REDD+ PROJECT

MARENA ICHENA – NAG+MA ENOYE RAFUE

REDUCTION OF EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION - REDD+

Bogotá D.C, March 10, 2025

Project Document prepared by

MAGUARES ZOMAC S.A.S.

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Document prepared by MAGUARES ZOMAC SAS

Name of the project	***REDD+ Project Marena Ichena - Nag+ma Enoje Rafue***
Project holders	***Indígena Huitora Reservation*** ***Indígena Comunidad de Coropoya Reservation***
Contact information of the project holders	huitoraredd@gmail.com
Project proponents	***Indígena Huitora Reservation*** *Governor: Diego Castro* ***Indígena Comunidad de Coropoya Reservation*** *Governor: Luis Álvarez*
Project proponent's contact information	***Indígena Huitora Reservation*** *proyectoreddhuitora@gmail.com* ***Resguardo Indígena Comunidad de Coropoya*** *proyectoreddcoropoya1@gmail.com*
Project participants	***Indígena Huitora Reservation*** *Governor: Diego Castro* ***Indígena Comunidad de Coropoya Reservation*** *Governor: Luis Álvarez* ***YAUTO SAS*** *Pedro Posada* ***MAGUARES SAS ZOMAC*** *Luz Ángela Palacios*

Version	*4.0*
Date	*Preparation of this document version 10/03/2025*
Project type	*REDD+ Activities*
Grouped project	*Yes*
Applied Methodology	*BioCarbon Registry Standard. Version 3.4. 28 June 2024.* *Methodological Document AFOLU Sector* *Quantification of GHG Emission Reductions from REDD+ projects. BCR0002. Version 4.0. May 27, 2024*
Project Location (City, Region, Country)	*Municipalities of Solano and Cartagena del Chairá in the Department of Caquetá and the Department of Caquetá, and the Municipality of Puerto Leguízamo in the Department of Putumayo, Colombia.*
Start date	*Start of project activities 01/01/2018*
Period for quantification of GHG emission reductions	*01/01/2018 to 12/31/2057; 20 years, renewable once for a total of 40 years.*

Estimated total and average annual amount of GHG emissions reduction	***Deforestation:*** *1,046,505 tCO2e/year* *41,860,211 tCO2e for a 40-year accreditation period* ***Degradation:*** *72,560 tCO2e/year* *2,902,395 tCO2e for a 40-year accreditation period* ***Total:*** *1,119,065 tCO2e/year* *44,762,605 tCO2e for a 40-year accreditation period*
Sustainable Development Goals	*SDG1, SDG2, SDG3, SDG4, SDG5, DG6, SDG7, SDG8, SDG9, SDG10, SDG11, SDG12, SDG13, SDG15, SDG17*
Special category, related to co-benefits	*Orchid Category*

Content

1 Type of project and eligibility

1.1 Scope of the BCR standard

AFOLU Sector REDD+ Project, reducing GHG emissions from unplanned deforestation and forest degradation.

The scope of the BCR Standard is limited to:	
The following greenhouse gases, covered by the Kyoto Protocol: Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_2O).	
GHG emissions reductions or GHG removals that exceed any GHG reduction or removals required by law, regulation, or legally binding mandate	
GHG projects using a methodology developed or accepted by BioCarbon, applicable to ARR activities and REDD+ activities.	X
Quantifiable GHG emission reductions and/or removals generated by the implementation of GHG removal activities and/or REDD+ activities (AFOLU Sector).	X
GHG projects using a methodology developed or accepted by BioCarbon, applicable to activities in the energy, transportation and waste handling and disposal sectors.	
Quantifiable GHG emission reductions generated by the implementation of activities in the energy, transportation and waste handling and disposal sectors.	

Project eligibility within the scope of the standard and its methodological document AFOLU sector:

- ✓ GHG projects using a methodology developed or accepted by BioCarbon Cert, applicable to ARR removal activities and REDD+ activities: The project meets this condition by being developed with the REDD+ Project GHG Emission Reduction Quantification methodology. BCR0002 version 4.0, developed by the BioCarbon standard.

- ✓ Quantifiable GHG emission reductions and/or removals generated by the implementation of ARR activities and/or REDD+ activities: Meets this condition by implementing REDD+ activities generating forest conservation and GHG emission reductions.

- ✓ Reducing emissions from deforestation and forest degradation: The activities implemented by the project promote the reduction of deforestation through forest governance of the territory in accordance with the traditional practices of the indigenous communities that inhabit and care for the territories.

1.2 Type of project

ARR Activities	
REDD+ Activities	X
Activities in the Energy Sector	
Activities in the transportation sector	
Activities on waste handling and disposal	

This is a grouped REDD+ project.

1.3 Project Scale

Not Applicable

2 General description of the project

The REDD+ project Huitora Mairena Ichena, is located in the tropical rainforest (bh-T, ny its acronym in spanish) of the Amazon rainforests of the department of Caquetá (Colombia), within the Witora or Huitora indigenous reserves and the Huitoto Community of Coropoya. The project area comprises about 159,817 ha, where more than 98% of the area is forest. This Amazon region is strategic for environmental conservation and the development of REDD projects, due to its great biological and cultural wealth, with diverse biomes such as the Yarí Chiribiquete Humid Tropical Zonobiome, the cananguchales, and the salados, which are important reservoirs of biodiversity and threatened or vulnerable species, such as the Jaguar (Panthera onca), the Tapir (Tapirus terrestris), the Mico caquetense (Plecturocebus caquetensis), among others. The Huitora Mairena Ichena REDD+ Project area comprises 157,321.83 ha of stable forests at the beginning of the project (January 1, 2018), which provides essential environmental services for the different indigenous peoples living in this territory and estimates an average emissions reduction for the period 2018-2057, as a result of project activities, of *1,119,065 tCO2e/year* and a total of *44,762,605 tCO2e* during the accreditation period. The leaders of the indigenous reservations have a history of governance, with the figure of reserves, of more than 40 and 30 years, respectively, where the consolidation of the Territorial Management Plans has been achieved, and other initiatives have been implemented in the territory, for which the REDD+ Project will be supported in the work with the authorities, leaders and communities in general and in coordination with other actors, from the respect and understanding of the autonomy of indigenous communities over their territory.

