fight against desertification and drought "[...]," strengthen national capacities for adaptation to climate change "(General Objective No. 3). "Stop the degradation of soils with the application of a sustainable agriculture, as a way to contribute to achieve the food security of the country" [...], "reverse the deterioration of water quality, and increase its availability with the protection and management appropriate sources "[...], (Specific Objectives No. 8, 9 and 11).

The project to confront climate change, approved by Agreement CM-9207 in 2007, establishes a set of agreements, which focus on adaptation measures, and constitute the main tool by which the Government follows up on the issue.

The Directives for the Implementation of the Macro Project "Scenarios of danger and vulnerability of the Cuban coastal area associated with the rise of the mean sea level for the years 2050 and 2100", adopted in 2011, contain specific actions aimed at the protection of human settlements , sandy beaches, mangroves and coral reefs.

Cuba also perceives the "Nationally Determined Contribution" (CND) as an ongoing process, which began with the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, and continues today under its principles and mandates, in particular the differentiated obligations stipulated in Article 4 of this legal instrument.

The Cuban State Plan for contending climate change "Life Project", approved by the Council of Ministers on April 25, 2017 is made up of five strategic actions and 11 tasks. It is an integral proposal, which presents a first identification of prioritized areas and places, their effects and the actions to be undertaken, which can

be enriched during its development and implementation.

Cuba subscribed to the Paris Agreement: approved by 195 countries in December 2015, where the historical responsibility of the developed countries towards the phenomenon of climate change is acknowledged.

The national evaluations and diverse scientific results, expand the knowledge framework on the confrontation to climate change in Cuba and the possible response measures, both for adaptation, understood as the adjustment process to the current or expected climate changes and for mitigation, which covers actions to reduce sources or expand greenhouse gas sinks.

The issue of climate change continues to emerge with greater strength and has repercussions in the discussions under different international and regional organizations and forums of which our country is undersigned, which accentuates the need to give it national attention, due to its foreseeable economic and social development impacts in country.

... "A profound and detailed study carried out during the last five years by our scientific institutions, coincides fundamentally with the reports of the Intergovernmental Panel on Climate Change and confirms that in the current century, if current trends continue, there will be a gradual and considerable elevation of the mean sea level in the Cuban archipelago. This forecast includes the intensification of extreme weather events, such as tropical cyclones, and increased salinization of groundwater. All this will have serious consequences, especially in our coasts, for which we have initiated the adoption of the respective measures "...

Raul Castro Ruz, General of the Army
Fragment of the speech delivered at the plenary session of the
Summit of the United Nations Conference on Sustainable Development,
Rio + 20, Rio de Janeiro, Brazil, June 2012

1. National policies, programs and strategies to confront climate change

The Ministry of Science, Technology and Environment (CITMA), in its capacity as the Organization of the Central Administration of the State in charge of environmental policy in Cuba, is in charge of developing the strategy and arranging actions aimed at maintaining the environmental achievements achieved. By the revolutionary process and contribute to overcoming existing insufficiencies, while ensuring that the environmental dimension is taken into account in policies, programs and development plans at all levels, by "prioritizing studies aimed at confronting climate change and, in general, to the sustainability of the country's development "(Line 133).

1.1. Conceptualization of the Social and Economic Cuban Development Model

It defines the objectives of the practical actions in these spheres in accordance with the historical evolution and the contemporary conditions in which the construction of socialism in Cuba takes place, preserving and consistent with the documents of the 7th Congress of the Cuban Communist Party approved in May 2017 and represents a medium and long term strategic vision integrated by: i) Conceptualization of the Cuban Social and Economic Development Model; ii) Bases of the National Economic and Social Development Plan until 2030. Vision of the Nation, Axes and Strategic sectors; and iii) Guidelines for the Economic and Social Policy of the Party and the Revolution for the period 2016 - 2021.

Among the guiding principles and thematic axes [...], it is identified "To ensure the conservation, protection and rational use of natural resources, as well as adaptation and mitigation actions of the impacts of climate change, in such a way that the relationship with the nature and the environment is a factor that contributes to prosperous and sustainable economic and social development "(Guiding principle No.24) The strategic axis: Natural resources and the environment states that "the establishment of policies for effective risk management and the adaptation of the country to

The strategic axis: Natural resources and the environment states that "the establishment of policies for effective risk management and the adaptation of the country to climate change will be promoted" [...], "promoting the strengthening of comprehensive environmental protection programs environment, with actions aimed at the management of watersheds, mountain ranges, biological diversity; the fight against desertification and drought "[...]" which becomes more complex given the condition of the archipelago where the geological and geomorphological formation and the geographical physical situation make Cuba highly vulnerable "[...]," which leads to promoting the establishment of programs and actions for the effective management of the country to climate change "[...]

It is emphasized that "the State will continue to consolidate and control the functioning and strengthening of comprehensive environmental protection programs, with actions aimed at the management of watersheds, mountain ranges, biological diversity, protected areas, coastal areas, marine resources, reforestation, the fight against desertification and drought; the improvement and conservation of soils, the protection of forests; the prevention, reduction and control of pollution "[...] Highlighting later" Reducing the vulnerability of the country to the effects of climate change through the gradual implementation of the State Plan for confronting it "(General Objective No. 3) and as a specific objective "Implement effective and efficient programs and actions to address climate change, with emphasis on adaptation, reducing vulnerability, and the introduction of systemic and intersectoral strategies".

1.2. National Policies Associated to Climate Change

The environmental policy is fulfilled through Law No. 81 of the Environment through the CITMA, which directs its execution to contribute to the sustainable development of the country. It is carried out through an integral management whose implementation contributes to face challenges in different areas, in particular the affectations to the forest cover in the regions of intervention of the project. Below, several of the most relevant are listed.

- Science, technology, innovation and environment policy

It establishes, among other aspects, maintaining the results achieved in the field of natural sciences, studies and the use of renewable energy sources and expresses verbatim: "Sustain and develop comprehensive research to protect, conserve and rehabilitate the environment and adapt the environmental policy to the new projections of the economic and social environment "[...]," Prioritize studies aimed at confronting climate change and, in general, the sustainability of the country's development. Emphasize the conservation and rational use of natural resources such as soils, water, beaches, the atmosphere, forests and biodiversity, as well as the promotion of environmental education "[...]" (Art.13).

- Energy Policy

There are several guidelines established in the energy policy that are taxed to mitigate climate change. Guideline 246 calls for the promotion of cogeneration and tri-generation in all activities with possibilities and, in particular, the generation of electricity by the sugar agro-industry, based on the use of bagasse and sugarcane and forest agricultural residues. The use of different renewable sources of energy, mainly biogas, biomass and solar, wind, and hydraulic energy.

- Agro-industrial Policy

In this case, Guideline 187 proposes the development of a sustainable agriculture in harmony with the environment, which promotes the production and use of organic fertilizers, bio fertilizers and bio pesticides; and indicates the development of a comprehensive program of maintenance, conservation and promotion of forest plantations that prioritizes the protection of watersheds, in particular dams, hydro-regulatory fringes, mountains and coasts in the reorganization of irrigation and drainage activities , to achieve a rational use of water.

- Policy for buildings, housing and water resources

On the issue of housing construction, Guideline 295 promotes the use of building technologies that save materials and energy resources. In the case of water resources, the water balance is enhanced as the planning instrument through which the efficiency in state and private consumption is measured, with respect to the availability of the resource; it is established to continue developing the hydraulic program with far-reaching investments, to face much more effectively the problems of drought and the rational use of water throughout the country; and it points out to prioritize and expand the rehabilitation program of networks, aqueducts and sewage systems to the house, with the objective of raising the quality of water, reducing losses, increasing its recycling and consequently reducing energy consumption.

Policy Instruments and Environmental Management

Law No. 81 of the Environment (Art.18) establishes that the instruments of environmental policy and management are the following:

- a. The National Environmental Strategy, the National Program of Environment and Development and the other programs, plans and projects of economic and social development.
- b. The present Law, its complementary legislation and other legal regulations destined to protect the environment, including the technical norms in matter of environmental protection.
- c. The environmental order.
- d. The environmental license.
- e. Evaluation of environmental impact.
- f. The environmental information system.
- g. The state environmental inspection system.
- h. Environmental education
- i. Scientific research and technological innovation
- j. The economic regulation.
- k. The National Environment Fund.
- l. Administrative, civil and criminal liability regimes.

1.3. Program to Confront Climate Change

The activity of science, technology and technological innovation linked to climate change has the support of an important group of national and international programs, namely:

National Program to Confront Climate Change: On October 19, 2007 and as proposed by the Ministry of Science, Technology and Environment (CITMA), the Council of Ministers of the Republic of Cuba approved the National Program to Confront Climate Change. Its predecessor was the Number One Directive, signed by the Army General, Raul Castro Ruz, on June 1, 2005, in his capacity as Vice President of the National Defense Council, on the planning, organization and preparation of the country for disaster situations.

On April 8, 2010, a Directive holding the same number was approved, which replaced the previous one, also aimed at disaster reduction; however, this time it was signed by Raul Castro in his capacity as President of the National Defense Council. It incorporates all the experience gathered while experiencing, for the first time in history; three intense hurricanes (Gustav, Ike and Paloma) in the same season (2008) and that affected almost the entire nation, with gigantic economic losses.

The essential principle of the National Program to Confront Climate Change is the strengthening of individual and institutional systemic capacities in order to respond to the challenge posed by climate change. Strategically it relies on existing capacities in related programs such as food security, reforestation, energy revolution and research programs related to climate change.

The Program incorporates risk, vulnerability and risk studies; the results of vulnerability, impact and adaptation studies conducted for national communications to the United Nations Climate Change Convention (UNFCCC); the impacts of the rise in sea level on the Cuban coastal area in its current and future scenario; the territorial environmental order; environmental management and risk management; the sectorial and territorial programs of confrontation to this phenomenon; and actions aimed at encouraging, developing and elevating the environmental culture.

Likewise, the Program integrates the results of scientific and engineering research; the education and training of all the actors of society and the actions for the establishment of an adaptation strategy, based on the knowledge of the state and the evolution of the environment; in environmental monitoring and in the estimation of medium and long term scenarios and their impact in the country.

From the point of view of vulnerability and adaptation to climate change, this program includes the following aspects:

- The studies of danger, vulnerability and risk at the country, regional and local scales.
- The evaluation of the impact of the rise in sea level on the coastal zone, for the years 2050 and 2100.
- The monitoring network of the state and the quality of the coastal zone.
- The adaptation included in the strategies of development, food production, integrated water management, ordering of the coastal zone and hygiene and epidemiology.
- Adaptation in education plans, in their different levels of education.

On the other hand, an important group of national programs contribute to the adaptation to climate change, complementing the country's efforts in this direction. The most important among others are summarized below:

National Forest Program: Aimed at expanding the forest coverage of the country up to 34% by 2030.

Rational Use and Water Saving Program: Since 2005, with the aim of promoting new ways and habits of water consumption, and as a way to reduce its indiscriminate use and ensure its protection (www.hidro.cu)

Soil Improvement and Conservation Program: Implemented since 2000, with the aim of mitigating the degradation of soils and creating conditions that allow a gradual rehabilitation. It has an annual state budget allocation for financing the implementation of soil conservation and improvement measures, with the main beneficiaries being the producers, who have received more than 200,000,000 CUPs to date (Riverol and Aguilar, 2015).

In order to provide greater attention and priority to the problem in 2010, the Demonstration Polygons for

the Improvement and Conservation of Soil, Water and Forest were created to create capacities to face the effects of climate change, applying technologies focused on sustainable agriculture, starting from the farm as a basic unit of management and with attention to the hydrographic basin as a physical - geographical space to be protected. At the end of 2015, there were 35 provincial and 123 municipal polygons for an effective area of 30,889 ha in 1 893 farms, distributed in 61 CCS, 20 CPA, 34 UBPC, 26 UEB, 6 state farms and seven seed farms representative of the soils, edaphoclimatic regions, crops and the most important programs of MINAG.

Program to Combat Desertification and Drought, implemented since 2000, with the objective of linking factors, processes and ecosystems found in nature in constant interaction, based on Sustainable Land Management (MST), to obtain goods and sufficient and quality services, without compromising the state of renewable natural resources and their capacity to recover once the pressure of man to extract their benefits has ceased (<http://www.educambiente.co.cu>)

Country Association Program to Support the National Action Program to Combat Desertification and Drought (CPP): The program seeks to achieve an increase in national capacities to adopt sustainable land management and offer technological alternatives that allow to stop, avoid or remedy the degradation of agricultural lands. It is financed by the Global Environment Facility (GEF) and involves UNDP, UNEP and FAO in various roles and has as a national coordinator the Center for Information, Management and Environmental Education of CITMA. The duration is 10 years (2008 - 2018), and includes five projects and has a budget of 10 million USD.

Program to Fight Against Vectors Transmitting Diseases: with the objective of maintaining strict monitoring and control of the different vector species that may constitute epidemiological risks, including invasive alien species. It provides advice and conducts research that guarantees timely solutions, and influences the development and production of biological products for the control of vectors (www.infomed.sld.cu)

Program for the Sustainable Development of Renewable Energy Sources (FRE), establishes the regulations for the management of FREs in order to contribute to the increase of their participation in the generation of electricity, the elevation of efficiency and savings in this field and the progressive substitution of fossil fuels. It also stimulates investment and research, which pay tribute to the objectives proposed by the country to modify the current energy matrix and states that any equipment that works with FRE or components and accessories for these will be allowed to enter Cuba, without paying taxes.

1.3.1. Synergies with Other International Collaboration Projects Developed in Cuba

Environmental bases for local food sustainability (UNDP, European Union): Its general objective is to support adaptation to climate change, contributing to the continued and sustainable socio-economic development of the Republic of Cuba. Its main expected result is to reduce the vulnerabilities related to climate change in the agricultural sector at the local and national levels. BASAL gives priority to three municipalities: Los Palacios (province of Pinar del Rio), Güira de Melena (province of Artemisa) and Jimaguayú (province of Camagüey).

Protection and sustainable use of biodiversity in the Sabana - Camagüey ecosystem

The GEF has financed three projects in the Sabana Camagüey ecosystem for 20 years active in the ecosystem. The third and current phase, financed with 4.12 million USD from the GEF and implemented by the AMA, aims to promote changes in the productive sectors (including agriculture and livestock) to achieve conservation and sustainable management of the ecosystem's biodiversity.

The project has successfully developed a network of capacity building centers in 13 municipalities, which perform functions of capacity building, scientific knowledge management and technical support to the productive sectors for the sustainable management of resources. In addition, the project has managed to successfully pilot the first experience of territorial environmental management as a means to integrate activities of the different sectors of the municipality.

Application of a regional approach to the management of protected marine-coastal areas in the archipelagos region of southern Cuba (GEF, UNDP): Contributes to the conservation of marine biodiversity in Cuba, including fisheries resources of great regional importance, through capacity development for the application of a regional approach to the management of protected marine and coastal areas in the archipelagos region of southern Cuba as part of the national system of protected areas.

Sustainable Land Management (GEF, UNDP, FAO, UNEP): In order to maximize the effectiveness and efficiency of sustainable land management initiatives in Cuba, through a large-scale program that allows for monitoring, adaptive management and evaluation. Prevention, management and control of exotic species (GEF, UNDP): Its general objective is to protect vulnerable ecosystems, both marine and freshwater and terrestrial, species and genetic diversity, from the negative impacts of invasive alien species.

Conservation of Endangered Mountain Ecosystems (GEF, UNDP): Conserve biodiversity with an innovative approach, on a landscape scale, through the connectivity of fragments of threatened mountain ecosystems, following an altitudinal gradient, i.e.; from the top to the coast, where economic and conservationist interests are integrated, in a harmonious and compatible manner, in order to mitigate the loss of biodiversity and increase their capacity to generate environmental goods and services to improve the social welfare of mountain people . The areas of intervention will be the mountain massifs, main refuges of the biological diversity of Cuba and considered special regions of sustainable development.

Soil Conservation Agriculture to Mitigate the Risk of Food Vulnerability. Funded by FAO (TCP / CUB / 3002). It provides technical support to increase the capacities in the smallholder farmer sector in the introduction and execution of technological solutions for the sustainable management of soil and water. For this, the training, the promotion and extension of technologies to remedy the manifestations of the main processes of soil degradation and to activate ways for their improvement in reference sectors of the Guantanamo - Guaso watershed were used as a main work tool. The functional unit and scope of the programs and plans of integral management of soil and water as part of the natural resources, as well as the adoption and application of the political, economic and environmental decisions that support the territorial program of improvement and conservation of the soils.

Social programs of the Government can be summed to the aforementioned programs, including: technical assistance, education and training, strengthening of social organizations, and conservation and recovery of natural resources and the environment. Likewise, small experiences of articulation of smallholder farmer agriculture to productive chains have been developed.

1.4. Strategies to Cope with Climate Change

1.4.1. The National Environmental Strategy (2016-2020)

The key elements of the country's environmental policy and management, valid for a given period, are structured in the National Environmental Strategy (NES) for that period. It defines the main environmental problems and the actions to face them. The NES designed for the period 2016 - 2020 (CITMA, 2016), now in force, is the Cuban environmental policy document that establishes the principles that sustain the environmental task of the country for those years, the main environmental problems of today are identified and the ways and instruments for prevention and solution are proposed.

Main environmental problems:

- Land Degradation
- Affectations to forest coverage
- Pollution
- Loss of biological diversity and deterioration of ecosystem environmental services
- Lack of and difficulties with water availability and quality
- Impacts of climate change (as a main environmental problem or transversal axis)

The impacts of climate change have a differentiated treatment in the NES, since this phenomenon is recognized among the five main environmental problems in Cuba, given the country's high vulnerability to its adverse effects, in particular due to its status as an archipelago.

Current limitations, economic and financial, constitute an additional element of vulnerability, which restrict the execution of important actions, especially for adaptation to climate change.

In its current edition, the main assumptions of the previous cycle are retaken, with a flexible approach, in order to adjust to the institutional and economic changes that occur in the stage. In addition, the policies and strategies in response to the Guidelines, approved or in the process of being adopted (covering waters, forests, soils, recovery of raw materials, the investment process) increase the need for a thorough revision and updating of the Cuban environmental policy system, which in the period will materialize and, therefore, this document must adapt to these efforts and integrate actions in environmental matters.

General Objectives of the National Environmental Strategy (NES)

To provide the country with an instrument that facilitates the integration of national actions and efforts related to confronting climate change, with economic and social development policies and programs, in accordance with the Economic and Social Policy Guidelines.

Specific Objectives (in terms of adaptation) directly related to the objectives and activities of the project

- Identify the impacts of climate change on the most relevant and vulnerable sectors, activities and

localities, proposing adaptation measures, consistent with climate change scenarios. Carry out the economic, technological and environmental evaluation of the feasibility of said measures, validating them from the monitoring and observations made.

- Promote and control the integration of climate change adaptation into plans and sectorial and local policies, considering the relevant ecosystems, and the urban or rural condition of each territory.
- To create the necessary conditions to coordinate plans and programs related to the strategies and measures to adapt to climate change.
- Serve as a basis for the formulation of project proposals on adaptation to climate change, for channeling through national resources and international cooperation.
- Evaluate the technological dimension, favoring an endogenous development (technological package), most appropriate for adaptation to climate change in Cuba.
- Maintain Hazard, Vulnerability and Risk (PVR) studies updated, given their role in reducing disaster risk and their contribution to climate change adaptation, prioritizing areas, activities in prioritized sectors, "livelihoods", and vulnerable households at the local level.
- Strengthen national capacities to respond to climate change, reducing the vulnerability of the country's population and ecosystems.
- Encourage the active participation of all actors in society in adapting to climate change, and the increase of perception and level of awareness on the subject, emphasizing the local level.

1.4.1.1. Strategic Lines and Actions of the NES Directly Related to the Project

Strategic Line 1: Adaptation. Management of natural resources

Water Resources

Actions

- Complete the characterization and evaluation of water reserves, sources of supply and distribution structures of the resource.
- Plan the use of water, taking into account the systematic evaluation of water resources, incorporating the best available information on climate change.
- To reassess the designs and constructive technical norms for the new hydraulic works, and to execute the measures that are required in the hydraulic works that demand constructive modifications, according to the recalculation of the hydrological parameters of their design, and other adaptation measures.
- Establish the necessary measures and regulations to reduce water consumption in production and services, increasing savings with the introduction of policies that stimulate it, including pricing policies.
- Promote the introduction of appropriate technologies, such as direct harvesting of rainwater and others,

to meet local demands of the resource.

- Re-evaluate or evaluate current water potentials in order to increase the use of hydropower in the country, with special attention to mountainous areas.
- Develop and establish an integrated system to observe the variables of the hydrological cycle (climate, hydrology and oceanography, hydro-meteorological system), which incorporates the perspective of climate change.
- Develop innovative projects to strengthen the early warning system for drought, and improve the early warning system for floods.
- Strengthen the ongoing process of modernization of the observation capacity of the qualitative and quantitative components of the hydrological cycle (pluviometry, pluviograph, hydrometric, hydrogeological, bathymetry, quality network).
- Reduce water loss in networks and conduits of aqueduct, canals and equivalents (irrigation) and promote their rehabilitation and renovation, by introducing appropriate technology.
- Increase the efficiency in the maintenance of the hydraulic infrastructure created, as well as in the administration of the water used for the different economic, social and environmental uses.
- Promote the introduction of appropriate technologies, such as direct harvesting of rainwater and others, to meet local demands of the resource.
- Systematically re-evaluate the current available Cuban water resources (Reference 2002: 13.67 cubic kilometers, equivalent to 57% of the usable resources) to decide the Annual Water Use Plan for the country.

Forests

Actions

- Update the inventory and the management of all forest heritages and establish systematic monitoring of its dynamics, with the use of cutting-edge technologies.
- Strengthen the implementation of the reforestation program on the coast, especially mangroves and implement a conservation strategy with species threatened by sea level rise.
- Establish reserves, in situ and ex situ, of key forest species, to ensure availability of a genetic bank with sufficient diversity for breeding and species replacement programs if necessary.
- Establish an information system for climate alert for the forestry sector, up to the municipal level. Forests do not have municipal boundaries, so the scale should be based on geographic-ecosystem aspects.
- Strengthen the monitoring of natural forests and plantations in the 15 municipalities of medium and high risk, especially when between November and April the air temperature exceeds 24 ° C and when between

May and October, the monthly rainfall is less than 150 mm

- Identify the species that have the potential to become pests after climate change, and transfer the research results as soon as possible to the operational programs of food production.

Biodiversity

Actions

- Promote the management of natural resources based on ecosystems.
- Identify the marine, coastal and terrestrial ecosystems (species, communities and landscapes) that are most vulnerable to the impacts of climate change and establish regulations and corresponding plans for their conservation and sustainable use.
- Identify and use bio-indicators (ecosystems and species of fauna and flora) that allow the detection and evaluation of the effects of climate change.
- Continue to strengthen the National System of Protected Areas, increasing the incorporation into its management plans of the climate change dimension.
- Carry out urgent rehabilitation and restoration actions, of the most important vulnerable ecosystems to the impacts of climate change.
- Study, manage and conserve national genetic diversity in a sustainable manner, for its most relevant use in adapting to climate change
- Carry out studies on the effects of fires, insect pests and diseases on biodiversity in terms of colonizing, descendant and climax species. Determine the degree of "disturbance" in the process of self-recovery of plant systems due to climate change.
- Increase the information bases on the biological diversity and the characteristics of the environment in which they are developed, as well as to complete the inventories of the biological resources, since these constitute the fundamental bases for the development of the investigations to know the impact of the climatic change about it.
- Deepen the state of knowledge of the effects of climate change on invasive alien species, by conducting a review of existing knowledge, preparing a preliminary diagnosis of the problem and making a preliminary list of taxa, geographic areas and ecosystems
- Carry out research, evaluate and quantify the goods and services of Cuban ecosystems with the purpose of increasing knowledge and thus strengthen the capacity to adapt to climate change.
- Promote conservation and use by selectors of genetic resources related to cultivated species (mainly endemic / native), to contribute to food security.