The scenario prior to the implementation of project activities is a context where deforestation has become one of the most complex socio-environmental problems of the territory, directly and indirectly affecting the development of indigenous communities and the well-being of ecosystems. Due to the scarce integral presence of the state and the centralization of the authorities, illegal activities, illicit crops and mining have developed,

causing deforestation of the territory and changes in the social, cultural and environmental dynamics of the population. However, the main cause of deforestation and forest degradation is extensive cattle ranching, defined in terms of land-use change as "praderization".

The REDD+ project of the Coropoya and Witora reservations is a holistic initiative that seeks to realize the essence of sustainable development by connecting the environmental health, economic prosperity and cultural vitality of indigenous communities. This project, rather than viewing the environment, society and the economy as separate entities, weaves them together, recognizing that each is essential to the well-being of the other.

The effort begins with environmental management, where forest conservation and restoration become the cornerstone for mitigating climate change and protecting biodiversity. Greenhouse gas emission reduction initiatives are not only strategies to meet global climate commitments, but also to maintain the ecological balance that sustains local life and traditions.

At the social and cultural level, the construction of community spaces such as the *Malocas* and the development of cultural and educational practices reflect a deep respect for ancestral heritage. These activities strengthen indigenous identities, while fostering community cohesion and ensuring that ancestral knowledge continues to enrich modern life.

Social and educational infrastructure, along with improved health and transportation services, are designed to be culturally appropriate, ensuring that all members of the community have access to essential services. These advances not only improve the quality of life, but also empower communities to manage their development in a sustainable manner.

In economic terms, the diversification of activities such as traditional agriculture, fishing, beekeeping and ecotourism, among others, provides sustainable livelihoods that respect the ecosystem and strengthen self-sufficiency. Likewise, the commercialization of local products opens channels for communities to insert themselves into the local and regional economy without compromising their environmental or cultural integrity.

For the reservations, the project extends to include territorial governance, expanded community infrastructure and essential services such as clean energy and sanitation. These efforts are designed to enhance autonomy and governance, ensuring that communities can direct their own development in accordance with their values and needs.

The project meets the special Orchid category because it contributes to strengthening social and community participation, generates short- and long-term benefits with productive projects of community members, producing an increase in the income of local producers, while promoting the conservation of biodiversity and gender equity.

In summary, this REDD+ project is a mosaic of sustainable practices that intertwine to form a development model that is environmentally responsible, economically viable and socially just. It is a vision that promotes harmony between people and nature and seeks to leave a legacy of sustainability for future generations, contributing to the fulfillment of sustainable development objectives while respecting all social, environmental and institutional safeguards. In addition, as a result of the project activities, an average emission reduction of *1,119,065 tCO2e* per year is estimated for the accreditation period between 2018 and 2057; where *1,046,505 tCO2e* correspond to avoided deforestation and *72,560 tCO2e* are from avoiding forest degradation.

The criteria for the formulation, monitoring, validation and verification of the project are as follows:

- ✓ BioCarbon Registry requirements and tools. Standard. BCR Standard version 3.4 June 28, 2024
- ✓ Methodological document AFOLU sector Quantification of GHG Emission Reductions from REDD+ Projects BCR0002 version 4.0 May 27, 2024
- ✓ BCR Tool. Sustainable Development Goals (SDGs). Version 1.0. July 13, 2023
- ✓ Tool to demonstrate compliance with REDD+ safeguards. Biocarbon Registry. Version 1.1. January 26, 2023.
- ✓ BCR Tool. Avoiding double counting (ADC). Avoid double counting of emissions reductions/removals. Biocarbon Registry. Version 2.0. February 7, 2024.
- ✓ BCR Tool. Monitoring, reporting and verification (MRV). BCR carbon credits are quantified, monitored, reported and verified. Biocarbon Registry. Version 1.0. February 13, 2023.
- ✓ Sustainable Development Safeguards (SDSs). BIOCARBON CERT. Version 1.1. July, 2024.
- ✓ Biocarbon Guidelines. Baseline and Additionality. BCR Projects generate Verified Carbon Credits (VCC) that represent emissions reductions, avoidance, or removals that are additional. Version 1.3. March 07, 2024.
- ✓ Permanence and Risk Management. BCR Tool. BCR Project holder take actions to ensure the Project benefits are maintained over time. Version 1.1. March 19, 2024.
- ✓ Decree 926 of 2017
- ✓ Resolution 1447 of 2018
- ✓ Resolution 831 of 2020
- ✓ Decree 446 of 2020
- ✓ Resolution 471 of 2020
- ✓ ISO 14064-2
- ✓ ISO 14064-3

2.1 GHG project name

REDD+ project Marena Ichena - Nag+ma Enoye Rafue

2.2 Objectives

The project pursues the following general objective:

- Through the reduction of GHG[1] emissions in the AFOLU[2] sector, tradable in the voluntary or regulated market, contribute to sustainable development, preservation of culture, and reduction of deforestation and degradation of Amazonian forests in the ancestral territories of the communities of the Huitora and Coropoya Indigenous Reserves in the departments of Caquetá and Putumayo.

The specific objectives of the project are:

- Climate objective: To slow and mitigate climate change by reducing unplanned forest degradation and deforestation and restoring already degraded areas.

- Community objective: To foster the sustainable development of local communities and generate income for families, through:
    a. Develop production systems compatible with the conservation of nature, ancestral knowledge and community welfare, guaranteeing food security for the communities living in the Indigenous Reserves.
    b. Strengthening forest governance and mechanisms to revitalize ancestral knowledge and cultural practices.
    c. Contribute to improve the living conditions of the communities that live in the Indigenous Reservations.

- Biodiversity objective: Contribute to the conservation and monitoring of biodiversity including the High Conservation Values present in the area of the Indigenous Reservations.

2.3 Project activities

2.3.1 General intervention strategy

Because the relationship between the cosmogony of the Murui people and the way of naming the structure and parameters of the project is fundamental, during the workshops it was decided to consider the architecture of the *maloca* as a model to organize the implementation of the project.

[1] Greenhouse gases.
[2] Agriculture, Forestry, and Other Land Uses, for their acronyms in English.

The *estantillos* (pillars, henceforth) or main columns of the *maloca* are four supports that are located in front of each corner. In addition to supporting the structure, they have a very important meaning since they are the base and the first step in the construction of the *maloca*, tree trunks molded and buried that connect the above and below, the sky with the earth. By identifying them with the 4 project's four shelves, the way in which energy, resources and work will be invested in areas that are the basis for building the house and promoting community development is reflected. Through the 4 pillars and with the resources allocated to each one, the most urgent projects will be identified under the parameters and safeguards established to monitor and contribute to rescue the forests and mitigate the effects of climate change, so that while caring for the environment, the culture and quality of life of the inhabitants will be strengthened.

Within the framework of the development of project activities, the procedures that the project has defined to relate in the future with government entities such as the Ministry of the Interior, urban curatorship, Ministry of Health, municipal secretaries and other entities that may be necessary in the implementation of the project, are defined in the annex Guía para realizar construcciones de infraestructura en los resguardos indígenas del proyecto[3] These procedures include all permits, applications and procedures required for the implementation of the activities that require it, specifically those related to infrastructure.

Self-Government Pillar

The REDD+ project is registered in the name of the indigenous peoples, which has a significant impact since it generates the need to prepare the governance conditions in the reserves in order to maintain the project in the long term.

After knowing the objectives of the project, the products and results to be generated in each phase, the next step is the stage of organizing the people, where it is essential to understand that this is not a project that comes from outside to force or pressure them to carry out certain activities, but an own resource that allows the development of ideas that

[3] See 04_ACTIVIDADES REDD+/MI-NER ANEXO Guía para realizar construcciones de infraestructura v1.1.pdf

the community imagines and desires in their own territories, and that, therefore, their development and progress depends on them.

Due to the above, this pillar focuses on strengthening self-government, the central space from which community processes are led and directed. In this line, topics that improve governance were projected from two approaches: the ancestral culture and the knowledge that allows a good relationship with the outside world. In the dialogue between the local and the intercultural lies the possibility of autonomy and the development of one's own way of life, authentic decision making and effective territorial control.

This pillar acts transversally in the others and articulates the different work sectors. In the same way that the river connects the territories and feeds other water sources, the self-government is the backbone from which decisions are guided and made and, therefore, from the shared word in the *maloca*, the path and the flow of each of the processes is marked. The aim is that the pillars and projects gradually harmonize with each other, articulating and coordinating them so that they acquire consistency and strength.

All activities within the framework of the self-government system are aimed at strengthening the practices that enable them to inhabit the territory according to their traditions, uses and customs, thus strengthening the autonomy of the communities. Inhabiting the territory as native peoples represents the conservation of the territory, which is why in Amazonian indigenous cultures the human-nature relationship is fundamental to achieve good living. According to its law of origin, the territory has laws that dictate how to inhabit it respecting all manifestations of life present in the ecosystem, taking what is necessary for the cultural, spiritual and material survival of the communities, thus achieving the conservation of the culture and the territory. Therefore, strengthening self-government, based on the traditional practices carried out on a daily basis, enables the traditional management of the territory, avoiding deforestation and forest degradation and reducing GHG emissions.

Social Investment pillar

The objective of this pillar is to optimize the living conditions of the communities living in the two reserves, considering the needs that arise, the cultural experience in daily life, and the prioritization defined for their solution. Due to the lack of state presence and with

the objective of establishing a coherent route-, short-, medium- and long-term actions and goals will be proposed to progressively improve living conditions.

Since the indigenous villages are the direct agents in the definition and planning of their present and future, their participation in the project is sought in the activities required for the implementation of each project. The quotations, purchases, and transport necessary for the development of this pillar will be led by the personnel in charge in the communities, so they will learn about the functioning of the trust fund, the project's expenditure cycle, the registration of suppliers, and in general, about the requirements necessary to advance in the administrative procedures.

All of the activities proposed in this pillar, which seek to improve the living conditions of the communities, will be implemented in accordance with the social, cultural and environmental context in which they live. This makes it possible to generate their own sustainable development, in which they supply their basic needs, such as infrastructure, basic sanitation and clean energy, and strengthen their own education and health processes, among others, according to what they are as native peoples, always maintaining the relationship with the territory, based on respect, reciprocity and conservation. This process makes it possible to generate optimal conditions for the population of the communities, maintaining their own way of life, in which the conservation of the territory is a priority, for the physical and spiritual conservation of the communities and the culture, avoiding deforestation and forest degradation.

Monitoring pillar

This pillar seeks to advance in the protection of forests and biodiversity in the project area through monitoring, follow-up, surveillance and territorial control activities. This is understood as fundamental for the continuity of the project and therefore considers the strengthening of the communities' own environmental management practices, since they are the ones that have allowed the forest to remain standing since ancient times.

The communities should identify their own model for monitoring in the reservation, based on previous experiences and skills acquired by the indigenous people in previous relations with national environmental institutions and/or environmental NGOs. Therefore, the project should consider the progress made in the *Reservation's Environmental*

Management Plans, in order to define actions to maintain the care of the forest and comply with the specific parameters of the REDD+ project, focused on avoiding deforestation and forest degradation caused by both internal and external actors to the communities.

With the monitoring pillar, we seek to strengthen ancestral knowledge about the traditional management of the territory, which these communities have maintained throughout their history since their origin. This knowledge represents a direct relationship with the environment, where daily activities are carried out according to the different spaces that characterize the territory, maintaining the order established by the law of origin, which characterizes the ecosystem and its conservation. The activities framed in this study not only seek to characterize the biodiversity of the territory and conserve it, but also to generate strategies to recover the traditional practices that are necessary within the ecosystem as a unit, thus avoiding deforestation and degradation.