Strategic Line 2. Adaptation

Development of Fundamental Economic Activities

Farming

Actions

- To develop the modeling of erosive processes of the agro-productive soils, under different scenarios of climate change.
- Deepen research on the adaptation to climate change of varieties of vegetables and animal breeds, from genetic and physiological studies.
- Promote the preparation of soils according to environmentally appropriate criteria, encouraging the use of techniques that avoid or reduce the development of degrading processes and applying changes in the tillage and cultivation models, and in the ordering of the soils for their fertility, agriculture productivity and water availability.
- Expand the construction and utilization of the parcel drainage, the leveling of lands and other hydraulic works, used for the control of floods.
- Optimize and/or replace non-efficient irrigation systems.
- Control the quantity and quality of water used for irrigation.
- Apply an adequate varietal policy, to obtain varieties resistant to biotic and abiotic stress.
- Establish an adequate territorial planning, executed on a real and objective basis, in which the local agricultural activities correspond to the economic and ecological conditions of the area. Regionalize agricultural crops taking into account the climatic particularities of the different productive zones.
- Review and establish the new requirements to be included in the technological discipline and technological charts.
- Preventive and integrated management of pests and diseases, with special attention to the use for these purposes of the resources of biological diversity. Introduce new biological controls.
- Identify the species that have the potential to become pests after climate change and transfer the research results as soon as possible to the operational programs of production.
- Adapt agricultural activities, particularly those with the greatest impact on the country's food security, to changes in land use, as a consequence of the impact of climate change.
- Determine the most appropriate forms of management for livestock, with sustainable exploitation techniques, which ensure the feeding of the livestock mass in a manner commensurate with the demands of the population and withstand the impact of the consequences of climate change.
- Diversify the crops. Introduce and develop varieties resistant to the new temperature scenario.

- Match the characteristics and possibilities of adaptation of the crops to the vocation of the soils, for the ordering of the agricultural and non-agricultural territory of the country, in accordance with the current and projected modifications of the meteorological variables, as a result of climate change.

Fisheries

Actions (directly related to the project)

- Develop and control sustainable management plans of the main fishing resources and guide their exploitation according to the compatibility of interests of agricultural, water, tourism, transport and food sectors, in the context of coping with climate change.
- Perform actions of ecosystem rehabilitation, including the construction of nurseries of different mangrove species, and corals such as *Acropora almata*.

Agriculture and Livestock

Actions

- Evaluate and introduce good agricultural practices, which increase productivity, efficiency and the preservation of the environment.
- Support the expansion of the use of composting and the handling of excreta.
- Encourage the use of non-tillage practices or minimum tillage, the use of Silvestre, and vegetation cover in woody crops, reduction of the use of agrochemicals, use and protection of hydro-regulating strips for the improvement of water resources and the increase and protection of organic carbon concentrations in soils
- Support the studies and evaluations of programs and projects for the selection of species and procedures for the production of biofuels, selection of ideal soils to assume the production of the raw material. Encourage the study of the use of ligno cellulosic waste for the production of bioethanol

Forestry

Actions

- Encourage the development, assimilation and application of methodologies on carbon sinks in forested, agricultural and other management and conservation areas.
- Support studies on the impact of climate change on forest cover and its adaptive capacity to future climate conditions.
- Support studies and evaluations on the costs of forestry activity, incorporating the multifunctional nature of forests, that is, the ecosystem services they provide, and not only their role as suppliers of wood, resins and waste, and their capacity as a sink.

Strategic Line 3. Health

Actions

- Develop health care programs for the population, with particular attention to the groups at greatest risk, in the face of abrupt increases in temperature, humidity and other climatic factors.
- Deepen research aimed at studying the effects of climate change on vector-borne diseases.
- Train health personnel in the topics of climate change hazards and health risks, and educate the population in preventive or adaptation measures, in the short and medium term.
- Maintain and improve the early warning system on a quarterly, monthly and weekly basis that includes the main diseases or health risks, in which climate change could influence.

Strategic Line 4. Territorial and Urban Planning

Actions

- Elaborate urban regulations that take into account the occurrence of extreme phenomena, and promote energy efficiency and the use of renewable energies, the more rational use of water and the adequate management of liquid and solid waste.
- Consider the dimension of climate change in the implementation and application of measures that regulate the migratory movement.
- Develop and maintain a program of actions regarding facilities or buildings, mainly in the coastal area.
- Promote the differentiated treatment of spatial localization (settlement patterns) of settlements of all types, according to the expected impact on them due to climate change, in terms of seeking comfort, safety or less vulnerability

1.4.1.2. Adaptation measures in the management of natural resources

- Soils: Preparation of the soils according to environmentally appropriate criteria, use of techniques that avoid or reduce the development of degrading processes, changes in the tillage and cultivation models and soil management due to their fertility, agro productivity and water availability.
- Water resources: Water saving and reuse in the main productive activities and services, measures for the protection of water quality, improvement of early warning systems for drought and floods, as well as re-evaluation of designs and constructive technical standards for new hydraulic works, seeking greater efficiency.
- Atmosphere: Use of non-polluting technologies.
- Biological diversity: Identification of the most vulnerable ecosystems and protected areas, as well as the establishment of conservation priorities and protection of species at the local level, of economic, environmental and social value, exposed to the impacts of climate change. Rehabilitation and restoration of ecosystems degraded by anthropogenic effects and climate change.
- Forests: Specialization of reforestation for different ecosystems, including varieties adaptable to them and achievement of an adequate forest management, increasing survival rates and achievement of plantations. Permanent moratorium on the exploitation of mangroves.
- Agriculture: Sustainable land management, use of good agricultural practices. Arrangement of agricultural areas, taking into account the regionalization of crops, the agro productivity of soils and the availability of water in which local agricultural activities correspond to the economic and ecological conditions of the area. Obtaining, through scientific research, varieties resistant to extreme weather conditions. More efficient irrigation systems. Preventive handling of pests and diseases, with special attention in the introduction of new biological controls given by the loss of the effectiveness of different organisms, mainly to the rise in temperature.
- Tourism and use of the beaches: Protection and rescue of the native vegetation adapted to the conditions of dryness, salinity and edaphic cover and, therefore, a less vulnerable vegetation. Protect the mangrove area. Preserve the vegetation complex of sandy coast. Integrated coastal management. Development of architecture in harmony with the environment.

1.4.2. Current Context of the National Environmental Strategy Cycle

It is characterized among other factors, by the elements presented below:

- Improvement of the structures and functions of the Ministries and other national entities.
- Separation of state functions from business functions.
- Increment top business management organizations.
- Attempt to strengthen the role of territories and local management.
- Increase and diversification of the policy and environmental management actors. The management model recognizes and promotes, in addition to the state enterprise, the modalities of foreign investment

provided by law, cooperatives, small farmers, usufructuaries', tenants, self-employed workers, and other forms of non-state management.

- The actualization of the Cuban economic model and the implementation of associated measures.
- The policies and strategies derived from the implementation of the "Guidelines for the Economic and Social Policy of the Party and the Revolution", which are closely related to environmental policies and natural resources.
- The imperative to achieve greater economic efficiency as well as the optimal use of the available financial resources, be they national or from international projects.
- The need to increase national production and the quality of the goods and services that contribute the most income and to substitute imports, while studying and implementing structural changes and formulas that release productive potential and reduce the irrational consumption of resources.
- The obligatory need to employ efficiently in the economy and society, renewable and non-renewable natural resources and the raw materials of the productive processes and services.
- Growing participation of society and its organizations, including non-governmental organizations, in the construction and development of the protection of the country's environment.
- Evolution of national environmental policy and management, which in many cases has exceeded the strategic framework of the EAN.
- Climate change as the main global challenge, which requires increasing the application of measures, in the short, medium and long term, of adaptation and mitigation, in correspondence to the dangers, the degree of vulnerability and the risks to which our archipelago is subject.

1.4.2.1. Government directives related to the confrontation to climate change

- Include in the planning cycle, both in the annual plans and in the economic projections of the government at all levels, the measures of confrontation to climate change, prioritizing the coastal zone and, especially, those highly vulnerable to people and the natural and built heritage.
- Include in the plans and projections the measures aimed at reducing the coastal vulnerability for the settlements threatened by the rise in sea level and the over-elevation of this by hurricanes and surges.
- Consider in the plans and projections the sandy beaches of tourist interest, recreational, or coastal protection, both current and prospective, rehabilitation and maintenance actions.
- Include in the development plans the recovery, in the medium and long term, of the areas with the most affected mangroves within the Cuban archipelago.
- Include in the plans and projections the measures to stop the deterioration of the coral reef ridges most affected by the action of men in the Cuban archipelago.

- Update current legislation on the environment, adapting it to the policy and Cuban stance on climate change.
- Incorporate the tasks of the Climate Change Confrontation Program at the sectorial and territorial level to the current NES.

1.5. National policies, programs and strategies in the field of forestry

The Constitution of the Republic of Cuba establishes that forests are the socialist state property of the entire people and that the State protects the environment and natural resources of the country whose rational use and conservation is conceived as a matter of national security.

In 1990 the "Forest Policy in Cuba and its execution" was published, a document endorsed by the definitions established in the II and III Congress of the PCC and by the agreements of the meeting of the forestry sector in October of 1982 presided over by the maximum state direction and country policy.

In 1998, the document "Forest Policy of Cuba" was prepared and submitted to the Council of Ministers for consideration, which led to the 2005 - 2015 Forestry Development Program being drawn up in 2005.

The main guidelines of these policies have been constantly monitored and updated, which is manifested in the systematic increase in forest area as a result of more than 50 years of the reforestation program. Similarly, the strengthening of the forest fire protection system is the result of these policies.

Although in the country there is an annual increase in forest coverage as a result of the National Forest Program (2013 closed with a forest index of 28.95%), there are still different problems that affect the quality of this rehabilitation process, among those that stand out:

- Forest and rural fires, whose causes, in more than 90%, are human.
- The control mechanism of the forest guides is insufficient.
- Deficiencies in the organization and limitation in the resources destined to the seed activity and in the nurseries.
- Low compliance with key indicators in the progress of reforestation processes (selection of species, survival and achievement of the plantation).
- Inappropriate management of certain species that were and are being used in sites or environments where they should not be located.
- Only 59% of forest areas have their management plans approved. The areas that do not have an approved management are being exploited and carrying out forest management actions.
- There is no mechanism to grant permits for the exploitation of non-wood forest resources, which creates difficulties with the granting of licenses for self-employment associated with this purpose.
- In urban areas there are insufficiencies in the treatment of public spaces, including green, sports and

recreational areas, with levels of trees inferior to the international reference parameters.

- According to Herrero (2015) in the nation there are numerous programs directly or indirectly linked to the theme of forests that indicate the importance of this resource for society, the economy and the environment. Among those that stand out the following:
- National Hydrographic Basins Program: Includes 11 basins defined as of national interest and in which several subprograms are developed, including reforestation.
- National Program for the Improvement and Conservation of Soils: The establishment of around 30 Polygons of Conservation of Soils, Water and Provincial Forests and one of national character, has been a successful sub-program that is expected to continue expanding; it is an example to be followed because in them the fundamentals of sustainable agricultural development are applied in a practical way through the integrated management of soils, waters and forests.

- National Program of Urban, Suburban and Family Agriculture of Cuba:

It is developed as an organized system since 1997. Its objective is to obtain the maximum production of diverse, fresh and healthy food in available, previously unproductive areas, as well as to promote forestry activity. It links more than 384 thousand people in 156 municipalities, it is coordinated and directed by the Institute of Fundamental Research in Tropical Agriculture (INIFAT) of the MINAG, operated with a multidisciplinary approach and is made up of specialists from different institutions of six ministries.

Decree - Law 300 has allowed the delivery of state lands in usufruct and most of these farms are within Suburban Agriculture (ASU). The units of the AU / ASU of Cuba have to be profitable, for which there is a management model perfected through the years where the commercialization is carried out in most of the organoponics and intensive orchards directly to the population at prices of supply and demand. The integration has been fundamental to achieve multi, inter and transdisciplinary approaches, which confirms the agro-environmental approach that this project.

- Country Association Program

This program constitutes a novel modality of which Cuba was a pioneer among the five countries that develop it. It was designed and approved with a scheme of five interconnected projects that complement each other. In addition, it was approved by the Global Environment Facility (GEF), and is implemented through the United Nations Development Program (UNDP), the United Nations Environment Program (UNEP) and FAO, being the Environmental Agency (AMA), CITMA, the national entity responsible for its execution and implementation. In addition, it is located in the context of the new economic and social policy of the country where the approaches and expected results support 19 guidelines located in six chapters of the document "Guidelines for Economic and Social Policy of the Party and the Revolution."

Likewise, forestry plays a relevant role in other national programs and strategies such as:

- National Forestry Program, with the objective of expanding the country's forest coverage to 29.4% by 2015.

- National Program to Combat Climate Change: forests and forestry activities in general have a high profile.
- National Environmental Strategy: in the three implementation cycles (since 1997, 2015 and 2016) has identified the effects on forest cover as one of the main environmental problems.
- National Strategy of Biological Diversity 2011 - 2015: the issue of forests has a great impact if one takes into account that the highest percentage of endemism of the Cuban flora and fauna is located in forest ecosystems.
- National Strategy for Environmental Education 2011 - 2015: active participation is fundamentally at the local level. With the specific objectives of supporting from the educational point of view the following aspects:

- a. Develop a comprehensive program of maintenance, conservation and promotion of forest plantations that prioritizes the protection of watersheds, in particular, the dams, the hydro-regulatory fringes, the mountains and the coasts.
- b. Address the causes and reduce the effects caused by rural fires.
- c. Introduce adaptation and mitigation measures to climate change in the forestry sector.
- d. Ensure that the selections of soil for planting of forest in flat and pre-mountainous areas do not imply the occupation of soils with high agro productive capacities.

1.6. Project Life: State Plan for Confronting Climate Change in Cuba

In regards to the documents previously prepared on this subject, the State Plan, known as Project Life, has a superior scope and hierarchy, constitutes an integral proposal, which can be enriched during its development and implementation of progressive investments in the short (2020), medium (2030), long (2050) and very long terms (2100), in prioritized areas, areas and places. It consists of five strategic actions and 11 tasks (Appendix 2.7.1).

- Sur de las provincias de Artemisa y Mayabeque.
- Litoral Norte de La Habana.
- Bahía de La Habana.
- Zona Especial de Desarrollo de Mariel.
- Varadero y sus corredores turísticos.
- Cayos turísticos de Villa Clara.
- Cayos turísticos del Norte de Ciego de Ávila.
- Costa Norte y Sur de Ciego de Ávila.
- Cayos turísticos y costa Norte de Camagüey.
- Litoral Norte de Holguín.
- Bahía de Santiago de Cuba.
- Ciudades costeras amenazadas por la subida paulatina del mar: Cienfuegos, Manzanillo, Moa, Niquero y Baracoa.
- Asentamientos costeros no contemplados en las zonas anteriores, pero que se diagnostica su desaparición en el 2050 y 2100 ubicados en las provincias de Sancti Spiritus, Camagüey, Pinar del Río y Villa Clara.
- Playas arenosas con erosión intensa, no contempladas en las zonas anteriores que desaparecerían si son afectadas por eventos meteorológicos extremos; y otras de interés turístico y recreativo, ubicadas en las provincias de Camagüey, Pinar del Río, Granma, Holguín, Las Tunas e Isla de la Juventud.
- Zonas costeras desprotegidas con intrusión salina ubicadas en las provincias de Pinar del Río, Matanzas, Granma, Camagüey, Cienfuegos y Sancti Spiritus.



Chart 1. Identification of Project Life Priorities in Cuba

Regarding the documents previously prepared on this subject, the Project Life updates them and includes the territorial dimension through the following strategic actions of which, in particular, the third, fourth and fifth direct the present Project.

1. Do not allow the construction of new houses in threatened coastal settlements predicted to disappear due to permanent flooding and the most vulnerable. Reduce population density in low-lying coastal areas.
2. Reduce the areas of crops close to the coasts or affected by saline intrusion.
3. Diversify crops, improve soil conditions, introduce and develop varieties resistant to the new temperature scenario.
4. Plan in the determined times the processes of urban reordering of the threatened settlements and infrastructures, in correspondence with the economic conditions of the country. Start with lower cost measures, such as induced natural solutions (beach recovery, reforestation).
5. Implement and control adaptation and mitigation measures to climate change derived from sectorial policies in programs, plans and projects related to food security, renewable energy, energy efficiency, territorial and urban planning, fisheries, agriculture, health, tourism, construction, transport, industry and integrated management of forests.
6. Manage and use the available international financial resources, both from global and regional climate funds, as well as those from bilateral sources to execute the investments, projects and actions that derive from each of the Tasks of this State Plan.

1.7. The National Determined Contributions (NDC)

<http://www4.unfccc.int/submissions/INDC/Published%20Documents/Cuba/1/Republic%20of%20Cuba-INDCs-Nov2015.pdf>

The National Determined Contributions (NDC) are perceived as an ongoing process that began in the United Nations Climate Change Convention (UNFCCC) in 1992 and continues today under the principles and mandates of the Convention, in particular the differentiated obligations that stipulates Article 4 of this legal instrument where adaptation is a priority for Cuba, for which the following actions are proposed:

1. Reduce coastal vulnerability for settlements threatened by sea level rise and over-elevation due to hurricanes and waves.
2. Recover the most affected mangrove areas of the Cuban archipelago and stop as much as possible the deterioration of coral reef ridges.
3. Incorporate the dimension of adaptation to programs, plans and projects linked to food production, integrated water management, land planning, forestry, fishing, tourism and health.
4. To set up an environmental monitoring network, which allows the systematic evaluation of climatic and environmental trends for decision-making.
5. Reduce vulnerability in the health sector, based on a better knowledge and understanding of the relationships between climate variability, climate change and human health, in two essential areas: infectious

diseases and the Surveillance System and Early Warning of the sector.

6. Sustain and develop comprehensive research to protect, conserve and rehabilitate the environment and adapt environmental policy to the new projections of the economic and social environment.

1.8. Sustainable Development Goals (SDG)

It is worth mentioning that each of the interventions in the Project Life will contribute to the compliance of the National Determined Contributions (NDC), as well as to eight Sustainable Development Goals (SDG 1,2, 5, 6, 8, 9, 13 and 15) to which this project will benefit directly, as stated below.

1. End of poverty

Cuba does not have official poverty figures. It should be noted that the social programs and projects, implemented for more than fifty years in the country, have allowed the absence of extreme poverty characterized by deprivations that affect the development of capacities and basic well-being of people.

However, this objective in the project has a direct relationship and is relevant in the first place because the people who will benefit directly are those who are located in the most vulnerable areas of the three provinces of intervention.

2. Zero hunger

The Cuban social policy model postulates that everyone has the right to satisfy their basic needs not as a consumer, but as a citizen with rights, without discrimination, or marked differences. For this reason, poverty in Cuba is not to be measured by the official indicators set by the Millennium Development Goals. This universal social policy and subsidized by the State has allowed the entire population, even the lowest income, to access consumer goods and basic services that are not available to the poor in countries with similar levels of development. Some of the benefits of the Cuban system are: a basket of food and other goods at subsidized prices (which guarantees almost half of the daily caloric consumption per capita); free health care, both in preventive and curative functions, as in specialized medical services; free general education up to the top level; security and social assistance system, which protects the elderly and disabled; guarantees of future for the children, among others.

However, despite the advantages of the implemented social policy model, more vulnerable groups are observed, mainly in the eastern region of the country. The main features of family vulnerability are the result of low-paying jobs, housing or equipment deprivation, accelerated population aging and chronic diseases.

5. Gender Equality

It is important to highlight that the Republic of Cuba has laws, policies and strategies¹ which constitute the framework of actions aimed at achieving better levels of gender and age equality, including the agricultural sector.

¹ National Development Strategy (1959), Political Constitution of the Republic (1976), National Action Plan of the Republic of Cuba in Follow-up to the IV UN Conference on Women (Beijing, 1997)

In this sense, the project has as a baseline and transversal axis the gender approach with several of the actions that it has conceived for the improvement of the quality of life and the economic empowerment of the women who today are in the rural homes of the territories in which it will be implemented.

6. Clean water and sanitation

The water availability per capita for Cuba is 1 231 m³ / year, which places it in the category of countries with high pressure on its water resources, in a situation of scarcity and where the rate of use often exceeds the natural renewal of water. As a result, regions with water shortages will appear, remaining without meeting the needs of the resource for the economy, society and the protection of the environment.

Likewise, an increase in saline wedge and contamination of underground wells and aquifers is expected, due to the elevation of the mean sea level and the poor management of pumping facilities in the face of water scarcity, which is an element that increases vulnerability of the populations, agricultural plantations and the cattle, which forces the transfer of important volumes of water for the supply of these, the population and the crops.

8. Decent work and economic growth

Faced with the deficit of employment in the rural area and the need to increase agricultural production to improve food and family economy of the beneficiary households, the project will work on the generation of new jobs and improvement of the quality of these from of the different modules; ensuring that project investments have a gender focus (tools, materials, equipment, differentiated inputs according to the needs of men and women).

9. Industrial Innovation and Infrastructure

Agriculture in Cuba has been marked by a deep decapitalization of its assets and productive systems, as well as by the deficit of productive and social infrastructure in rural areas; This has intensified with the recession experienced by the country's economy since the 1990s and the resurgence of the blockade imposed by the United States.

In this sense, the present project counts, that the designed modules start from a generalization approach of good practices, the integration of the agricultural, livestock and forestry production, the incorporation of scientific results to the productive activity and the inclusion of technological advances, with in order to ensure adaptation effects, strengthening of the value chain (industrial processing) and co-beneficiaries of mitigation.

10. Climate Action

The processing and analysis of the databases show that the climate of the central zone is drier and hotter than 37 years ago, with negative impacts on crops and soil cover. In recent decades such trend, especially affects the yields of the main crops and households in the AIP.

11. Life of terrestrial ecosystems

The effects on biological diversity are also important in the AIP, especially in the central region where bird nesting areas, beaches, and protected areas are located that are affected by extreme events⁷, increase in mean sea level, penetration of the saline wedge and the periods of intense droughts, heavy rains and soil erosion. However, an important affectation to the biological diversity constitutes the colonization of zones of economic interest by exotic species, among which is the marabou.

It should be noted that each of the interventions in the Project Life, will contribute to the compliance of the National Determined Contributions (NDC), as well as to eight Sustainable Development Goals (SDG 1, 2, 5, 6, 8, 9, 13 and 15), directly implemented by this project, as stated below:



Chart 2. Protected Areas of Cuba
Source: CITMA (2015)

Protected areas according to management categories in areas surrounding the AIP:

Central Zone	Eastern Zone
RF_Las_Picuas-Cayo_Cristo	RF Monte Cabaniguán – Ojo de Agua
RFM Monte Ramonal	

Category of Management: RF: Wildlife Refuge. RFM: Floristic Reserve Managed

2. LEGAL AND NORMATIVE Frameworks

Based on the aforementioned background, the legal and regulatory framework of the project is inscribed in the context of national actions and efforts related to confronting climate change in accordance with Article 27 of the Constitution of the Republic of Cuba, which states:

"The State protects the environment and natural resources of the country, recognizing its close link with sustainable economic and social development to make human life more rational and ensure the survival, well-being and security of current and future generations. To the competent bodies to apply this policy, it is the duty of citizens to contribute to the protection of water, the atmosphere, the conservation of soil, flora, fauna and all the potential use of nature" (www.gacetaoficial.gob.cu/html/constitucion_de_la_republica.html)

Parallel to the Guidelines of the Economic and Social Policy is set "Sustain and develop comprehensive research to protect, conserve and rehabilitate the environment, evaluate economic and social impacts of extreme events, and adapt environmental policy to the projections of the economic and social environment Execute programs for the conservation, rehabilitation and rational use of natural resources Promote environmental education processes, considering all the actors of society. (Art. 158)

Likewise, some general considerations are included regarding the process of implementation and adaptation of the legal norms to the approved policies for the updating of the economic model in Cuba.