Productive Projects pillar

The aim of this pillar is to invest in and support initiatives focused on creating alternatives to generate economic resources for families and the community. To this end, it is essential to consider the productive practices and systems of the communities themselves, as this will allow us to realize that the notion of productivity from the *Murui* cosmogony has more to do with the concept of abundance than with that of accumulation. The aim is to achieve stability, a collective welfare, through different productive projects or columns, as in the case of the *maloca*, which allow sustaining the pillar and its cyclicality. As with the work on the land, these projects need to be planted, watered, protected with patience and respecting their time, so that they can last, and the resources that enter the families and the community are not ephemeral or unbalance their way of life, as has been the case in times of prosperity in this region of the country.

Since Good Living is the guiding principle of this program, the strengthening of the culture and way of life of these communities should be part of the projects supported. In the formulation process of each of the projects, the real needs of the communities must be considered, and how the proposals will contribute to improve the quality of life of the people while caring for and protecting the forest.

Generating these productive initiatives in accordance with the social, cultural and economic dynamics of the communities, and with what the territory produces, allows to dynamize the local economy while maintaining the way of life and the cultural structure that characterizes the Amazonian indigenous communities, promoting forest conservation, and avoiding economic activities that promote deforestation and degradation of forests as a means of subsistence.

2.3.2 Prioritization of intervention areas

Locate where each of the activities corresponding to the 4 pillars will be performed.

A- Monitoring emission reductions from deforestation and forest degradation

B y F- Governance

C y G- Social Investment Projects

D y H- Productive Projects

E e I- Monitoring

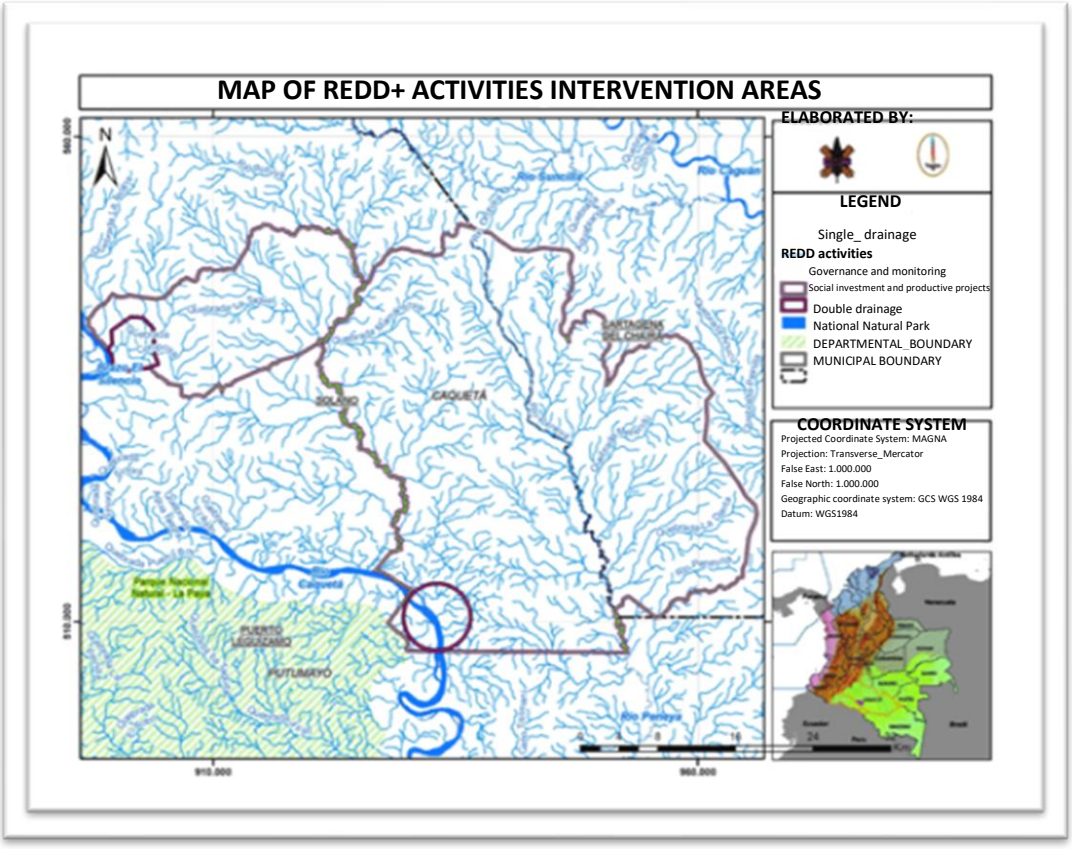


Illustration 1. Map showing the location of the intervention areas.

All the projects to be executed within the framework of the REDD+ project implementation are oriented towards territorial conservation and the strengthening of the

communities' cultural practices. The Amazonian indigenous communities, in this particular case the Uitoto or "Muruy Muina" is characterized by maintaining a close relationship with the territory, therefore, strengthening cultural practices and own governance, leads to the strengthening of the relationship with the territory, which is based on the administration and conservation, having as fundamental axis the traditional knowledge.

In order to structure the implementation of the REDD+ project, all activities or projects to be executed were grouped into the four previously described clusters, which each respond to a particular area of intervention; however, their vision and integral and transversal development directs all projects to cultural strengthening and territorial conservation.

2.3.3 Description of REDD+ Activities

Description of activities

For a detailed description of the activities go to the drive: 04_ACTIVIDADES REDD+/Detalle Descripción Actividades Proyectos MI-NER v1.xlsx.

Table 1. REDD+ project activities.

A → Monitoring of emission reductions from deforestation and forest degradation	
Coropoya	**Huitora**
B → Governance	**F** → Governance
C → Social investment	**G** → Social investment
D → Productive projects	**H** → Productive projects
E → Monitoring	**I** → Monitoring

All the activities defined for the implementation stage had the same consultation mechanism for their construction; through participatory workshops with the members of the reservation, ideas were collected, formulated and later approved in the general assembly. For the execution of infrastructure works, a guide was designed that allows the works to be carried out in compliance with all permits and legal requirements[4]. Within the responsibility and role of the actors involved in the implementation of the projects,

[4] Ver PROYECTO REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE/ 04_ACTIVIDADES REDD+/ MI-NER ANEXO Guía para realizar construcciones de infraestructura v1.1.pdf

Maguares will provide technical support, and Yauto and the local communities will carry out the implementation process. The description of the activities is presented below.