2.1. Institutional framework relevant to the project

2.1.1. Law No. 081/1997. Environment Law

(http://www.oas.org/dsd/fida/laws/legislation/cuba/cuba_81-97.pdf)

The Environmental Law (No. 081/1997) has the purpose of establishing the principles that govern environmental policy and the basic norms for the conservation of agricultural and forestry soils (Art. 109, 115) and to promote the development of integral systems of management of the ecosystems cultivated for a 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.

2.1.2. Forestry Law No.85 / 1998

(<http://juriscuba.com/wp-content/uploads/2015/10/Ley-No.-085-Forestal.pdf>)

It has among its objectives to establish the general principles and regulations for the protection, increase and sustainable development of the forest patrimony [...], to promote reforestation and silvicultural management [...], to protect the forests against irrational felling, forest fires and other actions [...] (Art. 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.

2.1.3. Law No. 95/2002 of Cooperatives of Agricultural Production and Credit Services

(http://www.aciamericas.coop/IMG/pdf/cuba_ley-95-coop-de-prod-agropecuaria-y-de-creditos-y-servicios.pdf)

The CAP is an economic entity that represents an advanced and efficient form of socialist production with its own patrimony and legal personality, constituted with land and other goods contributed by small farmers,

to achieve a sustainable agricultural production (Art.4). The CCS is the voluntary association of small farmers who have the property or usufruct of their respective lands and other means of production [...]. It is a form of agrarian cooperation through which the technical, financial and material assistance that the State provides to increase the production of small farmers and facilitate their commercialization is processed and made viable. It has its own legal personality and they respond to their actions with their assets. (Art.5). [...], is part of the agricultural and forestry production system (Article 8) and that must comply with and apply the regulations for the use and conservation of soil, forests, water resources and all other related to the protection of the environment (Art.16 paragraph g)

2.1.4. Decree No. 179/1993. Protection, Use and Conservation of Soils

(<http://juriscuba.com/wp-content/uploads/2015/10/Ley-No.-085-Forestal.pdf>)

It constitutes the basic legal norm in terms of soil protection. 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).

2.1.5. Law No. 124/2017. Terrestrial Waters.

<http://www.hidro.gob.cu/INRH/Ley24delasaguaterrestresGacetaOficialExtraordinaria20NoNovember2017.pdf>

It regulates the integrated and sustainable management of terrestrial waters that are inside or above the earth's crust, regardless of their physical, chemical or bacteriological composition, in the space that makes up the emerged part of the national territory bounded by the coastline.

When the water availability imposes it, the following order of priorities is established for the use of the terrestrial waters:

- a) Human supply;
- b) Animal supply;
- c) Health flow;
- d) Agricultural irrigation and industrial food production;
- e) Rest of the industry;
- f) Aquaculture in reservoirs or ponds and shrimp farming;
- g) Ecological flow

h) Recreational

The Assignment Plan (Article 120) is part of the process of using land waters and once approved, as part of the annual plan of the national economy, it is the basic tool for the operation of the sources and a guarantee of delivery of water to the user according to the activity performed.

The volume of annual water assigned and its distribution are the basis for the establishment of the contractual relationship between the user and the person providing the service.2.1.6.

2.1.6. Decree Law No.212 / 2000 Management of the Coastal Zones

<http://www.patrimoniociudad.cult.cu/legislaciones/04DLey212.pdf>

Its purpose is to establish the provisions for the protection and sustainable use of the coastal zone [...], in accordance with the principles of integrated management (Art.1) and corresponds to the lowlands that are influenced by the ebb and flow of the tides or filtration of seawater (Art.4, d). The coastal zone will preferably remain unoccupied, authorizing only the development or execution of activities that by their very nature do not admit any other location (Art. 15.1). Regeneration, improvement and conservation of said area, afforestation and reforestation activities and others of a similar nature, provided that the environmental impact assessment process has been completed, in which CITMA has been working on the regulatory provisions that complement the legal framework.

2.1.7. Decree - Law No. 300/2012. On the delivery of idle state lands as usufruct

<http://www.fgr.cu/sites/default/files/Decreto%20Ley%20300%20Tenencia%20de%20la%20Tierra.pdf>

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 marabou [...]; 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).

2.1.8. Decree Law No. 334/17. (GOC-2017-839-EX58) Modify articles 9, 10, 14 and 22 of Decree-Law No. 252. "On the continuity and strengthening of the Cuban Business Management and Management System"

<http://www.radiorebelde.cu/documentos/gaceta-58-sistema-empresarial-cuba.pdf>

For the purposes of organizing, directing and controlling the progress of the Business Improvement process in the companies of local subordination in each province [...], structures in charge of these functions can be created, as well as a Group as an advisory body in the organizations of the Central Administration of the State and higher organizations of business management [...], as appropriate to meet these functions (Article 9, 10). Companies in the process of business improvement are integrated into a higher organization of business management or are subordinated to a body of the Central State Administration or Council of Provincial or Municipal Administration [...], according to the stage of the process of institutional improvement to which they are subject (Art.14). The higher organizations of business management, companies and other entities that are authorized to implement the System of Management and Business Management must be certified by the Ministry of the Interior security and protection activities and once executed the implementation, are required to register in the Commercial Registry (Art. 22).

2.1.9. Decree Law No. 334/17. (GOC-2017-840-EX58) The modification of Decree No. 281 "Regulation for the Implementation and Consolidation of the State Management and Management System"

<http://www.radiorebelde.cu/documentos/gaceta-58-sistema-empresarial-cuba.pdf>

Modify articles 1, 46, 64, 65, 76, 77, 83, 84 and 87 of Decree No. 281, which are worded as follows: Approve the policies, principles and general procedures for action in the development of the Improvement process Business; propose to the Council of Ministers the necessary modifications [...]; authorize companies and top management organizations to start applying the Management and Administration System [...], based on the opinion of the Executive Group; systematically evaluate the results obtained by the companies and higher management organizations [...], approving the corresponding [...] measures, approve the suspension of the application of the system in those companies [...] that have not achieved the expected results in their management; authorize the reincorporation into the system of those companies and higher management organizations that were suspended from its application; evaluate the progress of the Business Improvement process in each body [...], approving the corresponding measures that demonstrate quality in the application of the Management System and Management [...], the power to approve the files of their companies and superior management organizations ; extend, exceptionally, up to two years the term established in articles 8, subsection a); 44.1 and 87 of this Regulation; exceptionally authorize the adoption of measures related to the business improvement process in business entities that do not comply with the precepts established [...]; and others that are assigned by the Council of Ministers. "(Art.1, 1 - 12). 2.1.10.

2.1.10 Decree Law No. 335/17. (GOC-2017-841-EX58). From the Cuban state business system. Scope and general principles

<http://www.radiorebelde.cu/documentos/gaceta-58-sistema-empresarial-cuba.pdf>

Applicable to all Cuban state business entities (Art.1), integrated by higher organizations of business management, companies and basic business units [...] (Art.2), arise to support the separation of state functions from business, which allows companies to organize in correspondence with state interests [...]; to make management processes more flexible, achieve promptness in problem solving, and guarantee an effective link between research and production and the best use and preservation of scientific potential (Art. 4). They have legal personality and their own assets [...] (Article 6.1). They can be integrated by self-financed science, technology and innovation entities, with the aim of achieving an integral and economically

sustainable management of science, technology and innovation (Art.7.1) [...], they are organized in Groups or Unions, in correspondence with the organizational and technological characteristics of the entities that comprise it (Art.8.1). The Business Group is the top management organization made up of companies with different production structures [...]; without necessarily having a direct interrelation between them [...] (Art.8.1.2 and 3). The state company is an entity with legal personality and its own assets [...], which covers its expenses; complies with the contributions destined to the State and reserves resources for its own development and benefit. It is state-owned and cannot be subordinated to another company or have losses. Responds for the obligations inherent in its financial resources (Art.12, 1 - 5). The basic business units are internal divisions that are created [...], to organize the processes of production of goods and provision of services, act with relative independence, subordinate to the head of the entity that creates them and have no legal personality or heritage own. It is the only structure from which all the processes of production or service provision are organized; it can be created on a temporary or permanent basis, in correspondence with the characteristics of the process carried out [...], with the aim of providing services to third parties [...] (Art.20, 1 - 5). They are characterized by having controlled autonomy under the principle of covering their expenses with their income, and providing a profit margin to the company or to the superior organization of business management, as appropriate [...] (Art.22, 1 - 4).

2.1.11. Decree Law No. 336/17. (GOC-2017-842-EX58). Of the system of relations of the superior organizations of managerial direction

<http://www.radiorebelde.cu/documentos/gaceta-58-sistema-empresarial-cuba.pdf>

It regulates the relations of the higher organizations of business management with the Council of Ministers, the national state organs, the organizations of the Central State Administration and the state institutions [...], governs for the higher organizations of business management attended by a vice-president of the Council of Ministers or a Minister [...] (Art.1, 1 - 3). The exercise of attention to a higher organization of business management includes coordination and control, for which it carries out, among others, the following functions: Evaluates the socio-economic results [...]; controls the investment process and development programs; compliance with the provisions on technology transfer [...], coordinates studies for the creation of structures and mechanisms for the integration of science, technology and the environment [...], controls the application of foreign investment policy , the collaboration and its results and fulfills any other function assigned by the Council of Ministers or legally disposed of. (Art.9, 1 - 9).

2.1.12. Resolution No. 873/2007. National Commission of Reforestation

The National Commission of Reforestation (Res. No. 873/2007), is an Inter-Agency Commission subordinated to the Executive Committee of the Council of Ministers, for the increase and development of forestry activity (Art. 1), has among its functions the plans of reforestation in the short and medium term, that respond to the Forestry Development Program, the increase of forest area in watersheds, implementation of forest management projects, [...] measures against forest fires, promote the creation program of forestry [...] farms, systematize the application of criteria and indicators of sustainable forest management [...], promote the application of scientific results and technological innovation, incorporate the population into training, extension and dissemination programs that contribute to culture, especially of children and young people [...] (Art. 3, paragraphs1,5,6,8,15,18,20), with provincial and municipal commissions that they fulfill within

the framework of their territories and in what concerns them the functions of the National Commission (Art. 16-23). Appendix 2.7.2.

2.1.13 Joint Resolution 1/2012

It establishes the income that sustains the National Forestry Development Fund [...], (Art.1), as well as the destinations in which the financial resources can be used [...], (Art.2.1). With the FONADEF the expenses of the silvicultural activities executed by fulfilling the established requirements will be compensated, regardless of the form of tenure of the person who manages the forests and executes forest promotions (2). To include in the Annual Plan of activities to be financed, Those interested must submit to the State Forestry Service, the projects and technical evaluations, economically valued that express the expected results in the form and terms established by the Forest Law Regulation [...], in the same way the activities are paid when they are finished totally or partially, certified by the Municipal Forest State Service (3). It also regulates the financing of measures and actions for the development, conservation and protection of flora and fauna associated with forests (Chapter III), where they can have access to financing measures and actions for the development, conservation and protection of the flora and the fauna all the people [...], holders of forest patrimony that present / display values of the flora and the wild fauna associated to the susceptible forests to be protected or conserved (Art.15). On financial incentives (Cap.IV), they constitute a stimulus to the results of the work carried out in compliance with technical standards and are granted to people [...], who execute forest plantations, silvicultural management, wildlife projects and fire protection measures, reaching up to 30% on technological costs (Article 17). To grant the incentives, the following principles must be met: having the technical project approved by the Municipal Forest State Service [...], activities that can be measured in physical terms (Art.18, a, b). Regarding the administration and control of the financial resources of FONADEF (Cap.V). It corresponds to the Directorate that deals with the financial activity of the MINAG and its provincial structures, to keep the accounting of the income and the destinies of the financial resources of and to operate the bank accounts (Art.19). It corresponds to the heads of the Provincial Forestry State Service in coordination with the Delegate to take the monthly control of the certifications [...] (Art.20). The users of the FONADEF are the persons [...], to whom the Forest State Service certifies the conclusion of projects and activities totally or partially (Article 21).

2.1.14. Resolution No.768 / 2012. Supplementary Procedures Manual to the Regulations of the National Forest Development Fund

<http://juriscuba.com/wp-content/uploads/2015/10/Ley-No.-085-forestal.pdf>

Under the Forestry Law (Art. 6), the Manual of Procedures complementary to the Regulations of the National Forestry Development Fund (FONADEF), which regulates the functioning of the Board of Administration of FONADEF (Resolution No.768 / 2012) (Art.1), as well as the requirements to certify the payment of the activities executed, [...]; technical projects related to agroforestry systems [...]; the conservation and restoration of landscapes [...]; the formats and models of the forestry technical projects to be approved by the State Forestry Service; the models of certification and control of the activities carried out (Art.1, a - h). It corresponds to the Forest State Service (SEF) in compliance with the provisions of paragraph d) of Article 11 of the Regulations of the Forestry Law, to certify this Manual for the execution of the activities that are financed by the FONADEF for payment by the operators of bank accounts (Art. 2), as well as authorizing the payment of forest incentives through compliance with indicators (Art. 26 - 27). For the administration and control of FONADEF, a Board of Directors is set up, which will be chaired by a representative of MINAG and made up of representatives from the Ministries of Economy and Planning, Finance and Prices and the Central Bank of Cuba (Art.4). The Board fulfills the following functions: administering the FONADEF; approve the financial requirements and priorities [...], in national and freely convertible currency and propose their distribution by provinces; [...], as well as other sources of income related to forest heritage; request information on specific aspects of the funds used and their results [...]; approve the financial requirements, [...] which will be proposed to the MINAG in the preparation stage of the preliminary draft budget, which will be destined preferably for the rehabilitation and promotion of forest areas of the province that produced the revenue and approve the quarterly and annual information on the financial situation of its use and results achieved (Art.5, a - g)

2.1.15. Directive No. 1/2010. For the planning, organization and preparation of the country for disaster situations

http://www.sld.cu/galerias/pdf/sitios/desastres/directiva_vp_cdn_sobre_desastres.ultima_version.pdf

The National Defense Council, together with other agencies and institutions, establishes the regulations for the organization, planning and preparation of the country for situations of natural disasters. It is specified that the main risk is located in the areas of natural and artificial forests and empowers the National System of forestry areas to recommend preventive measures such as increasing reforestation in the perimeter of hydraulic works, applying firebreaks in forest areas among others.

The Ministry of Science, Technology and Environment, together with other agencies and institutions, has been working on the regulatory provisions that complement this legal framework; such is the case of the regulations on Environmental Impact Assessment, State Environmental Inspection, Toxic Chemicals and Hazardous Waste, among others, whose provisions and legal norms.

3. ADMINISTRATIVE STRUCTURES RELATED TO AGRICULTURE AND THE FOREST DEVELOPMENT FUND.

The institutional capacity linked to confronting climate change and sustainable resource management in Cuba is strong, made up of a large number of agencies of the state central administration (OACE), universities, research institutes, agricultural enterprises, cooperatives and individual producers. Where all the agencies involved especially the Ministry of Agriculture and agricultural production cooperatives (CPA), basic units of cooperative production (UBPC) and credit and services cooperatives (CCS), as well as non-governmental organizations (especially ANAP, that groups the private farmers) participate widely in the design, dissemination and application of conservation agriculture practices and techniques, as well as comply with the measures derived from the agro-environmental policy within the framework of their competences; immediately taking the measures within their reach or demanding the participation of higher levels if necessary.

It is estimated that the CCS, CPA and UBPC control more than 74% of the arable land and produce around 78% of the agricultural production of the country.

Likewise, cooperatives, small farmers, usufructuaries, tenants, and other forms of non-state management are other actors to intervene at the local level (municipalities), through the Popular Councils to encourage rural producers capacities through the improvement of value chains and livelihoods.

3.1. Organizations of the Central State Administration (OACE)

3.1.1. Ministry of Agriculture (MINAG)

[\(http://www.minag.gob.cu/\)](http://www.minag.gob.cu/)

The Ministry of Agriculture is the body of the central administration of the state (OACE) responsible for proposing and implementing the policy on the use, tenure and sustainable exploitation of the agricultural area of the country, agricultural and forestry production, to meet the needs of population, industry and export.

It is the organism of the central administration of the state (OACE) that has as competition to direct, execute and control the policy of the Cuban government in the following areas: use, conservation and improvement of the soil; ownership and possession of agricultural and forestry land; plant health; veterinary Medicine; conservation, management and rational use and sustainable development of the country's livestock forest resources; mechanization and irrigation of the production programs that it is responsible for; non-cane, livestock and forestry agricultural production activities; profit activities and industry of rice, tobacco, citrus, coffee, bee products, feed, forestry, poultry and activities of collection and benefit of agricultural and forestry products.

In the process of improvement of the Ministry of Agriculture, in which the essence is the separation of state functions from business, twelve specific functions are established for bodies that perform state functions. Linked to the forestry sector, the following must be fulfilled: Specific function No. 9: Manage the use and use of agroforestry heritage, including fruit trees and the administration of the National Fund for Forest Development (FONADEF).

At the municipal level, specific function No. 8: Execute and control the use and exploitation of agroforestry heritage, including fruit trees and the administration of FONADEF; for which several functions must be

fulfilled.

3.1.2. Forestry, Wildlife and Flora Department (FWFD)

Competencies and functions (relevant to the Project)

The Presidential Resolution No.6 of the President of the Council of State and Ministers of June 27, 2015 establishes the "Organic Regulation of the Ministry of Agriculture" which regulates in its article No. 2 the mission, function, organization and structure of the Ministry of Agriculture among other aspects.

The mission of the FWFD is to propose, implement and control national policies on compliance with regulations for the management, sustainable development, protection and conservation of forest heritage and wildlife (section first, article 24, 3.c).

The specific functions of the FWFD appear in the attributions and obligations of the Forestry, Wildlife and Flora Directorate.

It draws up policies, strategies, and long-term and short-term programs and, once approved, exercises control over forest heritage regulations, flora and fauna.

Among its main functions are the following:

- Direct technical, regulatory and methodologically the State Forestry Service and monitoring compliance with the functions and powers assigned to it, for which exercises its inspection and supervision, without prejudice to the administrative subordination of these organs to the territorial and municipal delegations Agency;
- Plan the provisions on forest heritage and wild flora and fauna and control
- Fulfillment of the measures that are adopted for their protection, increase and sustainable development, as well as of the activity of collection, benefit and forest industry; manage national programs and strategies for sustainable forest development and the conservation of wild flora and fauna;
- Organize and direct the work for the realization and updating of the national forest inventory and control the implementation and execution of forest management in the country;
- Manage the National Forestry Development Fund (FONADEF), control its execution and that of other variants of forest financing;
- Jointly manage (SEF and the Ranger Corps), fire prevention measures of a specialized nature and control the rehabilitation actions of the areas affected by those or by other disasters, natural or not;
- Submit, jointly with CITMA and INRH, the control measures for the protection of watersheds, through the conservation, improvement or establishment of forests and control their compliance;

-Present together with the CITMA the necessary regulations to comply with in the areas declared as areas under special protection regimes and control their compliance;

- Contribute to the determination of forest species and wildlife threatened or endangered according to the results of the studies and investigations carried out and direct and control the work for their recovery;
- Present and implement the necessary measures for compliance with the conventions and international agreements related to forests and wild flora and fauna. Represent the organism in this matter
- Exercise the executive secretariat of the National Reforestation Commission (Appendix 2.7.2); and
- To exercise, in coordination with the agencies of the Central State Administration, the councils of the Provincial Administration and other institutions, the state control of the country's policy for the integral and sustainable development of the mountainous regions and the Zapata Swamp, in the environmental, economic, productive, social order, infrastructure, living conditions, and tasks related to defense and internal order.

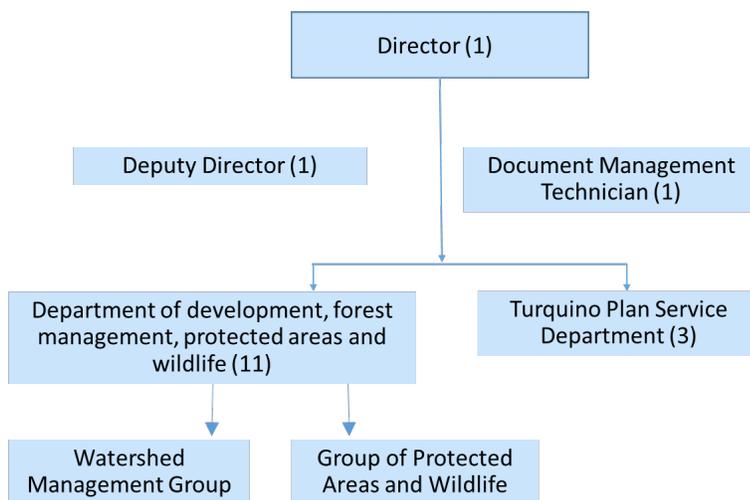


Chart 3. Organizational structure of the FWFD

Head of the Forestry, Wildlife and Flora Department

- Conduct and control the country's forest policy;
- Establish technical norms, instructions and methodologies on the State Forestry Service;
- Control the application of the Forestry Law, its Regulation and the Decree on contraventions, through the Forest State System and the Ranger Corps;
- Develop long, medium and short-term strategies, programs and objectives for the sustainable development of forestry, flora and fauna;
- Inform the competent bodies of the forested area of the country through the results of the forest dynamics;
- Control the execution and updating of the Forest Management Projects and Management Plans of the

holders of the forest resource;

- g. Represent the organism before other organisms and institutions of the State and exercise the executive secretariat of the National Reforestation Commission;
- h. Develop and control programs and strategies for sustainable forest development, with emphasis on the reforestation of watersheds and other areas under special protection regimes;
- i. Elaborate, together with the competent organisms and institutions, the norms and regulations for the conservation of wild flora and fauna, as well as the regulations on commercialization and transportation of the different species;
- j. Approve the regulations on the hunting and wildlife closure and to control their execution;
- k. Establish the necessary regulations for the control of the forest registry;
- l. Approve the regulations and complementary rules for the management of forests and the exploitation of wood and non-timber forest products by forest resource holders;
- m. Approve work strategies for training, forestry extension and environmental education aimed at the actors of the forest system, and especially those of the state system;
- n. Design strategies that generate synergies between the different institutions that interact with sustainable forest development and the protection of forest ecosystems.

Deputy Director of the Forestry, Wildlife and Flora Department

- a. Supervise the internal functioning of the management, the coordination of work among its departments and the tasks of this department with other areas inside and outside the organization;
- b. Coordinate the activities related to the state control carried out by the management of the forest system;
- c. Elaborate the plan of the annual budget of the Forestry Directorate and control its execution;
- d. Coordinate the activities of the plan of activities of the management and evaluate the fulfillment of the activity plans of the department heads;
- e. Organize and direct the functional control to the State Forestry Service in provinces and municipalities and analyze and propose the necessary adjustments and methodological regulations with the objective of perfecting their work.

Department of Development, Forest Management, Protected Areas and Wildlife

Mission: Present for analysis the national policies, programs and strategies that guarantee sustainable forest development and the conservation of wild flora and fauna and once approved to implement them. It fulfills the following specific functions:

- a. Present the necessary regulations or modifications, technical and methodological norms and general procedures about forestry activities, forest exploitation, benefit, storage and transfer of forest products

and the conservation of wild flora and fauna;

- b. Exercise state control over compliance with national policies, programs and strategies, plans and regulations linked to sustainable forest development and the conservation of wild flora and fauna;
- c. Present the proposal to use the financial resources of the National Fund for Forest Development for its correct use in accordance with the approved destinations and once approved, control compliance;
- d. Promote the elaboration of the indications for the elaboration of the plan of the indicators of the systems of reforestation; evaluate and consolidate the proposals of entities and provinces and control, analyze and report its compliance;
- e. Coordinate and control in conjunction with the Ministry of Science, Technology and Environment compliance with regulations in areas under special protection regimes;
- f. Coordinate and control in conjunction with the Ranger Corps compliance with regulations on forest heritage protection and especially the prevention of forest fires. Participate in the elaboration of technical norms and specialized methodologies in the prevention and control of them.
- g. Register and periodically update the regulations on wildlife closure and hunting and control compliance;
- h. Present the Forest Information and Control System. Coordinate with the National Office of Statistics and Information the information that flows in that way;
- i. Implement and update the regulations on the Forest Registry and control their compliance;
- j. Study the behavior of the criteria and indicators of sustainable forest management and of the conservation of wild flora and fauna and propose the necessary measures derived from their behavior;
- k. Present the methodologies for carrying out the National Forest Inventory and the Forest Management in the country. Study and propose for approval the Projects of Forest Management of the entities, organizing their registration and control;
- l. Accredite and propose the approval of changes in the classification and categorization of forests;
- m. Certify forest dynamics and report changes and changes in heritage annually forest and especially the area covered by forests;
- n. Exercise state control over the use of the forest area in correspondence with its categorization and management objectives;
- o. Take care of the proposals of clearing for definitive change of use of forest earth, to propose its approval to the competent organ, and to control its execution once approved;
- p. Advise and verify the elaboration and execution of the simplified management plans.

3.1.3. Agroforestry Group (GAF)

The MINAG Agroforestry Business Group is composed of 49 companies and is composed of three main productive branches: a) apiculture; b) coffee, cocoa, coconut and c) forestry and henequen, of notable economic importance for the national economy, plus a direction for agricultural production that is carried

out in each company.

In addition, there is a Development Department that directs the research carried out in the institutes through short, medium and long-term programs in the described branch areas.

Competencies and functions (relevant to the Project)

Directs, guides, supervises, controls and evaluates the productive, economic and financial technical results of human and material resources, ensuring the development of the different processes, industrialization and implementation of the research strategy.

Functions

1. Exercise the right of possession, enjoyment and disposition of their property, not responding to the obligations of the State, its central and local bodies and agencies, just as they do not respond for the obligations of this economic organization.
2. Represent the 49 agroforestry companies and the two national companies before different entities assuming commitments and obligations on their behalf.
3. Evaluate, systematically or eventually, the economic results of the integrated entities, issuing the guidelines and the necessary advice to overcome the negative aspects detected.
4. Determine and execute the development strategy developed up to 2016 in a first stage and in a second stage until 2020 of beekeeping, coffee, cocoa, coconut, forestry and natural fibers; from the General Guidelines drawn up by the Higher Organism and other bodies with state governing faculties and to respond to it before the Minister.

Strategic processes: They stand out for their scientific and technological approach and short- and long-term development. They identify the research processes of the Agroforestry Research Institute and the Apiculture Research Center, as well as the Business and Innovation Development Division and the senior management of the OSDE itself. The lines of research are linked to the problem of productive activity in the perspective of offering alternative solutions and are approved in the scientific councils of each institution and in the technical advisory council of the GAF.

Key processes: In them, the productive results of the entire chain must be specified, from agriculture to the final commercialization of production. They constitute the backbone of the integration and financial support of the organization. The five fundamental productive processes are identified here: (i.) Forestry and natural fibers (represented by state companies), (ii.) Coffee, cocoa, coconut and apiculture (represented in the agricultural part by Cooperatives, farms of the Ministry of the Interior, and under contract of administration with the Youth Labor Army; (iii.) Semi industrial and industrial processes and commercialization of all the productions that are represented by state enterprises.

Support processes: They have an administration focus, so they meet the four phases of the same: organize, plan, direct and control the Economic Management, Investments, the Human Capital Processes and the Marketing and Assurance Processes.

Taking into account the complexity of the productive processes, it is proposed for the development of the improvement work of the OSDE agroforestry to guarantee the application of the following premises and basic principles:

1. Maintain the State Enterprise as a fundamental link and, whenever possible, close productive cycles in each one of them.
2. Maintain the separation of state functions from business functions and respect the powers conferred on companies by Decree No.281 in its article No.77 and modified by Decree No.323 in the same article.
3. Propose a system of financial relationships where there will be an economic compensation fund for extreme hydro meteorological events associated with climate change to cover imbalances in companies.
4. Strengthen Internal Control, in addition to consistently applying the provisions in force in the matter. It is proposed to create the Audit Department of the Group.
5. The work of information and dissemination on the objectives and scope of the Improvement approved to the Ministry of Agriculture and OSDE, will be the initial task for the development of the process at all levels.

The main forestry activities and productions carried out are the following:

- Afforestation and reforestation, promoting new areas of producing, protective and conservation forests, as well as henequen areas
- Sawn wood for the internal demand of the organisms of the central administration of the state.
- Wood for tobacco production
- Charcoal for domestic consumption and for export
- Pine resin and its derivatives.
- Public service posts for the electric and telephone company
- Production of fibers for the national industry, providing raw material for the production of rope and ropes, among the main ones.

In addition, there is an agricultural directorate that records the production of beef, cattle, goats, pigs, poultry, rabbit and eggs; roots and tubers, bananas and vegetables, as well as grains and fruit trees, among others. Structure and Processes of the Agroforestry Group (GAF) in Charts 4 and 5.

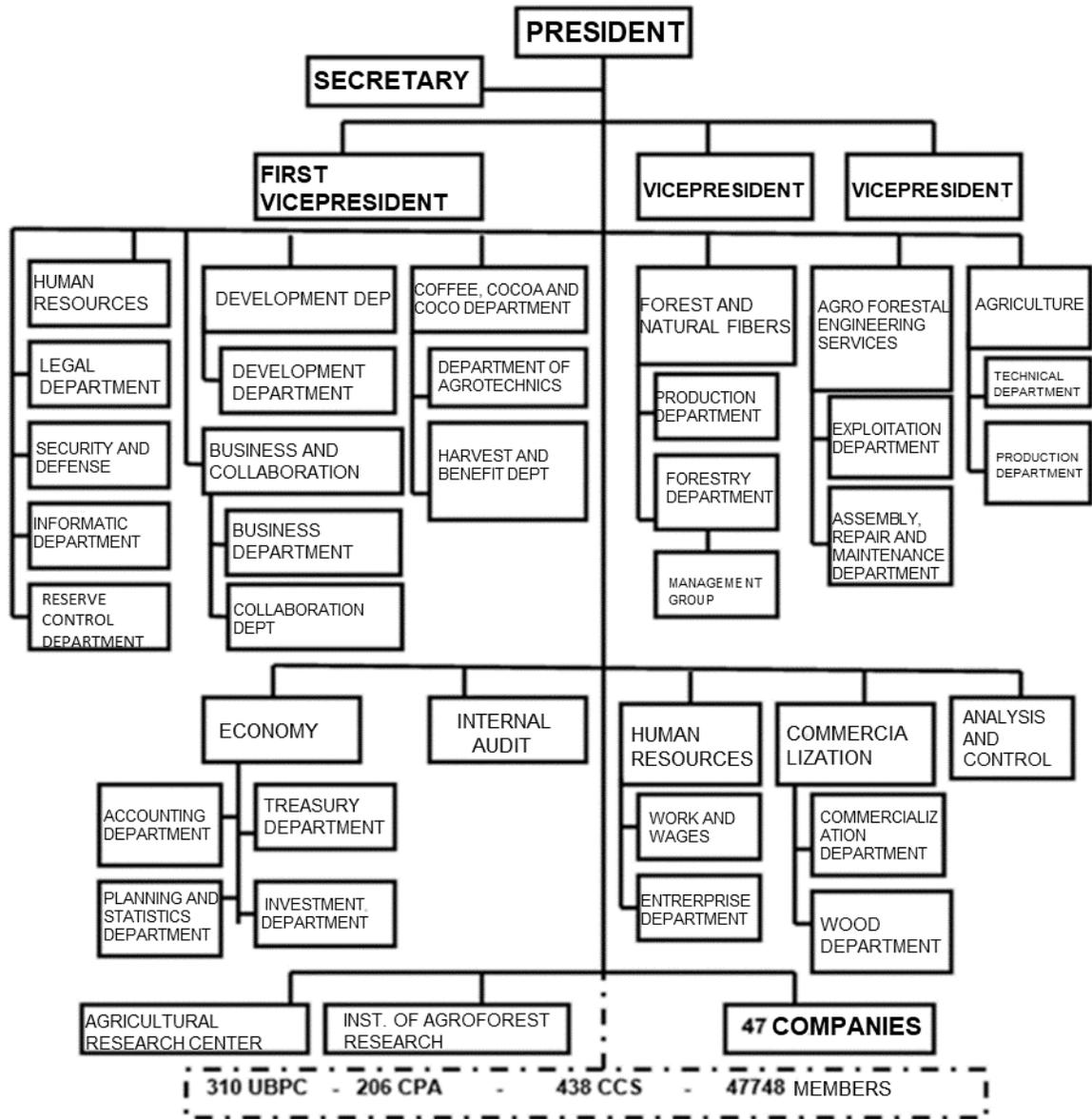


Chart. 4. Agro Forestry Group (GAF) Structure

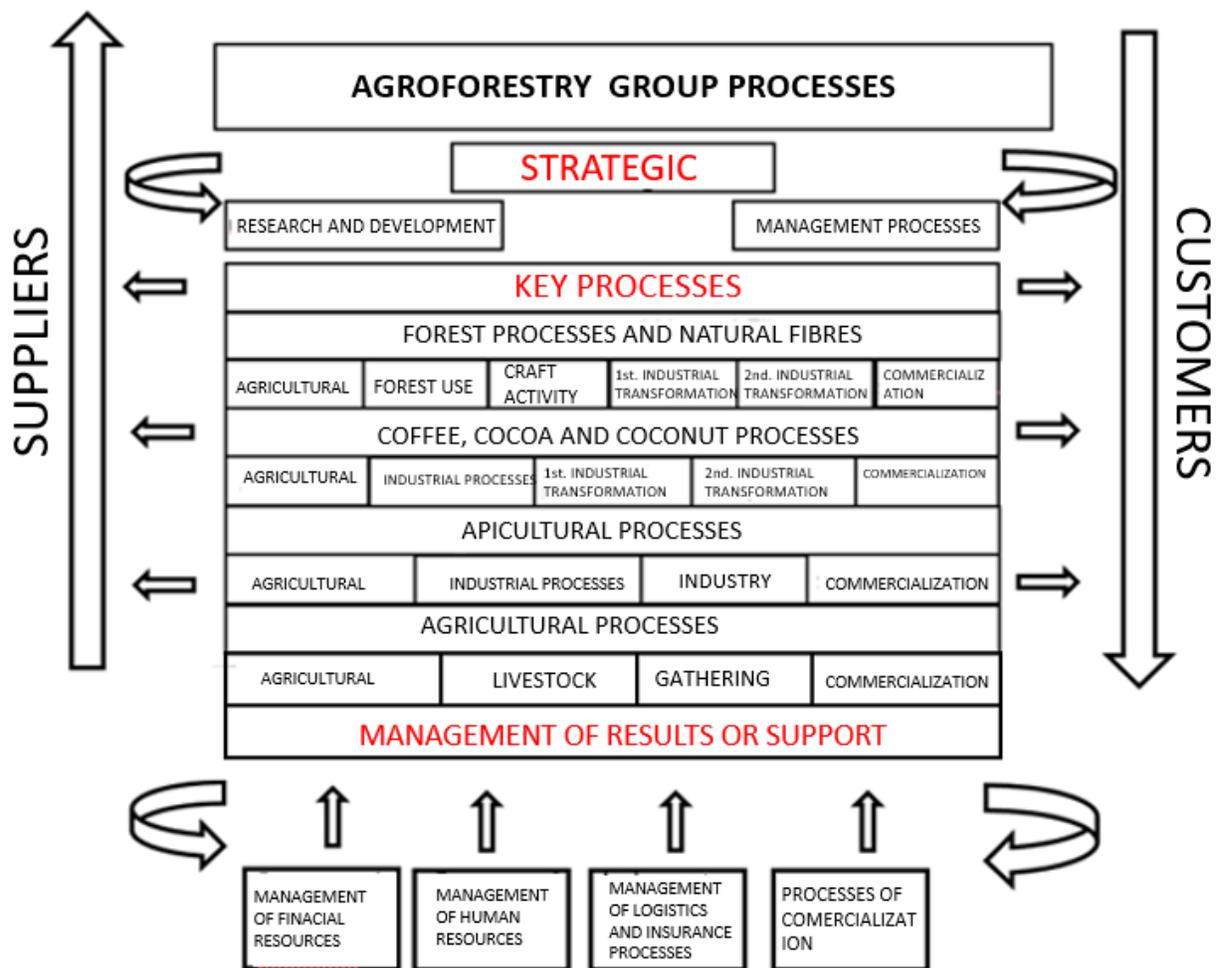


Chart. 5. Agro Forestry Group Processes

3.1.4. Provincial Delegations of the MINAG

The mission of the provincial delegations of MINAG is to exercise control of compliance with State and Government policies in the province on agricultural and forestry production; the ownership and possession of land and its sustainable employment; the use, conservation and improvement of soils: plant and animal health; the registration and statistical control of livestock heritage; the control of forest heritage and flora and fauna; mechanization, irrigation and agricultural drainage; animal genetics and animal genetic resources; seeds and plant genetic resources; as well as the promotion and development of the cooperative movement in the agricultural and sugar sector.

Competencies and functions (relevant to the Project) Specific functions

- a. Exercise control over protection against the introduction of diseases of animal origin and achieve a satisfactory state of animal health; exercise the registration and statistical control of the use of raw materials, products and by-products for these purposes and veterinary medicines.

- b. Control, according to approved policies, the genetic development, the preservation of the genofondo of the animal species and of the domestic and wild fauna.
- c. Exercise control and supervision of agroforestry use and exploitation, including fruit trees and administration of the national forest fund.
- d. Control the development of mechanization, irrigation and agricultural drainage systems, according to the regulations for your technical assistance.
- e. Control policies on plant genetic resources, certification and registration of varieties of the gamic, agamics and biotechnological seeds.
- f. Organize and control the implementation of the policy for the process of promotion, development and consolidation of the cooperative movement in the agricultural, forestry and sugar sectors.

3.1.5. Municipal delegations of the MINAG

The municipal delegations of agriculture have as their mission to implement, implement and control the policies of the state and the government on agricultural and forestry production; ownership and possession of the land and its sustainable employment; the use, conservation and improvement of the soil; plant and animal health; the registration and physical and statistical control of the livestock heritage; the control of forest heritage and wild flora and fauna; mechanization, irrigation and agricultural drainage; animal genetics and animal genetic resources; seeds and plant genetic resources; as well as the promotion and development of the cooperative movement in the agricultural and sugar sector of the municipality.

Competencies and functions (relevant to the Project)

Specific functions:

- a. Implement and consolidate state policies that are approved on agricultural and forestry production to meet the food needs of the population, industry and export.
- b. Register and control the ownership and possession of land, tractors and agricultural machinery self-propelled, the bottom of agricultural land and jurisdiction over it.
- c. Organize, execute and control measures for the conservation, improvement and sustainable management of soils and fertilizers.
- d. Execute and control protection against the introduction and spread of pests and diseases of the plants, a good phytosanitary status and the registration and control of the use of chemical, biological and natural pesticides.
- e. Execute and control the use and exploitation of agroforestry heritage including fruit trees and the administration of the national forest fund.
- f. Execute the mechanization, irrigation and agricultural drainage systems, according to the regulations for their technical assistance.

- g. Execute, implement and control policies on plant genetic resources, certification and registration of varieties of gametic, agamic and biotechnological seeds.
- h. Implement the policy for the process of promotion, development and consolidation of the cooperative movement in the agricultural, forestry and sugar sectors, and exercise control of compliance.

3.1.6. Cooperative system

One of the changes that take place as part of the process of updating or renewing Cuban socialism is the promotion of cooperatives. It seeks to overcome the shortcomings of existing agricultural cooperatives, and promotes the creation of cooperatives in other economic sectors (Piñeiro, 2014).

The conceptualization of the Cuban Social and Economic Development Model and the Economic and Social Plan until 2030 [...], foresees the development of cooperativism as a key factor in the new economic model. The strategic plan of the Ministry of Agriculture contains a line dedicated to cooperative and family production "the agricultural cooperatives are outlined in terms of development, efficiency and well-being of its members and a high contribution to the security, sovereignty and food sustainability of the country" [...], "and operate according to values and principles not only in economic terms, but also in a broader sphere that encompasses social, cultural and environmental issues" [...], (Cooperative International Alliance, 2007).

The Cuban cooperative system is made up of three types of cooperatives: credit cooperatives and services (CCS) that emerged in the 1960s, agricultural production cooperatives (CPA) created in 1976, and basic units of cooperative production (UBPC) constituted in 1993.

They are closely related to the population settlements where their members come from. They offer a collective work option, a source of employment generation and integration. Law No. 95 regulates these forms of collective production. Chapter II.

Cooperative of credits and services (CCS), created from 1960; it is the voluntary association of small farmers who have the property or usufruct of their respective lands and other means of production, as well as the production they obtain. It is a form of agrarian cooperation through which the technical, financial and material assistance that the State provides to increase the production of small farmers and facilitate their commercialization is processed and made viable. It has its own legal personality, responds to its acts with its assets and has the following purposes:

- Plan, contract, buy, sell and use in an organized and rational way the necessary resources and services for its members and the cooperative, in terms of agricultural production;
- Manage, process and collaborate in the control, utilization and recovery of the necessary bank loans for its members and the cooperative itself, destined to agricultural production;
- Plan and market the managerial productions of the members and the cooperative.
- Commercialize other productions and authorized services in their corporate purpose, acquire, lease and collectively exploit agricultural and transport equipment and build the necessary facilities to improve

production efficiency, agricultural marketing, authorized in their corporate purpose.

Although there are no official statistics on the economic performance of the CCS, due to their productive results and the growth they have registered in recent years in number, partners and agricultural area, they are presumed to represent the most efficient type of organization. (Monzón, 2012). The CCS and the private sector produce 57% of the country's total food, with only 24.4% of the arable land, as well as 63% of the milk (state entities contribute 13%), and have more than 64% of milking cows and more than 57% of cattle and pigs (Nova, 2014).

Agricultural Production Cooperative (CPA), created from 1975; It is an economic entity that represents an advanced and efficient form of socialist production with its own patrimony and legal personality, constituted with land and other goods contributed by small farmers, to which other people are integrated, to achieve a sustainable agricultural production and have the following fundamental purposes:

- To develop with economic efficiency the sustainable agricultural production, in attention to the interests of the national economy, of the community and of the own cooperative;
- Rationally use of the agricultural lands, property or in usufruct of the cooperative and the other agricultural goods and productive resources that it has;
- Increase the quantity and quality of the managerial productions in a sustained manner and promote its rapid commercialization, and
- Develop other agricultural and forestry productions and provide agricultural services that have been authorized in their corporate purpose.

Basic units of cooperative production (UBPC), created since 1993. Assumed as an option to shovel the difficult situation of Cuban agriculture during the 'special period'. They are constituted by workers from state companies with lands that have been transferred to them as usufruct and with means of production purchased from the State. According to their fundamental activity they are classified as sugarcane and not cane, dedicated to various crops and livestock. In 2012, the MINAG approved the General Regulations of the UBPC (Resolution No. 574/12), allowing them free management and administration of resources as owners, with legal status as a non-state company and usufruct of the land indefinitely. .

The main characteristics of these three types of cooperatives, although very heterogeneous, could be characterized according to their strengths and weaknesses in the following way:

Strengths

- The economic performance of cooperatives in Cuba, although very heterogeneous, has generally exceeded that of state agricultural enterprises. With lower allocations of inputs and extensions of land, they have achieved higher yields (Piñeiro, 2012).
- The agricultural cooperatives have contributed significantly to raising the standard of living of the Cuban rural population. In addition to providing stable and dignified employment to its members, these organizations have directly met some important needs of their associates and surrounding communities,

such as housing construction, and the provision of social services and goods.

Weaknesses

- Diagnostics of the Ministry of Agriculture have pointed out deficiencies in aspects of economic and social functioning, caused both by external factors and by internal organizational aspects.
- Difficulties in their access to inputs, technology and productive services, as well as in marketing.
- Low income received by its members, product of the low prices with which they are forced to sell a large part of their productions to the State.
- Experts on Cuban agricultural cooperatives suggest that the most serious problems are related to the autonomy, democratic management, education and intercooperation that should characterize them (Jiménez, 2003, Rodríguez and López, 2011, Fernández Lorenzo, 2011, Nova, 2012).
- They do not enjoy the independence necessary to make such basic decisions as the supply of inputs and the commercialization of their products.
- The excessive interventionism of the institutional system that "attends" or controls Cuban cooperatives limits not only the operational autonomy of these socio - business organizations, but also their democratic management, since some of the most important decisions are taken outside of them.
- The complex nature of the problem of agriculture in Cuba suggests that solutions require the intervention of multiple sectors, institutions and disciplines and that agricultural policies through which the country must move are in the process of construction. The ways to move from vertical ways of generating and transferring technology to more horizontal ways are still not sufficiently clear, which contribute to recognize and revive the key actors of development, as well as to promote a sustainable management of natural and human resources, Cuban rural municipalities.
- According to Nova (2006), the current predominant agricultural cooperative model (UBPC, CPA and CCS), together with the private sector, need to eliminate a series of obstacles that prevent them from displaying their productive potential (unlocking the productive forces and this implies changes in relations of production), and at the same time enter to consider by agricultural activity, livestock, services, food processing industry (including within it the sugarcane agroindustry), and by territory the modalities to be developed. It is likely that there are certain crops and services, where the productive results are more efficient in the private and family sector and this requires guiding and supporting the growth priorities in that sector.

3.1.7. Other institutions closely related to the project

3.1.7.1. Ministry of Science, Technology and Environment (CITMA)

Through Decree - Law No. 147 of the Reorganization of the Organisms of the Central State Administration, dated April 21, 1994, the Ministry of Science, Technology and Environment (CITMA) is created, which in accordance with the Law No. 81 of the Environment (Art. 11), is the Organization that directs, executes and controls the policy on science, technology and innovation, environment, scientific and technical information

and document management; as well as activities related to standardization, meteorology, quality management and industrial property, promoting their coherent integration to contribute to the country's sustainable development.

The following functions correspond to the Ministry of Science, Technology and Environment, in coordination with other competent bodies and organizations

- a. Control and systematically improve the National Environmental Strategy, the National Program of Environment and Development and other programs and strategies required for the development of its governing role.
- b. Participate, evaluate and control the realization, development and fulfillment of other sectorial strategies for the protection of the environment and in particular those related to specific natural resources.
- c. Coordinate and integrate the introduction of the required aspects for the protection of the environment in the actions of state bodies and agencies, for which purpose it may request and obtain the corresponding information and make pertinent recommendations to the organ or body itself or to the Council of Ministers, as appropriate.
- d. Approve or propose, as the case may be, and evaluate and demand compliance with the regulations established for the protection of the environment, demanding the realization of the actions that correspond to those purposes.
- e. Propose economic regulations aimed at the rational use of natural resources and evaluate their effects on the environment.
- f. Reconciling discrepancies between the organs, agencies and other entities in relation to the protection of the environment and the rational use of natural resources, adopting the relevant decisions or submitting to the Government the proposals for appropriate measures, in cases where it is not achieved the proper conciliation.
- g. Direct, evaluate and control meteorological, weather, chemical composition and general atmospheric pollution monitoring, environmental radiological surveillance and seismological service, as well as seismic, meteorological and radiological hazard studies.
- h. Implement the environmental policy on biological security and nuclear safety and control its implementation.
- i. Propose, control and evaluate, with permanent or temporary character, special regimes of management and protection, with respect to certain areas or resources, when environmental reasons justify it.
- j. Direct and control activities related to protected areas.
- k. Propose, evaluate and control programs and projects regarding environmental information.
- l. Apply in the sphere of its competence and ensure the general application of this Law. M. Others that are assigned by current legislation.

3.1.7.2. National Institute of Hydraulic Resources (INRH)

This body is responsible for organizing and directing, in coordination with the competent bodies, protection of terrestrial waters, basins, natural channels, works and hydraulic installations against pollution hazards, siltation and other forms of degradation and deterioration, as well as the systematic control of water quality.