A. Monitoring of emission reductions from deforestation and forest degradation:

Using environmental remote sensing instruments and forest cover mapping, forest cover losses greater than or equal to one (1) hectare are detected, as well as forest degradation dynamics. These measurements will be carried out for each monitoring period and will be reported in the respective monitoring report. This activity includes the registration, updating and monitoring of the status of the initiative on the RENARE platform.

As part of the formulation and objective user of the Project Design Document (PDD), the formulation of the REDD+ project is oriented towards the strengthening of the project's own control, which makes it possible to build an adequate route for the implementation of the other elements that structure the entire project and other programs present in the territory, orienting it from the cultural and traditional elements to mitigate the negative impacts that may have on their culture.

Coropoya Reservation

Budget distribution: The community of Coropoya, in a community assembly, unanimously established the distribution of resources as follows:

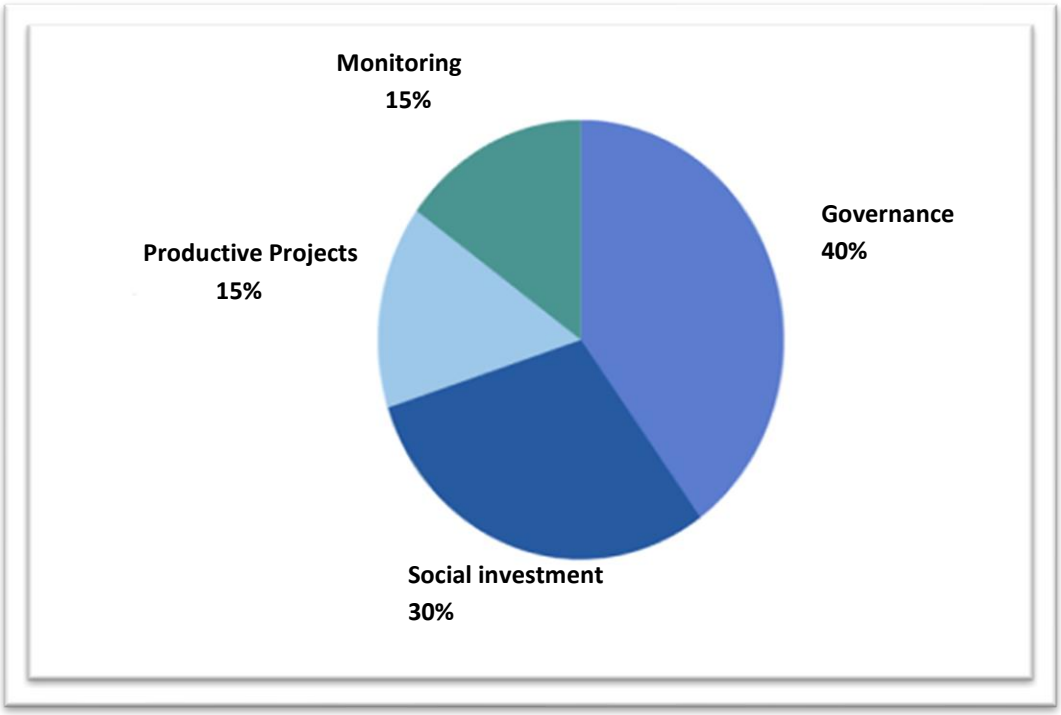


Illustration 2. Benefits for each pillar in Coropoya.

This distribution will be reflected in the development of the following activities, broken down by pillars:

B. Governance: The activities prioritized by the community in the governance or self-governance phase in the formulation of the REDD+ project are aimed at strengthening the community's own control, which makes it possible to build an adequate route for the implementation of the other phases that structure the entire project and other programs present in the territory, orienting it from the cultural and traditional elements to mitigate the negative impacts they may have on their culture.

B.1 Maloca construction: The purpose of this project is the construction and physical adaptation of the *maloca*, with traditional elements.

The project indicators are 4: # of malocas built, and # of equipment and adequacy elements.

Scope: A maloca built according to the tradition of the Huitoto people, of 14 square meters and 12 meters high, wooden bases and structure, puy palm roof with the use of tools such as: ruda, comb, chainsaw and a staff of 30 for the final elaboration of the maloca.

B.2 Cultural practices and internal processes of the *maloca*: This project seeks to revitalize the social and cultural elements that are worked from the *maloca*, such as the traditional management of the territory by the cacique, the ceremonial and ritual dances,

and the transmission of knowledge from the *mambeadero*. The conservation of these practices represents a way for the community to strengthen its autonomy, inhabiting the territory from its own cultural principles, according to its law of origin, strengthening its own government.

The project indicators are: # of people trained in the tradition and # of traditional practices transmitted.

Scope: Traditional elements: *mambe, ambil, caguana*, traditional food: cassava, carne de monte, fish, starch, pestle, sifter, baskets, *matafrio*, *tiesto*, 89 people working in the different activities.

B.2 Art, Fishing and hunting: Art for the *Huitoto* indigenous people represents a manifestation of their culture as a way of life, in relation to the territory they inhabit which is their source of life. Artistic expressions materialize their relationship with the environment, which provides them with elements to inhabit it according to their uses and customs. Fishing and hunting are two fundamental elements of food sovereignty that represent their autonomy, maintaining their own food, so the strengthening of these practices is a fundamental element to strengthen their own government.

The project indicators are the following: # of artistic elements produced, # of fishing and hunting tools produced, and # of artistic activities carried out and strengthened. Also, the transmission of the knowledge associated with these practices to the younger generations.

Scope: Traditional hunting and fishing equipment manufactured for the 14 families, harpoons, spears, baskets, animal traps, 89 people trained in these activities and in the use of the ecological calendar.

B.4 *Chagra*: The *chagra* is a fundamental element in indigenous villages because, in addition to being the primary source of food security based on traditional food, it is the place where knowledge is transmitted and put into practice. Self-feeding is the foundation of traditional knowledge, which translates into good management of the territory's resources as well as minimizing the possibility of external agents causing degradation or deforestation. Therefore, this project seeks to strengthen and conserve the diversity of seeds, traditional practices for growing and harvesting food, and the knowledge that surrounds this practice.