The following objectives and functions correspond to INRH, in coordination with other competent bodies and organizations:

- a. Mitigate the effects of the drought suffered by the country, mainly in a line as sensitive as the water supply to the population.
- b. Continue to develop the strengthening of observation networks for the components of the hydrological cycle as a basis for knowledge and planning.
- c. The application of the concepts and practices of the ecosystem approach in the integrated management of water resources, with the river basin as the basic management unit.
- d. The introduction of science and technological innovation in hydrological prevention and the management of disaster situations, both droughts and floods
- e. The increase in the control of the quality of terrestrial waters, affected by industrial, domestic and agricultural pollutant sources, as well as by the saline intrusion induced by anthropic activity.
- f. The maintenance of the hydraulic infrastructure and the optimal management of the resource.
- g. The increase in the use and recycling of water.

Functions:

- Organize and direct, in coordination with the competent bodies, the protection of terrestrial waters, basins, natural channels, hydraulic works and installations against pollution, siltation and other forms of degradation and deterioration, as well as the systematic control of the quality of the waters
- Determine with the corresponding organizations, the necessary regulations for the protection of economic, social and natural environment objectives, from the harmful effects that terrestrial waters could cause, establishing the organization, assurance and control actions that guarantee safety and the correct functioning of hydraulic installations, flood protection works, underground drainage and the conduction capacity of natural or artificial channels.
- Determine and keep updated the hydraulic potential of the country, make available the data and characterization of the hydrological cycle relative to surface and groundwater, rainfall and evaporation to the competent organisms.
- To propose the strategy of hydraulic development of the country and in correspondence to control and regulate the activity of projects and investments of the hydraulic works that are executed.
- Organize and guarantee the operation of the national registry of terrestrial waters in which the

concessions, assignments and permits related to the use of waters and its preservation will be registered, in correspondence with what the law determines.

3.1.7.3. Ministry of Foreign Trade and Foreign Investment (MINCEX)

www.minrex.gob.cu/es/mincex

On February 23, 1961, the Ministry of Foreign Trade of Cuba (MINCEX) established Law No. 934. The emergence of the Ministry was an essential element in the country's economic policy and responded to the need of the Cuban state to assume the management and control of the country's imports and exports. On March 2, 2009 through Decree Law No. 264 provides for the creation of the new Ministry of Foreign Trade and Foreign Investment as an Organism of the Central State Administration, assigning it as an essential objective and mission to prepare and propose to the Government the integral policy of the State and the Government regarding the activity of foreign trade, the creation of joint ventures, economic collaboration with other countries, foreign organizations and associations, and the investments that are negotiated. Once this policy has been approved by the latter, MINCEX is responsible for directing, executing, coordinating and monitoring compliance in all entities at the country level, based on the development strategies established therein.

Structure of the MINCEX

The MINCEX in its structure has a Minister, two First Vice Ministers and three Vice Ministers who attend the areas of economic policy, foreign trade, collaboration, economy and business, as well as fifteen territorial delegations. Cuba has been part of the Multilateral Trade System since 1947; first as a member of the General Agreement on Tariffs and Trade (GATT) and since 1995 to the World Trade Organization (WTO), it has commercial relations with more than 170 countries. Has also cooperated, based on the principles of economic collaboration abroad, with 157 countries around the world.

Foreign trade

The Ministry of Foreign Trade and Foreign Investment is in charge in the Republic of Cuba, to direct, execute and control the application of the policy of the State and the Government regarding the activities of trade, investment and collaboration abroad. , Among its objectives is the diversification of its commercial partners, working to achieve a reordering of trade policy in the search for favorable markets for its exports, in the diversity and competitiveness of its exportable items, as well as in the strategic objective of the substitution of exports. In 2009, like the rest of the underdeveloped countries, suffered the impact of the global economic crisis, together with the permanence of the US blockade imposed on the country for more than 50 years, to the damages caused by phenomena associated with change climate change and the increase in prices and the reduction of demand.

Among the main commercial partners of Cuba, are Venezuela, China, Russia, Spain and Brazil. Cuba maintains commercial relations with more than 170 countries. Since the 1990s, the export of services has had an increasing role in the Cuban economy, which is manifested in its increasingly important influence on the results of Cuban foreign trade.

The sale of professional services, especially in health, engineering, information technology and

biotechnology, is consolidated as the country's largest source of foreign currency. The healthy and safe environment that Cuba offers for business in general is a decisive point in favor to promote the exports of goods and services, collaboration, foreign investment and advance in the substitution of imports, contributing in this way to the productive development and scientific-technical of the country.

Foreign investment

Foreign investment in Cuba is due to the impossibility of accessing external financing, advanced technologies and external markets that the country presents, mainly due to the Economic, Commercial and Financial Blockade imposed by the Government of the United States of America for more than 50 years, which produces an impact of approximately USD 2 billion annually in Foreign Investment matters. It is understood as a complement to the development of the national economy and is characterized by a high degree of selectivity and promotion to sustainable development in correspondence with the duty to care for the environment.

Foreign Investment in Cuba with its antecedent in Decree - Law No. 50 of 1982 is governed mainly by Law 77 of the year 1995 "Law for Foreign Investment" and Agreement 5290 of the year 2004 of the Executive Committee of the Council of Ministers. In them, the modalities listed below are established:

Law 77/1995

- Contract of international economic association \ Company of totally foreign capital.

Agreement 5290/2004

- Contracts for the cooperative production of goods or for the provision of services.

- Production management contracts and / or services.

- Hotel management contracts

3.1.7.4. The National Association of Small Farmers (ANAP)

Article 35 of the ANAP Statutes establishes that "The basic organization of the ANAP is defined as the main component of its structure, which is constituted and develops its work in each CPA and CCS, taking into account its territorial limits and surrounding areas within a municipality, integrated by cooperatives, small farmers, relatives and other people linked to the productive process, according to their political, economic and social interests. The functions of the basic organization are regulated in the General Regulation "

In Article 8 of the aforementioned Statutes, the 43 functions of the grassroots organizations of ANAP are established, which respond to the three missions developed by the organization and which are: The defense of the principles of the Revolution above any class, collective and individual interest; the political and ideological preparation of the cooperative members and their families, to continue being strategic allies of the working class in the current and future scenario; to work from the organic functioning and the differentiated political and ideological work, in function of the agricultural production.

In the UBPC trade union sections of the National Union of Agricultural, Forestry and Tobacco Workers

(SNTAFT) are constituted with similar missions and functions, as established.

The relations between the basic organization of the ANAP, the SNTAFT and the management of the cooperative are of coordination and cooperation, attending to the community of interests between both parties, and must be governed by mutual respect and non-interference in the work of each. The management of the cooperative is responsible for administrative management, while the grassroots organizations direct their operation to the political aspects of the cooperative, in close connection with the productive, which is the result or impact of the political - ideological work in that ambit.

These political organizations allow the development of horizontal relations of collaboration between the producers settled in the zones of intervention of the project where the following local actors will be identified as members of the municipal production forms (FPM):

Smallholder Farmer Leaders: Able to propose, apply and multiply their own initiatives and those they receive. They have well developed production capacities to achieve the union of other actors with technical credibility, although they have limited economic resources for the multiplication of their actions. Its origin is diverse, that is; of agroforestry companies, grassroots business units, cooperatives and the farmer movement in general highlighted in the introduction and generalization of technological - productive results associated with these.

Community leaders: They have well-developed capacities to unite other actors and enjoy political credibility, even though they have insufficient training to carry out certain technical functions of the project.

Extension agents: They enjoy technical credibility and ability to demonstrate the use of technologies, have limited financial resources and sometimes the people with whom they have to relate lack the adequate capacity to assimilate new technologies. Their relationships with natural resources are indirect, but they have a high degree of influence on farmers in relation to the sustainable use of resources.

3.2. Extension institutions within the AIP

3.2.1. Cuban Association of Agricultural and Forestry Technicians (ACTAF)

The ACTAF has as paradigm to achieve the development of a sustainable agriculture on agro ecological bases, for which it not only works in a wide process of training of its associates and of the Cuban society as a whole but also in the development of a process of dissemination, promotion and recognition of all successful experiences that individually or collectively achieve and materialize the model of agriculture that as an organization advocates and defends.

Strategic objectives

- To be a space for exchange and dialogue with equity between agricultural and forestry technicians, for the promotion of sustainable agriculture on agro ecological bases and the rescue of knowledge and traditions of sociocultural heritage.
- Promote the development of self-management skills in the Association at all levels
- Promote relations with international and national organizations that pay tribute to sustainable agro-

ecological development

- Develop the agro-ecological-sustainable culture in technicians and professionals

Structure and capabilities

It has a disaggregated functional structure, in subsidiaries with its own legal personality, in the 14 provinces of the country. It has 24 978 affiliates, of which 38% are women, grouped into 1 929 grassroots organizations and 2 441 institutional partners at the country level, with a work structure organized in branches in all the provinces.

This association facilitates ways to build models of sustainable agrarian systems, through interventions with national and international resources of:

- Support for local and community development.
- Training for technicians and producers.
- Agrarian Extension
- Formation of multidisciplinary groups.
- Integration to networks.
- International homologation of disciplines of the agricultural sector.
- Dissemination and exchange of experiences in agricultural activity through publications and events.

3.2.2. Cuban Association of Animal Production (ACPA).

The ACPA is a Cuban non-governmental organization that brings together private producers, cooperatives, state, scientists, teachers and other institutions that accept and comply with its regulations.

Strategic objectives

This non-governmental organization has the mission "to contribute with its actions, experiences and resources, to sustainable human, technical-productive development in the sphere of production and animal industry". Organizes the producers in territorial groups to facilitate the work, develops activities and stimulation mechanisms to those associated with the best technical-productive achievements.

Structure and capabilities

The ACPA is made up of 30,500 individual members, 206 grassroots bodies and 334 institutional partners.

3.2.3. Agricultural Research Institute (IAgric)

It is a new institution created in 2010 through the integration of the Research Institute of Agricultural Mechanization and the Irrigation and Drainage Research Institute (IIRD). With this integration, a more efficient use of the scientific potential of the two institutions that gave rise to it as well as the installed

capacities of laboratories, transportation and agricultural areas is achieved, achieving greater efficiency in the execution of research and services. The horizons of work are expanded, promoting a quantitative and qualitative leap in the research and development of the Agricultural Engineering activity of Cuba in the current context.

Mission

Promote the scientific and technological development of comprehensive agricultural engineering systems that enable the harmonious implementation of irrigation and drainage technologies, mechanization, energy, postharvest, environmental conservation and rural constructions based on the sustainable use of natural resources, to contribute to safety.

Structure

The Institute currently has a total of 344 workers, of those 135 are women, representing 39.2%. The scientific potential is integrated by 39 researchers (7 Holders, 24 Auxiliary, 6 Aggregates and 2 Aspirant Researchers), of which 12 are Doctors in Science (31%) and 14 Masters in Science (36%).

On the other hand, out of the total number of researchers 3, they are classified as Full Professors, an Assistant Professor and 11 are in the process of teaching categorization (2 Holders, 2 Auxiliary and 7 Instructors). It also has 34 specialists linked to the research of which 10 are Masters in Science, one Doctor of Science and 24 media technicians.

Its fundamental dependencies are: the Scientific Technology Unit of Base (UCTB) of Science and Technological Innovation, with the Work Groups of Irrigation and Drainage Research, of Agricultural Mechanization Research and Environmental Engineering Research and Geomatic Applications; the UCTB for Institutional Development, with its Planning, Monitoring and Evaluation Groups, and Information Management, Communications and Collaboration; the UCTB of Tests and certification of agricultural technologies; the UCTB of technological extension in agricultural engineering; the UCTB of Experimentation of field, and a UEB of technological Productions. In addition, it has the Accounting and financial, Human Capital, and Assurance and service areas.

3.2.4. Research Institute of Tropical Food (INIVIT)

The INIVIT, is among the scientific centers of the Ministry of Agriculture (MINAG) of the Republic of Cuba and is the main extension institution because it is located in one of the AIP (Villa Clara Province, Santo Domingo municipality). Extension work consists fundamentally in providing the fundamental scientific-technical basis to contribute to the sustainability and competitiveness of the productive chain of:

- Roots, rhizomes and tubers (cassava (*Manihot esculenta* Crantz), sweet potato (*Ipomoea batatas* (L.) Lam), taro (*Xanthosoma* spp. And *Colocasia esculenta* Schott), yam (*Dioscorea* spp.) And potato (*Solanum tuberosum* Lin.)
- Bananas and bananas (*Musa* spp.)
- Pumpkin (*Cucurbita* spp.)

- Papaya (*Carica papaya* Lin.)
- Vegetables and grains.

Goals

- Obtaining high yield cultivars.
- Conservation, evaluation, documentation and exploitation of genetic resources.
- Production of original and basic seed by conventional, accelerated conventional methods and biotechnological techniques.
- Definition of technologies for the Integrated Management of pests and diseases.
- Diagnosis and sanitation of the main diseases in the crops under study.
- Development of biotechnological techniques for genetic improvement.
- Adjustment of crop breeding.
- Nutrition of crops through the use of chemical fertilizers, bio fertilizers and organic fertilizers.
- Development of software with innovative information about crops and their technologies.
- Training, advice and training.
- Generalization of scientific results and transfer of technological packages.

Specifically, INIVIT will contribute to the areas of intervention of the project by contributing resilient commercial cultivars to the effects of climate change that can be planted in practically all types of soils and through an extension work to involve the producer in the decision-making process for the design of productive strategies that guarantee the presence of nutritious and diverse foods throughout the year.

The intervention instances described in this chapter will increase resilience in the communities and will constitute a way to implement the principles of sustainable development with a triple challenge: 1) Promote an institutional framework and knowledge in the face of climate change strengthened for a climate response and development planning. 2) Increase food production through the intensification and management of practices adapted to climate change. 3) Rehabilitate and conserve vulnerable ecosystems and ecosystem services.

Likewise, cooperatives, small farmers, usufructuaries, tenants, and other forms of non-state management are other actors to intervene at the local level (municipalities) through the Popular Councils to encourage rural producers to improve their capacities of value chains and livelihoods.

3.2.5 Institute of Tropical Fruit Research (IIFT)

Research-development institution that has among its fundamental activities: scientific research, the provision of scientific-technological services, teaching and the production of essential inputs for the fruit

agroindustry. Its mission is to provide the scientific-technical base to achieve sustainability and competitiveness of the Cuban fruit and vegetable industry.

3.2.6. Research Center for Animal and Tropical Animal Husbandry Improvement (CIMAGT)

Founded with the objective of creating a research center for the development of animal reproduction. Its mission to generate, develop and transfer technologies and scientific-technical knowledge on the basis of economic and environmental sustainability, within the field of reproduction, biotechnology and animal genetics that enable and / or contribute to the preservation of animal genetic resources and increase in the production of milk and meat in an efficient, sustainable and growing way.

There are a number of institutions and individuals that will serve as extension agents, linked to universities, academic and scientific institutions, experienced producers of the sector and local entities.

3.3. National Forest Development Fund (FONADEF)

The Law 85 Forestry Law (Art.12) is created with the objective of promoting the sustainable development of forest resources, through the promotion and financing of projects and activities dedicated to the conservation and development of these resources, especially with regard to inventories, management, protection and research.

The legal basis of this fund is Joint Resolution 1/2012 of the Ministries of Finance and Prices and Economy and Planning "Regulation of the National Forest Development Fund" and Resolution 768/2012 of the Minister of Agriculture "Manual of Fund Procedures National Forest Development".

This fund has a general methodological procedure for the financing of sustainable forest management, protection and conservation of flora and fauna. To be applied by the Directors and specialists of the Forestry and Finance and Prices Directorates of the Ministry of Agriculture; the economic Sub delegates and finance specialists of the Provincial Delegations of MINAGRI; the Heads and specialists of the State Forestry Service of the provinces and municipalities; and natural and legal persons who carry out activities related to sustainable forest management, and the protection and conservation of the flora and fauna that access the FONADEF. (See Appendix 2.7.3)

4. LANDSCAPE GOVERNANCE

4.1. Landscape Governance Within the Project Implementation Areas

The principles for a landscape approach with a view to reconciling agriculture, conservation and other competitive uses of the land, in the areas of project implementation (AIP) start from understanding in which environmental and socioeconomic conditions are the project areas, the which are described in Appendix 2.7.4. of the IRES Cuba project. Baseline study of adaptation and vulnerability for the implementation of the project.

The epigraph is developed taking into consideration the pillars and principles of governance, seen in the context of the characteristics of the Cuban social system, its political, institutional and social structures; as well as its framing in the agricultural and forestry sector.

The AIP are characterized by an environmental degradation, given among other aspects, because 67.2% of the surface classifies in the categories of moderately to very prone to desertification, degradation and salinization; the increase of idle land areas, which in more than 90% are occupied by "marabou" to the detriment of native species and basic crops; the occurrence of periods of severe and intense droughts that concur and overlap in the coastal zones with the threat of marine saline intrusion, the degradation of forests and the associated loss of biodiversity, as well as the alterations that ecosystem services have and the aggravation of vulnerability to the impacts of Climate Change. These environmental complexities entail, in addition to economic effects, the increase in the gradual displacement of the population towards urban spaces, population aging and the predominance of women in AIP.

4.1.1. Political, legal, institutional and regulatory framework.

Landscape governance is exercised under complex conditions in these AIP, through mechanisms and processes, through which the socio-economic, public and private actors articulate their interests, exercise their rights, fulfill their obligations, negotiate their differences and they take responsibility for the decisions made regarding their problems and needs. In this context, a new paradigm of land management is required that contributes to increasing the resilience of the rural landscape, to reverse the processes of vulnerability and to increase the adaptation capacity of the communities.

The country has a sufficient political, institutional and legal framework to face the problems of the land. It is important to start from the legislation that sustains the rights of land tenure in Cuba, an aspect that has had a history and a dynamic in recent years, as summarized below:

- 1959 - first Law of the Agrarian Reform that had as impact that of 3597 farms of more than 30 caballerias (57.3% of the lands of the country) in 1962 there were 600 farms that owned 3.7% of the land).
- 1963 - Second Law of Agrarian Reform that established a maximum of 5 caballerias that could be cultivated privately, 75% of the lands passed to the State. However, 43% of the arable land and almost 60% of the high-quality agricultural land remained in the private sector.
- Decade of the 70 - as a result of sales, the sector of private farmers transferred around 16% of their total lands and 25% of their cultivable lands to the state farms.
- 1975 - The first Cooperatives of Agricultural Production (CPA) were created and the development of those already created since 1960 Credit and Service Cooperatives (CCS) was promoted. Cooperatives are characterized by being forms of associated work, created mainly by smallholder farmers who were beneficiaries of the first and second Law of Agrarian Reform, who incorporated their lands to cooperatives to constitute them as collective property.
- Decade of the 80 - the so-called "parallel market" (supplied by the State) and "smallholder farmer's free market (only worked until mid-1986) were created.
- In 1991, after the fall of the socialist camp and the intensification of the United States economic blockade against Cuba, the landscape of land tenure is reconfigured based on the structural adjustment of state property through the parceling of land under different regimes: 1) in cooperative (dominant) regime; 2) in a participatory self-management regime, in non-cooperative farms; 3) on an individual basis in favor of

individuals and families; and 4) in a private business regime.

- In 1993, the Basic Units of Cooperative Production (UBPC) were created, arising from the normative basis of the operation of the CPA and the economic base of the assets promoted by the previous state production structures.

- In 2008 - Decree-Law 259 is promulgated, which establishes the delivery of idle lands of the state as usufruct to natural or legal persons that use them for agricultural production. (Maximum limit to natural persons 13.42 hectares, or until completing 40.26 for those who already owned land).

- In 2012, the limits are modified and up to 26.84 hectares are granted in usufruct to the natural persons who work them. This measure implied that until 2016, more than 220,000 people would accede to this opportunity and surrender more than 1.9 million hectares. At the beginning of 2018, 289,474 applications had been reached and 2.1 million hectares had been delivered.

- In 2018, Decree-Law 358/18 and its Regulation 350/18 are approved. The fundamental modifications are: the authorization to natural persons who receive land or those who already exploit it, to be linked to agricultural, sugar or forestry companies. The usufructuaries are allowed to voluntarily join as workers of these state entities, and increase 13.42 hectares to the maximum land surface to be delivered in usufruct to natural persons for agricultural and forestry activities; specifically, for livestock, the limit is higher up to 67.1 ha. In addition, the validity of the usufruct of lands for all-natural persons is approved for a term of 20 years, extendable successively for the same term and for legal persons for an indefinite period, provided that the agreed obligations are fulfilled. It authorizes the delivery of idle land from commercial livestock for breeding and fattening, according to the program of this branch, among other measures.

From an institutional perspective, governance is given through the norms and structures that regulate and promote relationships, the adoption of decisions and their execution. In the AIP there are 197 cooperative entities grouping 18 614 partners where 15% are women. In addition, there are more than 40 agricultural institutions or Basic Business Units with more than 4000 people working in them, of which 25% are women.

Land rights can have different sources of legitimacy. From a legal perspective, claims on land are legitimate when acknowledged by law. In Cuba, land tenure (state or private, whether owned or in usufruct) is supported by legal documentation.

Environmental legislation in Cuba is strengthened and part of the Environmental Framework Law as "umbrella" of the legal system with relevance to the environment and in a general sense to establish principles that favor the establishment of policies and programs with an ecosystem management approach, giving priority to the management of land, water and living resources and promoting their conservation and sustainable use in an equitable manner, based on the application of relevant scientific methods.

Law 81 "On the Environment", dated July 11, 1997 together with other legal bodies of different legal hierarchies, including technical standards, make up environmental legislation that is of great importance for the management of different ecosystems, such as the processes of which are economic, social, technical, legal, administrative and environmental factors, among them those related to the production of goods and services of the agricultural sector.

The regulatory mechanisms conceived in Cuban environmental legislation to execute and control compliance with legislation are essentially environmental impact assessment, environmental licenses and other forms of permits and authorizations, as well as the state environmental inspection and the environmental administrative responsibility system.

For new investments and / or activities that impact the environment, Cuban environmental legislation through Resolution No. 132/2009 Regulation of the Environmental Impact Assessment Process (EIA), considers, among other elements, the public consultation. The measures ordered by the environmental authority are verified and, if necessary, Decree Law 200 of the Contraventions on environmental matters is applied, in case of violations and / or non-compliance, as applicable.

On the other hand, in order to meet the objectives related to the protection and conservation of nature and of the linked historical and cultural values and guarantees, the special protection of ecosystems and natural habitats of high genetic or fragile diversity of the species is guaranteed. The evolutionary processes and of the genetic resources, as well as the categories that comprise the National System of Protected Areas have been determined, its organization and administration are regulated, increasing the protective role of the adjacent areas; In the latter, the activities carried out must comply with the established regulations and with the requirements of the Management Plans, which include the restrictions for the buffer zones and their surroundings.

The National System of Protected Areas is an essential link to guarantee the conservation and sustainable use of biological diversity in our country and constitutes an important objective of the national environmental policy and an international responsibility for the Republic of Cuba, as a Contracting Party to the Convention on Biological Diversity.

The Ministry of Science, Technology and Environment, is the body of the Central State Administration responsible for proposing environmental policy and directing its implementation based on the coordination and control of environmental management, promoting its coherent integration to contribute to sustainable development. And in coordination with other bodies and organisms establishes the policy, controls and ensures the protection and rational use of natural resources: protection and sustainable use of biological diversity, terrestrial waters, marine waters and marine resources, soils, watersheds, heritage forest, flora and fauna, atmosphere, mineral resources, and energy resources. The CITMA coordinates and controls the activities related to the National System of Protected Areas, its integral environmental management in the national scope in coordination with other competent bodies and organisms, its technical and methodological direction, the control of the fulfillment of the specific objectives by which were declared and the administration of those areas that the Law determines.

In landscape governance, MINAG plays a leading role as land holder and manager of plant genetic resources, animal genetic resources, soil, water for irrigation, plant and animal health, flora and fauna, At the same time, it administers most of the protected areas present in the landscape.

An agency of high incidence in the management of water resources of the landscape is the Institute of Hydraulic Resources, rector of the policy and management of water, which also directs with the Governments the Basin Councils, which respond to the management process integrated of these ecosystems. For its part, the Institute of Physical Planning (IPF) with the order of land use draws up Territorial, Municipal and Specific

Plans for the development of spheres of interest.

4.1. 2. Planning processes, decision-making, execution and compliance.

Governance constitutes a process of social construction that differs and at the same time complements the idea of "government" as a structure and capacity for decision by incorporating actors, rules of the game and social processes around public policies, without neglecting the role of government. State / government as constructor of institutionalism. Neither does it imply consensus, agreement or absence of conflict; it recognizes the plurality of actors, the divergence of interests and behaviors guided by particular institutional logics.

In the framework of forms of tenure, producers (state or private) are organized, have the support of the structures created and their boards of administration in the Cooperatives, with grassroots organizations of farmers, as is the case of the National Association of Small Farmers (ANAP), spaces of participation, articulation and interrelation for the development of the agricultural activity that they develop. Other spaces of participation are the assemblies of accountability of the Delegate of Circumscription to their constituents (base structure of the Popular Power system in Cuba) that exist in all the districts of the country, as well as spaces created by other organizations not Government organizations such as the Committee for the Defense of the Revolution (CDR) and the Federation of Cuban Women (FMC), the latter organizes women from 14 years of age.

Producers know their tenure rights and obligations, have mechanisms to market their productions, access different sources of financing to cover their needs (these are insufficient, given the economic conditions that the country is going through), they must comply with their production plans agreed (for whose sales they receive income), they receive specialized services provided by the State (machinery, plant health, soil, forestry, agrarian extension, veterinary medicine, etc.).

It is up to the municipal governments to organize and control, as far as they are concerned and in accordance with the provisions of the Council of Ministers or the Provincial Government, the functioning and tasks of the entities in charge of environmental protection in the municipality, elaboration and execution of land use planning plans (rewarded by the Physical Planning Institute, which has representation up to the municipal level), territorial development plans and the process of delivery and land management through the Control Centers of the Earth attached to the Municipal Delegations of MINAG.

Agricultural producers participate in the processes of development planning and are key actors in the development of cooperative development plans, which in turn respond to sectorial and territorial plans and programs in their area of competence. They are consulted and their interests, motivations and aspirations are taken into account to materialize the collective purposes, according to the demands, needs of territorial consumption and the market (tourism, exports, etc.).

In general, the agricultural sphere in Cuba has reserves for the increase of productivity, in this direction a series of policies are directed by the MINAG, among them the measures for the strengthening of agricultural cooperatives; the improvement of the system of agriculture; the tax policy on the agricultural sector to stimulate producers; the credit policy to facilitate access to financing to purchase inputs and make investments; the budget approval in terms of subsidies to products to stimulate production and maintain the

protection of centralized prices.

Other policies that also point to the objective of increasing crop production are: the improvement of standards for land use, the policy of seed and plant genetic resources, water management for the increase of surface under irrigation and investment for the progressive mechanization of agriculture.

Agricultural activity has had an active process in the country to update its operation and implement new policies, which are achieving results and impacts derived from this process. The existing methodologies at the international level for the monitoring and evaluation of public policies seek a greater rationality in the use of public resources. An added value is the rendering of accounts derived from the evaluation processes, which generates greater transparency in public management. In this sense, the monitoring and evaluation of public policies becomes a key factor and transversal to the entire process of updating the Cuban economic and social model. In particular, it is relevant in terms of agricultural policies that have such weight within the country's development strategy.

In the non-state activity, responsible for more than 80% of agricultural production, there are several crops that show tendencies to decrease yields, the increasing weight of non-state activity within the agricultural productive life, imposes on decision-makers and policy makers a challenge in terms of updating relations between the Ministry and the productive bases. The stimulus to production must move from administrative, vertical and centralized mechanisms, which mark the Ministry-State Enterprise relationships, to a system of incentives that generate in the non-state producer real motivations to increase their production and lead it through the channels established for that reaches the consumer with the best quality and at the lowest possible price.

In the mechanisms of coordination and interconnection of producers plays a fundamental role the extension and speed in the adoption of scientific and technical advances that, in the case of agriculture, are considerable. A mechanism of validation and more agile adoption of the advances of science could generate productive increases and sustainability.

In this regard, the promotion of productive linkages in agricultural activity plays a relevant role, processes that are in the construction phase and have broad support from the country's highest management. The integration of agro-food productions with the rest of the economy generates synergies that will result in global effects of increasing social welfare.

An important element is the interoperation between the different productive forms and the support of local governments and authorities to facilitate communication channels and create the necessary mechanisms to ensure positive results, aspects in which progress is made following the decentralization process that it is carried out after the approval of the new Constitution of the Republic, by decentralizing many functions of the State to the municipal structure, which brings it closer and strengthens the decision-making process for the different forms of production and at the local level. Autonomy is exercised in accordance with the principles of solidarity, coordination and collaboration with the rest of the country's territories, and without detriment to the higher interests of the nation.

These governance processes demonstrate responsibility, effectiveness, efficiency and participation, which are achieved through all the mechanisms of interaction and participation that producers have. The principles

of equity and social justice prevail and mechanisms are developed that contribute to the transparency of the different processes.

5. MANAGEMENT ARRANGEMENTS AND IMPLEMENTATION OF THE PROJECT

The government of CUBA, represented by the MINAG, will act as the Executing Entity (EE) of the project, and FAO, as requested of the NDA (Annex 1 of the FP), will serve as the Accredited Entity (AE) and as a Co-Executing Entity (CEE) responsible for the project financial and operational implementation.

FAO, in its role as EA, will be responsible for the overall management of this project. FAO will assume responsibilities in accordance with the detailed provisions outlined in the Accreditation Master Agreement (AMA) between FAO and GCF. To perform the Accredited Entity functions (described in table 1), FAO will set up a dedicated FAO-GCF project task force comprising relevant staff from the FAO Country Office in Cuba, the FAO Regional Office for Latin America in Chile, and FAO Headquarters in Rome. The project task force will remain independent of the Co-Executing Entity functions also performed by FAO. In line with the GCF policy on fees adopted through GCF Board Decision B.19/09, the above-mentioned segregation of responsibilities within FAO will ensure that the Organization can independently and effectively perform the types of Accredited Entities functions listed in the GCF General principles and indicative list of eligible costs covered under GCF fees and project management costs, also adopted through GCF Board decision B.19/09.

FAO in its role as a CEE, will set up the Project Operational Support and Financial Management Unit (OSFMU), which will be led by the Representation of Cuba and will have the main function of supporting the National Project Management Unit (NMU), providing procurement services and financial management services for the GCF proceeds. The OSFMU will be financed by the PMU funds of the project. Procurement Standards. Financial Management and Financial Control will follow FAO conventions, rules and regulations and the GCF and FAO AMA.

5.1. Organizational structure of the project

The governance of the project and the institutional arrangements reflected below are the result of an ongoing inter-ministerial dialogue facilitated by FAO, led by the Ministry of Agriculture (MINAG), which includes the Ministry of Science, Technology and Environment (CITMA), which is the National Designated Authority (NDA) of the GCF in Cuba and the Provincial Delegations of Agriculture.

The main actions to make the implementation and governance of the project viable will allow the authorities to have greater control over the adaptation indicators through interdependent components aimed at favoring a paradigm shift through more efficient crosscutting products. In this context, effective coordination and collaboration between research, extension, beneficiaries and other stakeholders will be fundamental for successful implementation, which guarantees teamwork and traceability of actions. The governance and execution structure of the project is shown in Chart 6:

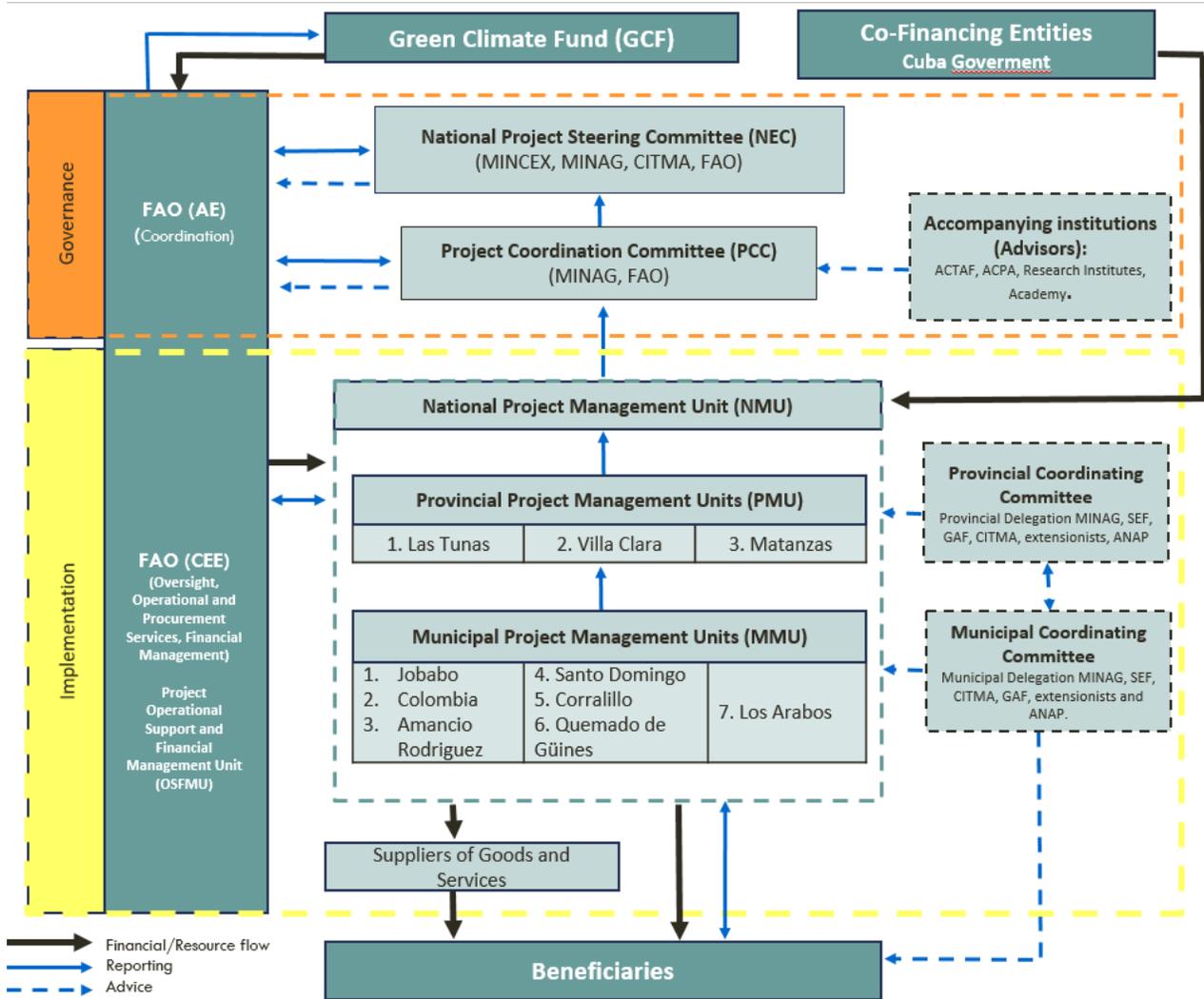


Chart 6. Governance structure and implementation of the IRES Cuba project.

5.2. Governance of the project, execution and implementation

For the governance and strategic decisions of the project, a National Project Steering Committee (NEC) will be established, which will be made up of ministers (or delegates) from MINCEX, CITMA, MINAG and the representative of FAO in Cuba, and will be chaired by MINAG.

The main function of the NEC 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.

The governance of the project also includes a Project Coordination Committee (PCC) composed of the National Project Director, technical representatives of MINAG and FAO, and the National Project Coordinator (NPC). The PCC will serve as a key communication channel between the National Project Management Unit

(NMU) and key local stakeholders and will assist in the implementation of the stakeholder participation plan. The PCC will be supported by national technical and scientific institutions (extension agents, academia) and 3 provincial coordinators. NMU will be physical located in Ministry of Agriculture.

The MINAG, in consultation with FAO, will be responsible for appointing a National Project Director (NPD), whose main function will be to direct the NMU.

For the project implementation, the NMU 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 NEC and the PCC. The NMU reports to the PCC through the NPD.

The NMU will establish three Provincial Project Management Units (PMU-Las Tunas, Villa Clara and Matanzas/Los Arabos) to ensure a solid implementation at the local (provincial) level. Each PMU will have a Provincial Coordinator, a Logistics and Training Assistant and an administrative assistant. The PMU will be advised by a Provincial Project Coordinating Committee (PCC), 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.

In addition, the NMU will establish seven Municipal Project Management Units (MMU) to ensure solid implementation at the municipal level. Each MMU will have a Municipal Coordinator, a Logistics and Training Assistant and an Administration Assistant. The MMU will be advised by a Municipal Coordinating Committee of the Project (MPCC), who will guarantee the effectiveness of the actions at the municipal level and will promote a fluid exchange of information for decision-making.

The provincial coordinators of Las Tunas, Villa Clara and Matanzas, will be the liaison with the seven municipal coordinators, as appropriate, and will facilitate a fluid exchange of information and decision-making at two specific levels of management and articulation: territorial / national, which will constitute 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.

The provincial and municipal units will be financed by the government and will report to the NMU. The members and functions of the project units responsible for the governance and implementation of the project are described below:

The suppliers of goods and services are the entities that will be contracted to support the implementation of agroforestry modules in the AIP, among these are the UEB of Machinery belonging to State Enterprises, which will provide technical assistance, maintenance and repair of machinery and implements dedicated to clearing, land preparation to develop crops, subsoiling, drilling for planting plants, support for marketing and transfer of raw materials and productions, as well as irrigation systems and nurseries. Other entities, such as laboratories, will support soil analysis, plant health, animal health, water quality analysis and seed certification, among the most important.

Table 1. Functions of Governance and project implementation units

Level	Project Unit	Participants	Functions
Governance	National Steering Committee (NEC)	MINAG, MINCEX, CITMA, FAO Chair: MINAG	<ul style="list-style-type: none"> • Provide political and strategic guidance to the implementation of the project. • Ensure good inter-institutional coordination. • Ensure government co-financing. • Maintain a communication channel with the Government of Cuba, including the DNA (CITMA) and receive guidance on relevant policies for the implementation of the project. • Approve the PTA and budget.
	National Coordination Committee (NCC)	MINAG and FAO	<ul style="list-style-type: none"> • Propose the annual work plan and budget • Monitor implementation and safeguard compliance. • Provide information on the progress, results and impacts of the project to the NEC. • Request and receive reports from co-financiers (financial and implementation). • Invite, as the case may be, the representatives of the accompanying institutions. • Mobilize the technical expertise of the participating institutions in a timely manner, according to the agreed annual work plan.
	Accompanying institutions (Advisors)	Formed by: ACTAF, ACPA, Research Institutes (INAF, IAgri, Soils, Plant Health, Tropical Fruit culture, Pastures and Forages, ICA, INIVIT) and Academia.	<ul style="list-style-type: none"> • Carry out accompaniment and advice in the field of governance of the project to the PCC.
	FAO-GCF Project Task Force (AE)	FAO (Country Office-Cuba, Regional Office for Latin America-Chile, and Headquarters- Rome	<ul style="list-style-type: none"> • Prepare the Project Inception Package that will have to be approved by the project Board • Ensure Project Results Monitoring and Evaluation • Establish Technical Standards and exercise control • Administrative, financial and technical oversight and supervision throughout project implementation (Carry out at least one supervision mission a year). • Ensure that funds are effectively managed to deliver results and achieve objectives; • Ensure the timeliness and quality of reporting to the GCF.

Level	Project Unit	Participants	Functions
			<ul style="list-style-type: none"> • Carry out the evaluation of the project, the rules, procedures and decision-making mechanisms for the NEC and the PCC, the terms of reference of the PCC and NMU and the definition of the flow of communication. • Provide technical guidance to ensure technical quality in project activities. • Report to the Secretariat and the GCF Evaluation Office about project progress and provide financial reports.
Implementation	National Management Unit (NMU)	<p>Formed by:</p> <ul style="list-style-type: none"> – National Project Director – National Project Coordinator – In charge of Monitoring and Evaluation – Economic and Financial – Logistics and Training Assistant – Driver <p>FAO will provide support to the operational and financial management of the NMU.</p>	<ul style="list-style-type: none"> • Prepare the Work Plan and Budget for review and approval by the PCC (in conjunction with the ODFMU). • Report to FAO on execution (Operational and financial). • Coordinate the operational arrangements of the project with the ODFMU. • Establish and supervise three provincial units and seven municipal units for the implementation of the project at the local level. • Ensure that the recommendations of the Coordinating Committees at the provincial and municipal levels are discussed and addressed, ensuring the adaptive management of the project.
	Operational Support and Project Financial Management Unit (OSFMU)	<p>Conformed by (FAO):</p> <ul style="list-style-type: none"> – National Operations Officer – Technical coordinator – Head of Training and Extensions – Responsible for Acquisitions, Logistics and Human Resources – Specialist in Finance and Accounting. 	<ul style="list-style-type: none"> • Manage GCF funds • Prepare operational arrangements • Prepare the budget (in conjunction with the NMU) • Manage the budget of the project. • Monitor the availability of cash. • Coordination and training for extension agents • Make financial and accounting reports. • Acquisition of goods and contracting of services for project activities. • Recruit, select and hire the necessary human resources and manage the quality of technical assistance. • Make payments for goods, services and products • Submit semi-annual financial reports on the status

Level	Project Unit	Participants	Functions
			<p>of project expenditures to the NEC;</p> <ul style="list-style-type: none"> • Prepare budget reviews at least once a year or more frequently if required. • Perform budget revisions to keep the budget up to date
	Provincial Management Units (PMU)	<p>Each provincial unit will be integrated by:</p> <ul style="list-style-type: none"> – Provincial Coordinator – Logistics and Training Assistant – Administrative assistant 	<ul style="list-style-type: none"> • The PMU will be established to provide support for project management and implementation at provincial level. • Serve as a key communication channel between NMU and key local stakeholders. • Establish and supervise the municipal units for the implementation of the project. • Assist in the communication strategy of the project at the local level
	Provincial Project Coordinating Committee (PPCC)	<p>Formed by:</p> <ul style="list-style-type: none"> – Provincial Delegation MINAG and SEF – Extension workers (ACTAF, ACPA) – Provincial Delegations of CITMA – GAF – ANAP 	<ul style="list-style-type: none"> • Ensure project coordination activities at the provincial level • Provide information on the progress, results and impacts of the project to the NCC. • Mobilize the technical expertise of the participating institutions in a timely manner, according to the agreed annual work plan at provincial level.
	Municipal Management Units (MMU)	<p>Each municipal unit consists of:</p> <ul style="list-style-type: none"> – Municipal Coordinator – Logistics and Training Assistant – Administrative Assistant 	<ul style="list-style-type: none"> • The MMU will be established to provide support for project management and implementation at municipal level. • Serve as a key communication channel between NMU, the PMU, and key local stakeholders at the municipal level. • Assist in the implementation of the participation and commitment plan of the interested parties. • Supervise the administration and maintenance of the machinery. • Control of the resources assigned by the project and its efficient use. • Assist in communication strategy of the project at the local level.
	Municipal Project Coordinating Committee	<p>Formed by:</p> <ul style="list-style-type: none"> – Delegation MINAG, SEF 	<ul style="list-style-type: none"> • Ensure coordination activities of the project at the municipal level • Provide information on the progress, results and impacts of the project to PCC and PMU.

Level	Project Unit	Participants	Functions
	(MPCC)	<ul style="list-style-type: none"> – Extension workers (ACTAF, ACPA) – CITMA – GAF – ANAP 	<ul style="list-style-type: none"> • Mobilize the technical expertise of the participating institutions in a timely manner, according to the agreed annual work plan at municipal level. • Assist in the implementation of the stakeholder participation and engagements plan

Table 2. Functions of the members of the Management Units

National Management Unit (NMUP)	
National Project Director (NPD)	<ul style="list-style-type: none"> • In charge of the Project Management Unit • Responsible for the general results of the project, both financial and operative. • Coordinate activities with all stakeholders in the project components. • Manage the day-to-day implementation • Coordinate with other related initiatives • Ensure a high level of collaboration between participating institutions and organizations at the national and local levels • Guarantee the final results established in the logical framework.
Technical Sub-Coordinator of the Project (TSCP)	<ul style="list-style-type: none"> • Guarantee management and technical quality in all stages of the project. • Permanently maintain inter-institutional coordination to support the activities of all project components. • Track the technical progress of the project. • Participate in conjunction with the person in charge of monitoring and evaluation in the follow-up of the results, contributing to demonstrate the technical quality of the same. • Together with the UOAGF, design a strategy and a training plan according to the needs of the project and the stages of implementation. • Identify the needs and potential of the training. • Coordinate the training actions with the institutions and experts in the topics identified by the project for its execution according to the planned stages. • Implement the communication program • Organize annual project and meeting workshops to supervise the progress of the project and prepare together with the National Director the annual work plans, guaranteeing the processes from the technical perspective. • Guarantee the execution of environmental and social safeguard measures in the different stages of the project.