The project indicators are the following: # of tools provided for work in the *chagra*, # of own seeds, # of *chagras* in good condition. Also, the strengthening of food security and traditional diets in the territory.

Scope: 15 chagras diversified with native seeds and tools such as: hacksaw (*rula*), *peinilla*, boots, baskets, hats. 89 people trained in traditional diets.

B.5 Training of the Councils, Leaders and REDD+ Committee: The training of the leaders, Councils and REDD+ Committee, provides the community with tools to strengthen the traditional practices they carry out as part of their daily lives, and at the same time enables them to assume with greater autonomy the processes they carry out in their relationship with the State and different institutions present in their territory.
This leads to improving its capacity for territorial control and management, which is fundamental to protect the environment and prevent it from activities that could cause deforestation in addition to strengthening the culture as its basis and engine, ensuring balance and harmony in the relationship with nature and the beings that inhabit it. They acquire technical tools to strengthen intercultural dialogue with these external institutions, assuming technical and administrative functions based on traditional elements for the implementation of different projects, programs or agreements to be developed in their territory, mitigating the negative impacts they may have on their culture.

The project indicators are as follows: # of people trained in topics related to leadership, # of training modules.

B.6 Diversification of financial resources for long-term cultural and environmental sustainability: The objective of this activity is to allocate 1% of each pillar to guarantee education and health plans, as well as the strengthening of traditional cultural processes and western programs that benefit the community in these aspects. For this purpose, a small percentage is intended to participate as shareholders in financial markets, with the objective of generating greater income to guarantee the continuity of key processes for the maintenance and improvement of the quality of life of the population, as well as the strengthening of the culture beyond the time established by the project. Diversifying the financial resources for the benefit of the continuity of environmental conservation and the population living in the territory**.**

The project indicators are as follows: Number of investments made, Number of investments in COP.

C. Social investment: This pillar will be divided into the following areas: education, health, social infrastructure, and transport provision.

C-1 Infrastructure and equipment project: This project seeks to improve the quality of life of the inhabitants of the reservation through spaces that are in keeping with their culture and daily practices, and that guarantee access to basic services. In this matter, a floating dock is requested for proper access to the community and a port to facilitate access to the community. Also, the construction of bridges for internal mobility in the territory and a water system with storage tanks, pumping systems, and a distribution network for each household. Each family in the community also aims to have a house with basic water, electricity and sewage services (septic tanks) and their respective equipment.

In terms of sports facilities, it is proposed to improve the conditions of the current micro-soccer field, as well as the adaptation and conditioning of the second sports field. It is requested that these spaces have the necessary sports equipment and the construction of a community park for the enjoyment of the community in general.

The project stimulates the sustainable development of the community through the appropriate use of natural resources and the harmonious relationship between culture and different technologies, to consider the functional and aesthetic aspects, and the link with the natural environment of the community infrastructure to provide sustainable and integrating solutions. The aim is to seek and use local resources for construction, alternative energy sources such as solar energy, promote the conscious use of water and implement waste management techniques. By involving the population in the construction of the houses, the project offers employment alternatives that make it possible to cover the basic needs of the families, avoiding their participation in activities that may cause deforestation.

The indicators for this activity will be 1. Construction of housing for the families of the reservation 2. Access to public services per person 3. Construction of docks 4. Adequacy of communal trails 5. Benefits to the population from the construction and adequacy of sports facilities.

Scope: 14 houses built in different phases, 89 people with access to public services: water (motor pumps, hoses, pipes) and electricity (solar panels, batteries, and transformers) 2 docks, 30 people hired for the various works. Materials: wood, palms, vines (*bejucos*), reeds (puntillas), rebar, concrete, mesh, sand, gravel, wire, wooden planks, asparagus, thermo-acoustic tiles. Tools: axe, hacksaw (*rulas*), combs, chainsaw.

C-2 Improvement of the educational process of students: The education project will include and contemplate investment at the primary, secondary and higher education levels. Its areas of intervention are the educational infrastructure and the sociocultural area, since in addition to improving the school's physical facilities, which are deteriorated, this initiative seeks to benefit the students when they complete their process and can access higher education. This initiative is aligned with the internal educational objectives defined in the Environmental Management Plan of the reservation, with the processes of the community's education committee, and with the proposals contained in the Plan for the Integral Life of the *Huitoto* People of the department of Caquetá in the area of education.

- Primary: priority is given to the construction of the school with the necessary spaces and equipment in each of them, in such a way as to guarantee the tools for the students in all aspects. A process will also be designed to strengthen the mother tongue from the traditional point of view, which is why this initiative will be aligned with the governance pillar and the activities to strengthen cultural practices. The project will also include advice and support from professionals for

the improvement of the Mayan curriculum in western subjects, in order to finally build its own pedagogical material.

- Secondary: This area includes support for transportation, food, and other needs of secondary school students, so that they can attend the nearest school located in Solano. To this end, it is also intended to acquire a chapter house in the city center to house the children during their studies.

- Higher education: Financial support for tuition and living expenses is envisaged for the strengthening of young people in higher education. The aim is to encourage the study of careers in accordance with the needs of the territory, for which reason a list of possible offers to which young people may have access will be drawn up. In addition, we seek to establish a predetermined space for the care, housing and maintenance of the young people, as well as a tutor to accompany and advise them during the process in the city defined by the community so that they can carry out their studies.

Improving educational facilities and conditions for children and young people is a way to guarantee the continuity and dissemination of the cultural principles of environmental management, ensuring the commitment of the inhabitants of the reservation to their territory and fulfilling the direct cause of the project, since it also stimulates students to complete their studies and lower school dropout rates, increasing job opportunities while avoiding participation in activities that can cause deforestation and degradation.

The indicators for this activity will be 1. The construction of facilities for the school of the reservation. 2. Benefiting the primary school student population through the intervened facilities. 3. Economic support for secondary school students. 4. Access of young people to higher education.

Scope: Construction of an elementary school for 20 children, within the reservation, with classrooms, playgrounds, bathrooms, kitchen, dining room. Materials for construction: wood, palms, vines, laces, rods, concrete, mesh, sand, gravel, wire, wooden planks, asparagus, thermoacoustic tile. Tools: axe, hacksaw, combs, chainsaw. Equipment: Furniture, computers, teaching materials, school supplies, sports equipment. Educational personnel: Teachers, administrative personnel, support personnel, cook.