	<ul style="list-style-type: none"> • Incorporate the gender perspective during the execution of the project. • Support the organization of the mid-term review and the final evaluation
Monitoring and Evaluation Assistant	<ul style="list-style-type: none"> • Advise the director and the project coordinator on matters related to the results in the different stages according to the components of the project. • Develop and execute the project monitoring plan • Follow up on the implementation of the Monitoring Plan • Consolidation of the results of the indicators reported by the technicians / specialists of the project. • Application and coordination of the methodology established to monitor the performance of the project indicators. • Supervision of fieldwork through monitoring visits to project activities, with the objective of measuring the quality of them through the use of quality standards. • Maintain inter-institutional coordination permanently, through email and telephone contacts, meetings and visits to ensure monitoring and monitoring of project actions in its different stages. • Preparation of monitoring and evaluation reports according to the methodologies established at each stage of the project's development. • Systematization of the results of the monitoring visits and the accountability and Monitoring and Evaluation workshops developed within the framework of the project. • Identification of bottlenecks in the process of project implementation
Economic and Financial Assistant	<ul style="list-style-type: none"> • Record operational and financial operations, related to cash flow. • Responsible for the preparation and supervision, control and monitoring. • Development of financial plans and control of disbursements. • Ensure the detailed record of accounting operations. • Manage and safeguard financial and accounting management. • Evaluation of budget execution in correspondence with the planned Plan. • Monitoring of exchange variations to be taken into account in budget calculations. • Making proposals for budget review requests. • Preparation of financial reporting proposals, including the final report for approval. • Ensuring accurate records of all relevant data for operational and financial supervision. • Ensuring the integrity, punctuality and quality of all data and project documentation, including the insertion and maintenance of the logical framework, the work plan and the budget data
Logistics and training assistant	<ul style="list-style-type: none"> • Plan and coordinate the technical execution and assurance of the project, in conjunction with the heads of components, including the preparation of the annual work plans to be reviewed by the Project Director. • Provide experiences and manage technical assistance in the key issues associated with the reconversion of agro-productive landscapes in the context

	<p>of climate change and the new paradigms of the project.</p> <ul style="list-style-type: none"> • Maintain inter-institutional coordination permanently, through contacts by email and telephone, meetings and visits. • Meet regularly with the results and territories coordinators to ensure that the project's training activities are compatible at all levels and avoid duplication of effort
Driver	<ul style="list-style-type: none"> • Exercise the functions of mobility, transfer of personnel and guarantee work routes to meet the day to day of the project, according to planning. • Guarantee the technical maintenance and care of the assigned vehicle and support in all tasks associated with transportation in the NMU.
Operational Support and Project Financial Management Unit (OSFMU)	
National Operations Officer	<ul style="list-style-type: none"> • Manage project funds and technical supervision on a daily basis. • Coordinate and supervise the execution of project activities; • Manage daily activities of project implementation; • Operational and financial supervision • Track project progress and ensure timely delivery of relevant inputs and outputs associated with the project; • Present the Project Progress Reports, Work Plans and Budgets to the NEC and FAO; • Prepare the Project Implementation Report; • Support the organization of the mid-term review and final evaluation. • Identify in detail the expenses and disbursements that should be requested from FAO for the timely execution of the project; • Supervise, provide technical support and evaluate the reports and products of the national project consultants (funded by the GCF funds)
Technical Sub-Coordinator	<ul style="list-style-type: none"> • Contribute to the realization of the processes and actions necessary for the fulfillment of the goals. • Support the preparation of technical missions during the execution of the Project as planned. • Support the development of the work of the consultants during the development of their activities and products. • Provide follow-up during the elaboration of the products and review them. • Support the development and storage of databases, data files and images and all the information generated within the framework of the Project. • Support to the coordination of the project for the organization and conduct of all the events of planning, evaluation and rendering of accounts of the project. • Support to the coordination of the project in the execution of activities foreseen in the annual work plan observing all the operational and administrative procedures according to the rules of the executor and of the instructions of the FAO. • Support to the general coordination in the management of the knowledge of the project: the systematization of information, elaboration of documents,

	<p>revision actions, edition and publication of the same, if required.</p> <ul style="list-style-type: none"> • Responsible for updating the project monitoring system in permanent coordination with national and provincial specialists and technicians. • Provide support in the organization of inter-institutional events in which the project participates or sponsors: project socialization events, planning events with counterparts, accountability events, among others. • Support in the communication processes of the project. • Guarantee the execution of environmental and social safeguard measures in the different stages of the project. • Incorporate the gender perspective during the execution of the project
<p>Training and Extension Assistant</p>	<ul style="list-style-type: none"> • Design a strategy and a training plan according to the needs of the project and the stages of implementation. • Identify the needs and potential of the training. • Coordinate the training actions with the institutions and experts in the topics identified by the project for its execution according to the planned stages. • Manage technical assistance from national and international experts linked to the topics of interest of the project. • Identify the proposals of technologies and good agricultural practices for their implementation in the intervention areas. • Jointly manage with the counterpart the agrarian extension system according to the objectives of the project and the agroforestry modules planned for each area of intervention. • Socialize experiences through events, field days and the use of ICTs. • Prepare technical informative materials, reports, reports and evidences of the activities carried out. • Carry out evaluation of the follow-up of the implementation of the training actions and the result of the extension, according to the established methodologies
<p>Procurement, Logistics and Human Resources Assistant</p>	<ul style="list-style-type: none"> • Review and completion of the technical specifications of the resources to be purchased. • Analysis of offers. • Preparation and processing of the documentation to and from the importing company (Approved offers, shipping documents). • Preparation of the proposed procurement plan and preparation of proposals for adjustments to the procurement plans, preparation and presentation of documents in the purchasing committee. • Elaboration of a schedule of purchases and acquisitions of the project in coordination with the government authorities with a detailed description of them. • Proposed internal control system for the execution of the procurement plan (control and monitoring method) of the project in its stage after the PPG stage, which contains: FAOCU management, MINCEX and MINAG. • Market analysis, identification and search for suppliers. • Ensuring the timely execution of project activities, including the coordination of

	<p>operational arrangements.</p> <ul style="list-style-type: none"> • Sending requests for orders and purchase orders in GRMS for acquisition actions. • Management and daily management of the purchasing processes in In-Tend and other required services. • Provide specific information on the procurement activity for the annual and final reports, issuing periodic reports. • Planning and processing of staff travel / project consultants. • Obtain terms of reference, initiate personnel selection processes (consultants), manage the technical quality of technical assistance, participate in performance evaluations, control attendance and aspects related to personnel management
<p>Finance and Accounting Assistant</p>	<ul style="list-style-type: none"> • Daily management of the project budget, including the monitoring of the availability of cash, the preparation of the budget that must be reviewed by the National Coordinator and the National Director of the Project. • Analysis of offers, payment requests. • Evaluation of budget execution in correspondence with the POA. • Monitoring of exchange variations to be taken into account in budget calculations. • Making proposals for budget review requests. • Preparation of proposals for financial reports, including the final report for the approval of the CDN. • Ensure accurate records of all relevant data for operational and financial supervision of all purchases and payment of services related to the project. • Ensuring accurate records of all relevant data for operational and financial supervision. • Ensuring the integrity, timeliness and quality of all data and project documentation in FPMIS, including, the insertion and maintenance of the logical framework, the work plan and the budget data

<p>Communication and Gender Assistant</p>	<ul style="list-style-type: none"> • Update, validate and execute the communication strategy of the project. • Support public communication activities generated by the project. • Design, develop and disseminate information of general interest oriented to disseminate the results of the project. • Lead and promote communication processes for the benefit of agricultural producers, beneficiaries of the project using a variety of approaches, platforms and products. • Support the knowledge management system and the information provided for the project. • Manage and update the Project website. • Disseminate the relevant project information through social networks (twitter / Facebook). • Ensure the incorporation of the gender perspective in the different stages of the project. • Promote actions that contribute to reducing gaps in gender equality and provide evidence for follow-up. • Support the evaluation and monitoring processes from a gender perspective. • Generate reports and reports according to the methodologies established by FAO.
<p>Provincial Management Units (PMU)</p>	
<p>Provincial Coordinator</p>	<ul style="list-style-type: none"> • Coordinate and closely monitor the execution of project activities at the provincial level and those corresponding to each municipality. • Execute activities relevant to the development of the project • Manage the day-to-day implementation • Coordinate with other related initiatives • Ensure a high level of collaboration between participating institutions and organizations at the provincial and local levels, • Track the progress of the project in your province. • Implement and manage the project monitoring plan at your level • Implement the communication program • Organize project workshops and meetings to monitor project progress and prepare annual project work plans in the province according to national planning • Guarantee the execution of environmental and social safeguard measures in the different stages of the project. • Incorporate the gender perspective in the different stages of the project. • Support the organization of the mid-term review and the final evaluation
<p>Logistics and Training Assistant</p>	<ul style="list-style-type: none"> • Reception of equipment and resources assigned by the project. • Distribution and registration of the equipment and resources assigned to the final recipients (beneficiaries) • Monitoring and control of the equipment and resources assigned to guarantee the use and correct operation thereof. • Ensuring the timely execution of project activities and other required services,

	<p>including the coordination of operational arrangements.</p> <ul style="list-style-type: none"> • Provide specific information on procurement activity, control of resources for annual and final reports, as well as the issuance of periodic reports. • Coordinate the training actions with the institutions and experts in the topics identified by the project for its execution according to the planned stages. • Ensure the execution of the training and the implementation of the extension system according to the established plans and the priorities of the project.
Administrative Assistant	<ul style="list-style-type: none"> • Execute the daily management of the project budget, including the supervision of the availability of funds, the preparation and review of the budget, which will be supervised by the Project Coordinator; • Ensure accurate recording of all relevant operational, financial and monitoring data based on results; • Ensure that reports related to expenditures, forecasts and progress in relation to plans and project closure are prepared and presented in accordance with the procedures, formats and presentation schedules and communication channels. • Participate in periodic meetings related to the management of the project and render an account for administrative and financial matters; • Prepare information and correspondence related to financial matters; • Support the project coordinator in the organization of midterm and final evaluations and in providing information on project budget issues; • Perform other tasks when necessary.
Municipal Management Units (MMU)	
Municipal Coordinator	<ul style="list-style-type: none"> • Coordinate and closely monitor the execution of project activities in the municipality and in the areas of project intervention, as planned • Execute activities relevant to the development of the project • Manage the day-to-day implementation • Coordinate with other related initiatives at the local level. • Ensure a high level of collaboration between the participating institutions and organizations at the local level, • Track the progress of the project in your municipality. • It will support the monitoring process of the project at its level, managing the necessary evidences. • Implement the communication program at your level • It will support the project workshops and meetings at the municipal level, as well as guarantee the fulfillment of the planned activities with the participation of the beneficiaries of the project. • It will support the execution of controls, follow-ups, as well as the organization and development of the mid-term review and the final evaluation. • Guarantee the execution of environmental and social safeguard measures in the different stages of the project. • Incorporate the gender perspective in the different stages of the project.
Logistics and Training	<ul style="list-style-type: none"> • Reception of equipment and resources assigned by the project.

<p>Assistant</p>	<ul style="list-style-type: none"> • Distribution and registration of the equipment and resources assigned to the final recipients (beneficiaries) • Monitoring and control of the equipment and resources assigned to guarantee the use and correct operation thereof. • Ensuring the timely execution of project activities and other required services, including the coordination of operational arrangements. • Provide specific information on the control of resources for the annual and final reports, as well as the issuance of periodic reports. • Coordinate the training actions with the institutions and experts in the topics identified by the project for its execution according to the planned stages. • Evaluate the training and development needs of project personnel • Ensure the execution of the training and the implementation of the extension system according to the established plans and the priorities of the project
<p>Administrative Assistant</p>	<ul style="list-style-type: none"> • Execute the daily management of the project budget, including the supervision of the availability of funds, the preparation and review of the budget, which will be supervised by the Project Coordinator; • Ensure accurate recording of all relevant operational, financial and monitoring data based on results; • Ensure that reports related to expenses, forecasts and progress in relation to plans and project closure are prepared and presented in accordance with the procedures and formats and schedules of presentation and communication channels. • Participate in periodic meetings related to the management of the project and render an account for administrative and financial matters; • Prepare information and correspondence related to financial matters; • Support the project coordinator in the organization of midterm and final evaluations and in providing information on project budget issues; • Perform other tasks when necessary

5.3. Institutional Analysis

5.3.1. Key Institutional Actors

Project activities will support and reinforce the implementation of several of the national strategies and programs mentioned above, to adopt new models that integrate agricultural, livestock and forestry production in the short term; that produce a true paradigm shift and that lead to a sustainable, resilient and low carbon agroforestry sector.

5.3.1.1. Green Climate Fund (GCF)

A global fund created to support the efforts of developing countries to respond to the challenge of climate change. The GCF helps developing countries limit or reduce their Greenhouse Gas (GHG) emissions and adapt

to climate change. It seeks to promote a paradigm shift towards development with low emissions and climate resilience, taking into account the needs of nations that are particularly vulnerable to the impacts of climate change. (<http://www.greenclimate.fund/home>).

5.3.1.2. Food and Agriculture Organization of the United Nations (FAO)

The Food and Agriculture Organization of the United Nations (FAO) was created in October 16, 1945 at Quebec, Canada, with Cuba being one of its founding countries. In 1968, an office was created to deal with the affairs of FAO in Cuba and on February 28, 1978, the FAO Representation on the Island was officially established, with the appointment of the first Representative in the country.

Collaborative work has contributed to the resolution of immediate problems, as well as to define and outline many of their future assistance needs, which would be subsequently channeled through joint projects with UNDP and through Technical Cooperation Projects, arising from of 1976.

It has also supported the Cuban government in the recovery of agriculture and fishing in emergency situations caused by the passage of hurricanes and other climatic events, identifying four thematic areas of work for the period: Sustainable production of food, seeds and animal feed, by strengthening the production units of the agro-food sector; Adaptation to climate change and sustainable management of natural resources; Health, quality and food safety, supporting the implementation of the National Plan in line with international standards on food safety; South-South cooperation, promoting special agreements so that technicians and experts from developing countries work directly with farmers in receiving countries. Cuba is one of the countries that have offered the most cooperation to countries in the Caribbean, Latin America and Africa.

5.3.1.3. Ministry of Agriculture (MINAG)

It is the body of the Central State Administration responsible for proposing and implementing the policy on the use, tenure and sustainable exploitation of the agricultural area of the country; agricultural and forestry production to meet the food needs of the population, industry and export.

In the process of improvement of the Ministry of Agriculture, twelve specific functions are established for bodies that fulfill state functions. Linked to the forestry sector corresponds to fulfill the specific Function No. 9: Manage the use and use of the agroforestry heritage including the fruit trees and the administration of the National Fund for Forest Development (FONADEF). These functions are relevant to the IRES Cuba project.

Other relevant competences and functions for the Project are:

In accordance with Presidential Resolution No. 6 of Decree - Law No.272 "On the Organization and Functioning of the Council of Ministers" Article 31 of July 16, 2010, the Organic Regulation that aims to establish the organization is approved as a Single Annex and the fundamental elements that determine the structure, composition and functioning of the Ministry of Agriculture (Art.1), which is complemented by the Internal Function Manual that regulates the mission, functions, organization, attributions [...], organizational units that make up the Central Organ [...], relations with local administrations, mission, functions [...], and general organization of the attended business system (Art. 2. 1-7).

In addition to the functions common to all the agencies of the Central State Administration, the Ministry of Agriculture has the following specific functions:

Propose to the Government the agrarian policies of the country, implementing their execution once approved.

Direct and control the policy of the State and Government on agricultural and forestry production for the satisfaction of the food needs of the population, industry and export.

Execute the registration of property and possession of the land, tractors and self-propelled agricultural machines, controlling the agricultural land fund of the country and the jurisdiction over it.

Manage the conservation, improvement and sustainable management of soils and use of fertilizers.

Implement the protection of the national territory of the introduction and diffusion of plagues and diseases of the plants, in order to achieve a satisfactory phytosanitary status in the country, exercising the registration and control of the use of chemical, biological and natural pesticides.

Direct the protection of the national territory of the introduction of diseases of animal origin and achieve a satisfactory state of animal health in the country, register and control the use of raw materials, products and by-products for these purposes and veterinary medicines.

Control the livestock heritage of the country, registering the major cattle, the pure breeds and their crosses and the morphological standard of the different species.

Implement the policy of genetic development, the preservation of the gene pool of the animal species of the domestic and wild fauna.

Manage the use and use of agroforestry heritage including fruit trees, administration and conservation of the national forest fund.

Promote the development of agricultural mechanization, irrigation and drainage systems, validate the introduction of new technologies and their efficient exploitation and establish the regulations for their technical assistance.

Direct the implementation of the policy of prospecting, conservation, introduction, maintenance, documentation and use of plant genetic resources and seeds in the country.

Execute and enforce the policy for the process of promotion, development and consolidation of the cooperative movement in the agricultural, forestry and sugar sectors.

The MINAG as an organization has an important capacity, has a wide network of scientific centers dedicated to agricultural research, especially related to obtaining new varieties, means of cultivation, soil protection, agro-ecology and adaptation to climate change, among others. . The high capacity of human resources, whether researchers or technicians, trained in the country is one of the strengths of the agriculture sector, which will facilitate the incorporation of scientific results and the use of good practices by the project, agricultural and lessons learned.

MINAG is the counterpart of the Cuban government to FAO as Executor of the Project.

5.3.1.4. Ministry of Science, Technology and Environment (CITMA)

The CITMA has the mission of directing, executing and controlling the policy of the State and the Government in matters of science, technology, environment; the use of nuclear energy, standardization, metrology and quality control, promoting the coherent integration of these to contribute to the sustainable development of the country.

Since its creation in 1994, the Ministry of Science, Technology and Environment (CITMA) has amid its specific functions and powers, among others: (a) Propose and evaluate the strategy and the scientific and technological policies in correspondence with the economic and social development of the country, establishing the corresponding objectives, priorities, lines and programs and directing and controlling their execution; (b) Direct and control the process of preparation, execution and evaluation of scientific research and technological innovation programs; (c) Promote and facilitate the participation of the scientific community in the development and evaluation of science and technology strategies and policies; (d) Elaborate and propose, in coordination with the corresponding organizations, the environmental policy and control its compliance; (e) Develop, perfect and control strategies, plans and programs for the protection of the environment, the rational use of natural resources and prioritized ecosystems, with special attention to the integrated management of watersheds, bays and coasts, mountainous areas and protected areas, assessing their impact on the economy and society; among others.

To fulfill the assigned functions, the CITMA also works in coordination with Research Centers, related State Directorates, other agencies of the state central administration (OACE), and non-governmental organizations such as the Cuban Association of Animal Production (ACPA), Cuban Agricultural and Forestry Technicians Association (ACTAF), National Association of Small Farmers (ANAP), the latter groups the Cuban Smallholder Farmers movement organized in CPA, CCS and individual farmers.

5.3.1.5. Ministry of Foreign Trade and Foreign Investment (MINCEX)

The Ministry of Foreign Trade and Foreign Investment (MINCEX) is the body of the Central State Administration whose mission is to propose, direct and control the application of State and Government policies on foreign trade, foreign investment and cooperation international. All this on the basis of the development strategies established to contribute to the economic and social progress of the country.

Among its objectives is the diversification of its commercial partners, work to achieve a reordering of trade policy in the search for favorable markets for their exports, in the diversity and competitiveness of their exportable items.

Foreign Investment in Cuba is encouraged given the need to access external financing sources, advanced technologies and the expansion and diversification of export markets. The objectives of foreign investment in Cuba are also: the capture of managerial methods, the substitution of imports, the creation of new sources of employment, the capture of higher incomes from productive linkages with the national economy, favoring modernization and creation infrastructure, as well as the change of the country's energy matrix through the use of renewable energy sources.

5.3.1.6. Local Key Actors

At the local level, diverse actors and sectors act, whose roles are essential due to their degree of participation and social and productive commitment (Table 3), with which it is foreseen to establish technological evaluations for the selection of the most appropriate to use and transfer, from the point of view of their potential to face climate change, which will influence the supply chain of agricultural technologies and machinery in the long term. Likewise, they will adopt management and management plans that increase the resilience of the selected localities.

Table 3. Main actors at the level of municipalities, within the intervention areas of the project

Means	Composition/Description	Fundamental Roles
MINAG	<p>The MINAG from the Central level, exercises relationships of regulation and control over local administrations in terms of their competence, directly or through the structures of the provincial and municipal delegations.</p> <p>Producer of learning and technologies, also of local instances of coordination and direction of agroforestry strategies. It represents the most important element for food sovereignty and import substitution at the local level.</p>	<p>Coordinates and facilitates the exchange of information and decision-making.</p> <p>Manage the Project Coordinating Committee at your level.</p>
Academic and Scientific Institutions	<p>The Central University of Las Villas and the University of Las Tunas have Municipal University Centers, the Tropical Food Research Institute (INIVIT) is the main extension institution, it is located in one of the AIP (Villa Clara Province, Santo Domingo municipality)), the Research Institute of Agricultural Engineering (IAgric) has representation in the provinces where the project will be implemented, the Tropical Fruit Research Institute (IIFT) and the Research Center for Animal Improvement and Tropical Livestock (CIMAGT) they do not have representation at municipal level but their researchers and technicians will be incorporated into the extension in the AIP, among other institutions, they will participate with researchers, professors, specialists and technicians in the implementation of the Project at the local level, forming teams in each municipality.</p>	<p>Scientific and technical support and training in the implementation of the project. They will work as part of the agrarian extension system.</p>

Municipal Administration Council (MAC)	Represents the structure of government and social organization closest to the community, becoming its representative. It will be an important factor in facilitating the actions of the Project, observing and participating both to take the learning that it considers appropriate for its management, and to transmit its experience to other involved actors. The project will work with municipalities, offering an opportunity to strengthen municipal governance in the understanding of new perspectives to achieve climate-resistant development objectives, particularly in the agroforestry sector	Facilitator before the community in the management of production and / or transformation.
ANAP	It constitutes a fundamental alliance of the Project in all the municipalities of action due to its proximity and involvement in the productive base. He will contribute the awareness of the Agro ecological Movement and to Farmer-to-Farmer communication, also with his wide experience in gender work. It will facilitate the work of the Project in relation to the diversification of agroforestry systems and their environmental management. It will support work with the new generations and the smallholder farmer woman. Strengthen your role as representative of farmers participating in the learning of the Project and multiplying the lessons received	Representative of the smallholder farmers. Participate in the lessons learned of the Project.
ACTAF	It is an Association that facilitates ways to build models of sustainable agrarian systems. It has a work structure organized in branches in all the provinces. It is considered an important actor due to its experience in working with local actors of agricultural development and the promotion of agro ecological alternatives in Cuban agroforestry systems.	It transmits experience with agro ecological approaches. His role in the project is training and extension.
ACPA	Organization with vast experience in animal diversification, animal feed and genetics for racial improvement. Will participate in learning teams. It has grassroots associations in the provinces and municipalities of the country.	It brings specialized knowledge and knowledge. His role in the project is training and extension.
MINCEX	This actor does not count on municipal representation, but with provincial instances with which close cooperation and exchange will be maintained to establish links that facilitate the good management of the Project in accordance with what is established by the norms, regulations and laws related to international cooperation.	The MINCEX is the official counterpart of the Government in Cuba before the FAO. Regulates the norms and laws related to international cooperation.

FAO	This actor does not have territorial representation. FAO participates in Cuba	It will be the agency responsible for supervising and providing technical support during the execution of the project. In addition, it will be responsible for its financial and operational execution. It will provide contracting services in accordance with the rules and procedures, while providing financial services to manage the GCF resources.
CITMA	<p>The activity of CITMA in this sense is based on managing the application and development of scientific knowledge, technological innovation and environmental protection in the process of sustainable agricultural development, promoting actions to adapt to climate change.</p> <p>This Institution, in its structure, has Provincial Delegations and a representation at the municipal level.</p>	CITMA is the National Authority Designated by Cuba before the Green Climate Fund. Participates in the NSC according to its functions as the governing body of the science, innovation and environment activity, facilitating knowledge management processes and compliance with environmental regulations.

Forms of Municipal Production

The forms of municipal production (FPM) constitute the scenarios or localities at the level of Popular Councils where the agroforestry modules will be established (7) in the municipal scope of intervention of the project. The FPM is made up of structures in the agroforestry sector (business system and associated cooperatives) according to their social purpose (forestry, livestock, various crops and others). The installed capacities: Human, technical and financial resources are shown in Appendix 2.7.4.

Basic Business Units (UEB)

The so-called Basic Business Units (UEB) agroforestry, will be made up of Basic Units of Production (UBP) and these are integrated by different work brigades (BT) that in the main are divided into silvicultural and production brigades; which are in charge of the execution and the fulfillment of the planned monthly production and of some farms that exist created for specific purposes, be they protection and / or conservation, self-consumption or production. This only responds to the structure of the Agroforestry Group (GAF).

5.4. Project Implementation

Main activities for implementation:

I. Selection of the localities or productive organizations where municipal production forms will be located, the Municipal Agroforestry Management Units (the criteria for the selection of localities can be found in Appendix 2.1 of the Feasibility Study of the FP), applying criteria of experts and selection parameters from of the current situation of the vulnerability baseline; such as; indicators of production and quality in the productive forms, cooperatives with potentials and aptitudes of their personnel for the development of the agroforestry systems, the interest in strengthening the application of the results of science and technology through training both from the theoretical and practical point of view and achieve a multiplier effect on the most appropriate technologies, etc. On the basis of these criteria, the municipalities and the productive bases direct beneficiaries of the project were selected.

II. Elaboration of the Work Plan of the approved Project and in the Annual Operative Plan (POA).

III. Formulation of technical projects. Carried out by specialized institutions in the country (Project and Engineering Company of MINAG (ENPA) 23, Geocuba and Universities), according to the Procedures Manual of the National Forestry Development Fund (FONADEF), established by Law 85 Forestry. The costs associated with technical assistance and insurance are assumed by FONADEF, as co-financing of the project.

III. The PE will review the technical projects for their budgets and make proposals to the National Project Director (NPD)

IV. Once the technical project has been approved, the National Project Director (NPD) will request the National Operations Officer (ONO) to disburse the GCF funds for the execution of the project, based on the approved Project Work Plan and the Annual Operating Plan (POA).