C-3 Construction of an own and intercultural health model and its implementation: This project will have two approaches, western and traditional. The areas of intervention include the socio-cultural area and the physical infrastructure of the community, since it contemplates a research process for the construction of its own health model, the training of experts and personnel who know and develop in both fields, and also the physical adaptation of infrastructure and equipment to attend patients.

- Western health: A health post will be built with the necessary equipment for the proper provision of services and emergency care for the inhabitants of the reservations. To this end, it is considered necessary to hire permanent health personnel within the reservation to attend to the basic and priority needs that arise

in the territory. Emphasis will also be placed on the development of health brigades for immediate attention and diagnosis of the health status of the inhabitants.

- Traditional health: This approach aims to consolidate a traditional health team that develops periodic meetings to strengthen and transmit ancestral knowledge to young people and apprentices. It is expected that the project will be able to generate its own documents containing knowledge and information related to traditional medicine. The team will also be in charge of making recurrent reports on the diseases that occur in the reserve as input for the creation of its own health model, and to provide the entities in charge of providing health services.

The construction of an intercultural health program allows for the improvement of the quality of life of the inhabitants by facilitating access to health services in the reservation and strengthening traditional medicine. The project contributes to the good management of natural resources, since according to the *Murui* cosmovision, individual health is interrelated with territorial health, so the balance between the communities and their livelihood depends on the care and protection they carry out so that the forest is preserved and can continue to provide all kinds of medicines and food.

This initiative is aligned with the Internal Objectives of the Territorial Management Plan and the Follow-up Proposals contained in the same on health, also with the activities of the community health committee and with the proposals contained in the Integral Life Plan of the Huitoto People of the department of Caquetá with respect to the Botanical Garden project of the Coropoya reservation.

The indicators defined for this activity are: 1. Facilities to provide health services in the reservation. 2. 2. A traditional medicine team. 3. Access to health services within the reservation. 4. Own documentation on the health of the inhabitants.

Scope: A small health post with a care room, a treatment room, and a medicine storage room. Equipment: medical equipment and basic supplies, such as stretchers, diagnostic equipment (such as thermometers, blood pressure monitors and stethoscopes), medical furniture, basic instruments and medical supplies (bandages, syringes, cotton, etc.). Solar energy (panels, transformer and batteries), plumbing, ventilation. Access to potable water (motor pump, piping, hose). Health care personnel: nurse or health promoter, support personnel.

For the traditional health line, it is expected to be able to link the wise men (3) and young people (15) who are part of the community within the meetings that contemplate the processes of knowledge transmission in traditional medicine. The traditional elements that will be used are mambe, ambil, caguana, traditional food: *yuca, carne de monte*, fish, starch, pestle, sifter, baskets, *matafrio*, *tiesto*, among others.

c- 4 Provision of transportation: This action seeks to provide families and the community with boats and motors to optimize their mobility in the area and the development of their daily activities. The area of intervention of the initiative, therefore, involves the sociocultural aspect, since it is oriented to the improvement of the living conditions of the inhabitants of the reservation.

Improving mobility conditions in the reservation is a key factor for the economic, social and environmental development of the area. Efficient, safe and sustainable mobility improves people's quality of life, minimizing the possibility of their participation in activities that may cause deforestation, since it facilitates the generation of income for families and access to services and opportunities.

The indicator defined for this activity is 1. Community and families equipped with boats and motors.

Scope: Purchase one boat and one motor for collective use for the community and 14 boats and 14 motors in total to be distributed to each family.

D. Productive projects

The productive projects prioritized by the Coropoya community are aimed at the social and productive development of the communities, based on the use of existing resources, as well as the generation of new dynamic dynamics in the region. In this line, the following projects are proposed:

D- 1 Non-timber forest resources: This project seeks to work with the non-timber resources provided by the forest for their transformation and commercialization. To this end, we seek to intervene through the physical space, with the development of an infrastructure that has the necessary and adequate requirements for the collection, transformation of resources, and their subsequent sale. In addition, the aim is to train the community's own personnel for the collection, processing and marketing of the jams.

The indicators for this activity are: 1. Number of people trained in the phases of a productive project. 2. 2. Number of productive systems implemented. 3. Number of economic resources obtained in national currency.

Scope: A small infrastructure with processing, storage, and packing areas, including worktables and utensils necessary for each activity. It must also have an administration office and access to water (water pump, hose, pipe) and energy (solar panels, transformer). It will also be necessary to have a staff for each activity, approximately 8 to 10 people hired.

D-2 Commercialization of *Fariña* and other products: The project aims to intervene in the physical and sociocultural space of the community through the adaptation of infrastructure, staff training, and the creation of a viable business model for marketing

Fariña and other products produced by the community itself. To this end, a market study will be carried out for each product proposed for the creation of the value chain.

The indicators for this activity are: 1. Business model implemented and functioning. 2. Number of spaces built. 3. Number of economic resources obtained in local currency.

Scope: A small infrastructure with processing, storage, and packing areas, including worktables and utensils necessary for each activity. It must also have an administration office and access to water (water pump, hose, pipe) and energy (solar panels, transformer). It will also be necessary to have a staff for each activity, approximately 8 to 10 people hired.

D-3 Beekeeping: The project aims to create an adequate physical space for the establishment of beehives and their proper breeding, to make use of products such as honey, wax or royal jelly for subsequent marketing. To this end, the project seeks to train the community's own personnel in all stages of the project.

The indicators for this activity are: 1. Number of people trained in beekeeping. 2. 2. Number of adequate and endowed spaces. 3. Number of financial resources obtained in national currency.

Scope: 40 hives with their components, including hive boxes, frames, supers, bases, lids, and the population of bees needed in each one. Tools such as smokers, protective suits, gloves and brushes. Trained personnel for the maintenance and management of management practices: Chief beekeeper, assistant, seasonal collection personnel, administrative support personnel.