5.5 Project flow structure of funds

At the request of the Government of Cuba, FAO will be the financial and operational executing agency of the GCF resources, including financial management, procurement of goods and contracting of services (through the UAOGP). FAO will be responsible for presenting annually a work plan and annual budget that will include a specific purchasing plan. The PCC jointly with the NEC will validate and approve the annual work plan and budget. The FAO will be in charge of the disbursement of the funds according to the established conventions, norms and standards. The funds will flow as described in Chart 7.

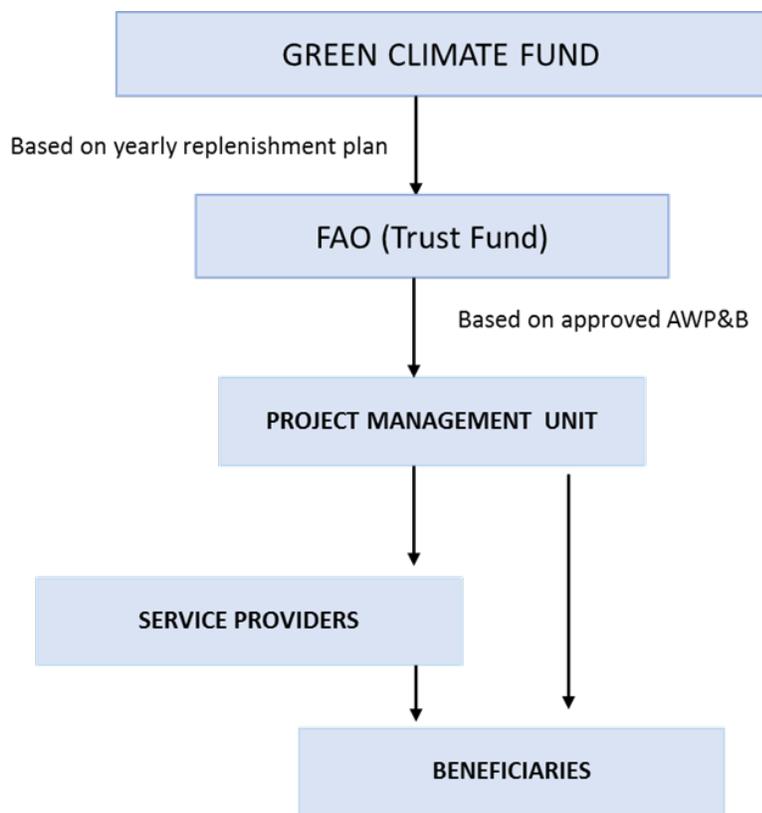


Chart 7. Project Budget Cash Flow

Each year, FAO will submit to the GCF the annual review report of the project team and the annual replenishment plan prepared jointly by the NEC. In addition, it will provide semi-annual financial reports including a statement of project expenditures to the CNDP.

5.6. Monitoring and Evaluation

At the end of year 2 an intermediate evaluation will be carried out and in year 4 an external impact evaluation of the phases of the Project will be implemented. Once a year a National Workshop will be convened to evaluate indicators and risks with the Project Taskforce, the Provincial Coordinators and representations of the municipal teams, beneficiary groups.

At the end of each year, progress in the expected effects in the implementation of agroforestry modules will be measured. The Agroforestry Base Business Units (UEB) with their associated cooperatives will be the structure responsible for the implementation of the modules in the AIP. The methodology of participatory self-evaluation will be used as a practical tool for planning and monitoring.

For the collection and processing of information, two scales are foreseen: the one issued by the Forest-Based Business Units (UEB) at the municipality level and the Provincial Coordinators at their respective level, with the participation of the National Project Director (NPD), They will work on the collection of data in each of the forms of municipal production (FPM), through participatory methods such as workshops, tours, surveys, records and reports.

The National Project Director (NPD) will send to the National Project Steering Committee (NEC), consolidated reports for FAO, GCF, and MINCEX. In the case of MINCEX, the reports will be sent every six months in the formats established by this organization, and in the case of FAO and GCF, the frequency will be the same, with a defined format.

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Appendix 2.7.1. Project Life: State Plan for confronting climate change

Task 1: Identify and undertake actions and projects²⁴ to adapt to climate change, integral and progressive, necessary to reduce the existing vulnerability in the 15 zones identified as prioritized; considering in the order of action the threatened population, its physical and food security and the development of tourism.

Task 2. Implement the legal norms necessary to support the execution of the State Plan; as well as ensuring strict compliance with particular attention to measures aimed at reducing the vulnerability of built heritage, prioritizing threatened coastal settlements.

Task 3. Conserve, maintain and fully recover the sandy beaches of the Cuban archipelago, prioritizing the urbanized ones for tourist use and reducing the structural vulnerability of the built heritage.

Task 4. Ensure the availability and efficient use of water as part of the confrontation to drought, from the application of technologies for savings and satisfaction of local demands. To improve the hydraulic infrastructure and maintenance, as well as the introduction of actions to measure the efficiency and productivity of water.

Task 5. Direct reforestation towards the maximum protection of soils and waters 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.

Task 6. Stop deterioration, rehabilitate and conserve coral reefs throughout the archipelago, with priority on the ridges that border the insular platform and protect urbanized beaches for tourist use. Avoid overfishing the fish that favor corals.

Task 7. Maintain and introduce into the territorial and urban planning plans the scientific results of the Macro project on Hazards and Vulnerability of the coastal zone (2050-2100); as well as the Danger, Vulnerability and Risk Studies in the disaster reduction cycle. Use this information as an early warning for decision making by the OACE, OSDE, EN, CAP and CAM.

Task 8. Implement and control adaptation and mitigation measures to climate change derived from sectorial policies in programs, plans and projects related to food security, renewable energy, energy efficiency, territorial and urban planning, fishing, agriculture, health, tourism, construction, transport, industry and integrated management of forests.

Task 9. Strengthen monitoring, surveillance and early warning systems to systematically evaluate the status and quality of the coastal zone, water, and drought, forest, human, animal and plant health.

Task 10. Prioritize measures and actions to raise the perception of risk and increase the level of knowledge and the degree of participation of the entire population in confronting climate change and a culture that encourages water saving.

²⁴ Coastal protection of cities, relocation of human settlements, integral recovery of beaches, mangroves and other natural protective ecosystems, hydraulic works and coastal engineering, among others.

Task 11. Manage and use available international financial resources, both from global and regional climate funds, as well as those from bilateral sources to execute the investments, projects and actions that derive from each of the Tasks of this State Plan.

Appendix 2.7.2. Decree No. 280, CHAPTER II - COMMISSIONS OF THE REFORESTATION SYSTEM

DECREE No. 280

OF THE EXECUTIVE COMMITTEE OF THE COUNCIL OF MINISTERS

WHEREAS: Decree No. 197 of January 16, 1995, created the National Commission for the Turquino-Manatí Plan, which, together with its commissions and the bodies responsible for assisting the mountainous regions, have worked for ten years in agroforestry, economic development, social and environmental aspects of the mountainous regions, and in afforestation and reforestation programs and plans in all regions of the country, with positive results in raising the quality of life of the mountaineers and in increasing the forestry rates of the national territory, in the protection of the environment and natural resources.

WHEREAS: The experience gained and the results achieved by the National Commission of the Turquino-Manatí Plan and its work system, as well as the State's willingness to increase forestry activity and the need to enhance and further develop it, indicate the convenience of maintaining work in the mountainous regions and also the participation of the population in a broad and organized way, creating commissions and systems of work separately for the development of the mountain and for the reforestation system of the country.

WHEREAS: It is convenient to replace Agreement No. 3139 of April 8, 1997 of the Executive Committee of the Council of Ministers that created the National Council of Hydrographic Basins, as the highest coordinating body in the field of management and management of the watersheds of the territory national, by a norm of superior hierarchy that allows a more harmonious functioning of said Council.

WHEREAS: The Constitution of the Republic in its Article 98, paragraph n), establishes as attribution of the Council of Ministers that of creating the commissions that it deems necessary to facilitate the fulfillment of the tasks assigned to it. Likewise, Decree Law No. 67, of April 19, 1983, on the Organization of the Central State Administration, attributes to said body in its Article 11, clause d), the power to create inter-agency commissions to carry out activities that facilitate the fulfillment of tasks that are entrusted to him.

WHEREAS: In use of the powers conferred, the Council of Ministers decrees the following:

ON THE COMMISSIONS OF THE TURKINE PLAN, THE REFORESTATION SYSTEM AND THE NATIONAL WATERSHED'S ELCONSEJO

CHAPTER I

OF THE COMMISSIONS OF THE TURIN PLAN

ARTICLE 1: The National Commission of the Turquino-Manatí Plan, created by Decree No. 197, of January 16, 1995, is hereinafter referred to as the National Commission of the Turquino Plan and is subordinated to the Executive Committee of the Council of Ministers.

ARTICLE 2: The regions of the country that are under the attention of the National Plan Commission Turquino are the following:

1. Mountain range of Guaniguanico, nailed in the Pinar del Río province.
2. Mountains of Guamuhaya, which covers part of the territories of the provinces of Villa Clara, Cienfuegos and Sancti Spíritus.
3. Sierra Maestra, which covers the mountain areas of the provinces Granma, Santiago de Cuba and part of Guantánamo.
4. Mountains of Nipe-Sagua-Baracoa, which includes mountainous territories of the provinces of Guantanamo, Holguín and part of Santiago de Cuba.
5. Sierra de Bamburanao, which covers part of the municipalities of Remedios and Sancti Spíritus and Ciego de Ávila, respectively.
6. Ciénaga de Zapata, in the province of Matanzas.

ARTICLE 3: The provincial and municipal commissions existing in the regions indicated in the previous article of this Decree, maintain their functioning as they are up to the present, in all that is their responsibility and control the compliance of the policies, plans, programs and agreements approved by the Government, the National Commission of the Turquino Plan and the organisms of the Central Administration of the State, with respect to these regions.

CHAPTER II

OF THE COMMISSIONS OF THE REFORESTATION SYSTEM

ARTICLE 4: The National Commission of the Reforestation System is created, as an Inter-Agency Commission, subordinated to the Executive Committee of the Council of Ministers, for the increase and development of the forestry activity.

ARTICLE 5: Commissions for the Reforestation System are created in all the provinces. At the special Municipality of Isla de la Juventud and in all the municipalities of the country.

The commissions control compliance with policies, programs and agreements approved by the Government and the National Commission, with respect to reforestation plans, whose elaboration and execution take into account, among other aspects, popular participation.

CHAPTER III

OF THE NATIONAL BOARD OF HYDROGRAPHIC BASINS COUNCIL

ARTICLE 6: The National Council of Hydrographic Basins, the highest coordinating body in the field of management and management of the watersheds of the national territory, is responsible for coordinating, recommending, evaluating and checking the strategies of sustainable economic and social development of the watersheds, without replace the own functions of the organisms of the Central Administration of the State.

ARTICLE 7: The Councils of Specific Basins are created in basins and in shared basins between provinces, with special attention to those of national interest, taking into account for this the agreements of the National Council of Hydrographic Basins, the opinions of the Provincial Councils of Administration of the People's Power involved and the convenience of establishing them, in function of fulfilling the demands of their integrated management.

ARTICLE 8: The Councils of the Provincial Administrations of the Popular Power are responsible for the attention of the Hydrographic Basins not included in the previous articles and

To that end they control the elaboration and execution of the programs of ordering and integral management of the basins included in their territories and the fulfillment of the current norms and methodologies.

ARTICLE 9: Due to its uniqueness, complexity and economic, social and environmental importance, the Specific Council of the Cauto River Basin, which includes the territories of the provinces of Santiago de Cuba, Holguín, Granma and Las Tunas, is presided over by the member of the Council of Ministers to be determined.

FINAL PROVISIONS

FIRST: The bodies of Attention to the Mountain Regions, constituted by the Ministries of Agriculture and Science, Technology and the Environment and of other working groups constituted by the organisms that make up the National Commission of the Turquino Plan, as well as the Boards Coordinators of the Mountain Regions, will maintain their functioning as up to the present.

SECOND: The integration and functions of the Commissions, the Turquino Plan and the Commissions of the Reforestation System, in all its levels, as well as its Regulations, are approved based on the proposals presented by the respective commissions at the national level.

THIRD: The integration and functions of the National Council of Hydrographic Basins and its Territorial Councils, as well as its Regulations, are approved based on the proposal submitted by the National Council.

FOURTH: Decree No. 197 of January 16, 1995 and Agreement No. 3139 of April 8, 1997 of the Executive Committee of the Council of Ministers are repealed.

FIFTH: This Decree will start to be counted 30 days after its publication in the Gazette

Official of the Republic.

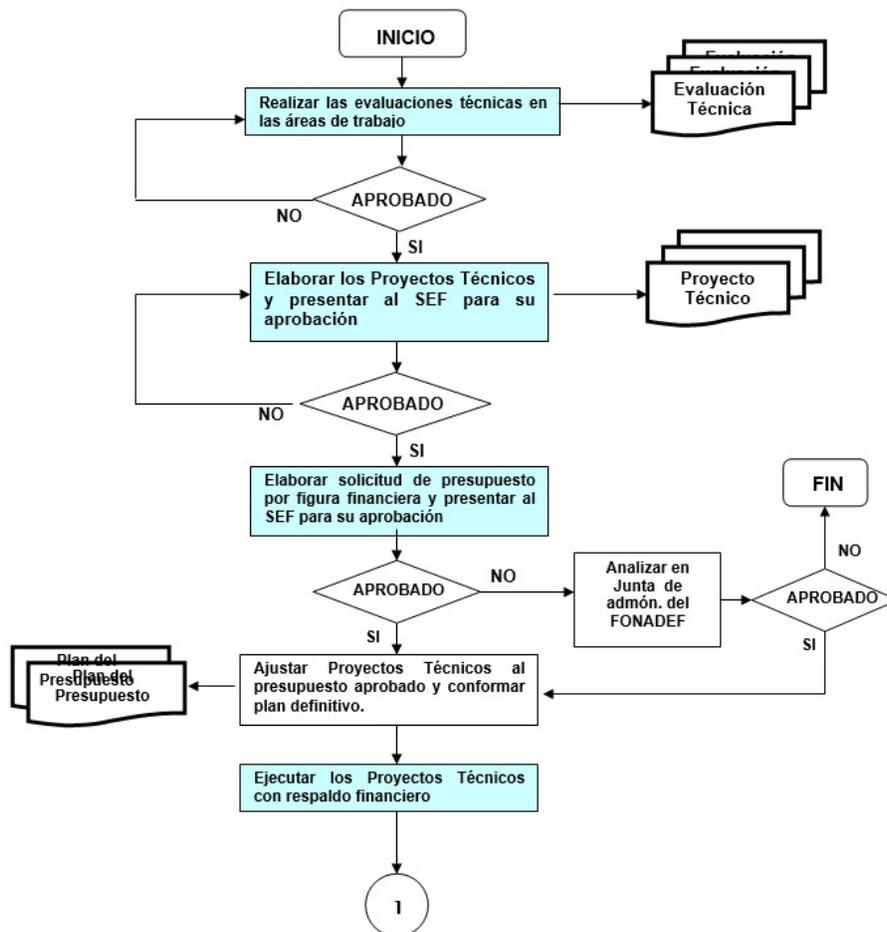
PUBLISH in the Official Gazette of the Republic.

GIVEN at the Palace of the Revolution, on the 19th day of the month of March 2007, "Year 49 of the Revolution."

Raul Castro Ruz

First Vice President of the Council of Ministers

Appendix 2.7.3. Flow chart of the general procedure on the FONADEF
FLUJOGRAMA DEL PROCEDIMIENTO GENERAL SOBRE EL FONADEF



Appendix 2.7.4. Installed capacities, human, technical and financial resources in the FPM

Table 3. Installed capacities: human, technical and financial resources of the municipal productive forms (UBPC), Villa Clara province

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
UBPC	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
UBPC Azcuba Corralillo	699	Superior: 22 Intermediate: 213 12 th grade: 196 9 th grade: 268	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, rubber	210526,24
UBPC MINAG Corralillo	226	Superior: 5 Intermediate: 92 12 th grade: 87 9 th grade: 42		52650,1
UBPC Azcuba Quemado	679	Superior: 18 Medium: 304 12 th grade: 216 9 th grade: 141		25231
UBPC MINAG Quemado	239	Superior: 11 Intermediate: 73 12 th grade: 46 9 th grade: 109		15458,2
UBPC Azcuba Santo Domingo	1513	Superior: 44 Medium: 547 12 th grade: 391 9 th grade: 531		399922,1
UBPC MINAG Santo Domingo	155	Superior: 3 Intermediate: 38 12 th grade: 63 9 th grade: 51		68746,3

Source: MINAG Provincial Villa Clara

Table 4. Installed capacities: human, technical and financial resources of the municipal productive forms (CCS), Villa Clara province.

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
CCS	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
CCS MINAG Corralillo	636	Superior: Intermediate: 12th grade: 9th grade:	In general, there are means such as tractors and	15652
CCS MINAG Quemado	1572	Superior: Intermediate: 12th grade: 9th grade:	Trucks in poor condition, stopped because of missing spare parts, tires	21365
CCS MINAG Santo Domingo	2679	Superior: Intermediate: 12 th grade 9th grade		11254,1

Source: MINAG Provincial Villa Clara

Table 5. Installed capacities: human, technical and financial resources of the municipal productive forms (CPA), Villa Clara province

INFOR SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
CPA	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
CPA Azcuba Corralillo	128	Superior: Intermediate: 12th grade: 9th grade:	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, tires.	14587
CPA MINAG Corralillo	320	Superior: Intermediate: 12th grade: 9th grade:		17895,14
CPA Azcuba Quemado	455	Superior: Intermediate: 12th grade: 9th grade:		25412,01
CPA MINAG Quemado	0	Superior: Intermediate: 12th grade: 9th grade:		
CPA Azcuba Santo Domingo	175	Superior: Intermediate: 12th grade: 9th grade:		24154,25
CPA MINAG Santo Domingo	140	Superior: Intermediate: 12th grade: 9th grade:		8546,00

Source: MINAG Provincial Villa Clara

Table 6. Installed capacities: human, technical and financial resources of the municipal productive forms (UEB), Villa Clara province

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
UEB (GAF)	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
UEB Corralillo	256 Total 16 Women	Superior: 3 Intermediate: 6 12th grade: 22 9th grade: 225	Two tractors in bad conditions. They lack tires, spare parts, in need of engine repair. Two trucks with no tires, batteries, response parts and a jeep missing tires, batteries and in need of engine repair	4251126,99
UEB Quemado de Guines	62 Total 6 Women	Superior: 0 Intermediate: 15 12 th grade: 7 9 th grade: 40		88092,21

Source: MINAG Provincial Villa Clara

UEB Santo Domingo	192 Total 32 Women		Five tractors in bad conditions: missing tires, spare parts, repair for engine, two trucks with lack of tires, batteries, response parts, a jeep missing engine, tires, batteries	4227713,21
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Table 7. Installed capacities: human, technical and financial resources of the municipal productive forms (UBPC), Las Tunas province.

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
UBPC	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
UBPC Azcuba Jobabo	650	Superior: 5 Intermediate: 25 12 th grade: 340 9 th grade: 280	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, tires.	200 368
UBPC MINAG Jobabo	326	Superior: 4 Intermediate: 23 12 th grade: 186 9 th grade: 113		42 780
UBPC Azcuba Colombia	1491	Superior: 132 Intermediate: 368 12 th grade: 595 9 th grade: 396		344 866
UBPC MINAG Colombia	145	Superior: 2 Intermediate: 35 12 th grade: 64 9 th grade: 44		58 966

Source: MINAG Provincial Las Tunas

Table 8. Installed capacities: human, technical and financial resources of the municipal productive forms (CCS), Las Tunas province.

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
CSS	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
CCS MINAG Jobabo	615	Superior: 18 Intermediate: 232 12 th grade: 333 9 th grade: 32	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, tires.	16 576
CCS MINAG Amancio	1322	Superior: 37 Intermediate: 361 12 th grade: 442 9 th grade: 482		20 046
CCS MINAG Colombia	2583	Superior: 55 Intermediate: 619 12 th grade: 1186 9 th grade: 723		13 794

Source: MINAG Provincial Las Tunas

Table 9. Installed capacities: human, technical and financial resources of the municipal productive forms (CPA), Las Tunas province.

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
CPA	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
CPA Azcuba Jobabo	116	Superior: 2 Intermediate: 11 12 th grade: 65 9 th grade: 38	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, tires.	12 388
CPA MINAG Jobabo	302	Superior: 12 Intermediate: 88 12 th grade: 142 9 th grade: 60		18 224
CPA Azcuba Amancio	386	Superior: 21 Intermediate: 162 12 th grade: 105 9 th grade: 288		26 742
CPA Azcuba Colombia	184	Superior: 5 Intermediate: 43 12 th grade: 92 9 th grade: 44		21 984
CPA MINAG Colombia	132	Superior: 8 Intermediate: 38 12 th grade: 59 9 th grade: 27		10 086,00

Source: MINAG Provincial Las Tunas

Table 10. Installed capacities: human, technical and financial resources of the municipal productive forms (UEB), Las Tunas province.

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
UEB (GAF)	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
UEB Jobabo	218 Total 12 Women	Superior: 6 Intermediate: 8 12 th grade: 3 9 th grade: 201	Two tractors in bad conditions are missing tires, spare parts, engine repair, Two trucks with missing tires, batteries, response parts, a jeep missing tires, batteries.	409 6544
UEB Amancio	78 Total 12 Women	Superior: 2 Intermediate: 20 12 th grade: 10 9 th grade: 46	A tractor in poor condition missing tires, spare parts, repair for engine, a truck with lack of tires, batteries, spare parts, a van with no tires, batteries.	91 276
UEB Colombia	168 Total 24 Women	Superior: 9 Intermediate: 16 12 th grade: 18 9 th grade: 125	Five tractors in poor condition are missing tires, spare parts, engine repair, two trucks with lack of tires, batteries, response parts, a jeep missing engine, tires, batteries.	345 5896

Source: MINAG Provincial Las Tunas

Table 11. Installed capacities: human, technical and financial resources of the municipal productive forms (UBPC), Matanzas province.

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
UBPC	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
UBPC MINAG Los Arabos	246	Superior: 11 Intermediate: 48 12 th grade: 137 9 th grade: 50	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, tires.	36 724
UBPC Azcuba Los Arabos	586	Superior: 27 Intermediate: 105 12 th grade: 231 9 th grade: 223		95 368

Source: MINAG Provincial Matanzas

Table 12. Installed capacities: human, technical and financial resources of the municipal productive forms (CCS), Matanzas province.

INFORMACIONES ESPECÍFICAS DE CADA COOPERATIVA Y UEB (GAF)				
CSS	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
CCS MINAG Los Arabos	325	Superior: 17 Intermediate: 118 12 th grade: 93 9 th grade: 97	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, tires.	15 398

Source: MINAG Provincial Matanzas

Table 13. Installed capacities: human, technical and financial resources of the municipal productive forms (CPA), Matanzas province.

INFORMACIONES ESPECÍFICAS DE CADA COOPERATIVA Y UEB (GAF)				
CPA	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
CPA MINAG Los Arabos	267	Superior: 9 Intermediate: 53 12 th grade: 94 9 th grade: 111	In general, there are means such as tractors and trucks in poor condition, stopped because of missing spare parts, tires	15 472
CPA Azcuba Los Arabos	98	Superior: 7 Intermediate: 43 12 th grade: 31 9 th grade: 17		10 244

Source: MINAG Provincial Matanzas

Table 14. Installed capacities: human, technical and financial resources of the municipal productive forms (UEB), Matanzas province.

SPECIFIC INFORMATION OF EACH COOPERATIVE AND UEB (GAF)				
UEB (GAF)	Total Workers	Academic-Professional Training level of each employee	Technical Capabilities (machinery, work tools, vehicles, etc.)	Average budget of annual operation
UEB Los Arabos	195 Total 11 Women	Superior: 8 Intermediate: 32 12 th grade: 86 9 th grade: 69	Two tractors in poor condition because they lack tires, spare parts, engine repair, two trucks with missing tires, batteries, response parts, a jeep missing tires, batteries.	3009000

Source: MINAG Provincial Matanzas