D-4 Fish farming: Fish farming will bring economic benefits to the community by increasing the supply of nutrient-rich fish in the area. This initiative makes it possible to control the living conditions and quality of the fish for consumption and sale, therefore the area of intervention is socio-cultural, since it is an option to generate income over time, and community infrastructure, since it involves the construction of ponds.

The indicators for this activity are: 1. Number of people trained in fish farming. 2. Number of ponds constructed. 3. Number of economic resources obtained in national currency.

Scope: 2 to 5 ponds ranging in size from 10 to 30 meters long, 8 to 10 meters wide, and 1.5 meters deep. Adequate hydraulic design including water inlet and outlet, as well as circulation, to maintain water quality. Lining, dams and gates. Number of fish to be defined as it depends on the species chosen. Personnel: Fish farming expert, 2 to 3 feeding and maintenance workers, 2 to 3 harvesting and processing workers, 1 to 2 marketing and sales people and an administrative person.

E. Monitoring: Within the monitoring pillar, five initiatives were chosen for prioritization during workshops 1 and 2 held in the reservations.

E-1 Territorial tours with neighbors in a joint manner: This project aims to create a monitoring team to watch over and protect the forest together with the neighboring communities: the *Koreguajes, Mukaguajes*, and also the settlers who live in nearby territories.

The tours through the territory together with the neighboring communities allow to monitor and care for the territory corresponding to the reservation and its boundaries in a more effective way, aiming to maintain the care of the forest through the traditional principles of culture, avoiding deforestation and forest degradation in areas inside and outside the reservation.

In addition, this will allow compliance with the internal agreements defined in the Territorial Management Plan of the reservation, which are focused on the adequate management of resources, protection of water sources, waste and garbage collection for proper management, among others. It will also allow compliance with the agreements with neighbors defined in the same document: the implementation of activities for the protection of the environment in streams and where necessary to address deforestation, periodic socialization to define rules for land management, and ongoing dialogue for the implementation of the use of the ecological calendar and the good use in hunting and fishing.

The indicators for this activity are: Meetings with neighbors. 2. Joint tours of the territory. 3. Socialization workshops on agreements and findings.

Scope: A monitoring team with 8 to 12 people hired from the reservation and personnel from neighboring towns. Equipment: communication equipment, navigation and mapping equipment, observation and recording equipment, camping and security equipment.

E-2 Reforestation with native species: Reforestation with native species in areas of the reserve that have been deforested can mitigate the environmental impact of deforestation and reverse the possible damage caused by these actions, aiming at the protection of species and watersheds, and the health of the forests in general. The intervention location for this project covers areas that have been deforested recently for mining or timber extraction activities, or in the past, during the rubber and coca economic boom(bonanza*)*. These areas have been defined in the Environmental Management Plan of the reservation and are expected to be reforested with native species such as timber species or fruit trees such as *chontaduro, guamo* and others, which guarantee the return of animals from the mountains to these areas.

This initiative complies with the reforestation strategies with native plants defined in the Territorial Management Plan of the reservation, which cover the zones already defined in the same document in the zoning of the reservation as the object of the activities. The project is also aligned with the research carried out by the community within the Management Plan on native species and with the objectives of the Zero Deforestation Plan of Solano, Caquetá.

The project indicators are: Decrease in deforested areas. 2. Planting of native species of the region. 3. Workshops and activities aligned with the reforestation.

Scope: Seed and seedling materials, Substrate and fertilizer, Planting tools: picks, shovels, hoes. Marking materials: Tapes, labels or markers, Measuring equipment. Materials for the construction of the nursery of a size between 0.2 and 0.7 hectares. Personnel: Project coordinator, approximately 4 field workers.

E-3 Provision of equipment, human resources, control and surveillance of the territory: This initiative seeks to form and support the monitoring team through the provision of equipment to consolidate surveillance and control strategies in the territory. Providing them with adequate equipment guarantees the correct development of their activities, as well as the safety of the equipment during their activities; fundamental aspects in the process of caring for the forest and preventing deforestation. This initiative complies with the Internal Objectives of the Territorial Management Plan of the reservation in terms of monitoring, with the Action Plan contained in the same document, and with the objectives of the Zero Deforestation Plan of Solano, Caquetá. The area of intervention, therefore, is sociocultural, since the initiative focuses on the provision of the monitoring team and its training to carry out all the activities included in its field planning.

The defined indicators are: 1. A monitoring team. 2. 2. Training of the team. 3. Adequate equipment purchased and delivered. 4. Schedule of activities built and executed.

Scope: Endowment: Communication equipment, navigation and mapping equipment, observation and recording equipment, camping and security equipment. A monitoring team with 8 to 12 people hired from the reservation, which will be the same monitoring team for the projects of this project that involve monitoring and control and surveillance activities.

E-4 Updating of the ecological calendar and implementation of its component practices: This initiative focuses on promoting the use of the ecological calendar of the reserve, which defines the planting and harvesting seasons for fruit trees and food, and the hunting and fishing seasons, so as not to deplete these resources and to coordinate care practices with the times of nature. Making use of the ecological calendar is fundamental to apply the resource control norms dictated in the Law of Origin, which is

why it is necessary to reach agreements with the neighbors that make use of the resources of the reservation and its boundaries. The area of intervention of this project would involve the socio-cultural and territorial areas, as regards the former, the work of dissemination of the ecological calendar among the inhabitants, neighbors and especially among the younger generations, to promote its use and ongoing research on the biodiversity of the area. The territorial area intervened will be the zones destined for each activity according to each season, since the control process will be carried out in compliance with the norms for the extraction of resources established in the calendar.

This initiative is supported by the research that the community has carried out on its ecological calendar and the monitoring of its implementation as outlined in the Territorial Management Plan. It is also aligned with the contents of the Reservation's Internal Regulations related to resource management, and the norms dictated by the Law of Origin.

The indicators defined are: 1. Training and talks on the ecological calendar. 2. A schedule of activities built and implemented. Dissemination materials.

Scope: Updated ecological calendars, traditional materials*: mambe, ambil, caguana*, traditional food for meetings. Hired wise men and women, material for convocation and diffusion.

E-5 Training and sensitization on waste management and its respective treatment: This project seeks to create an adequate waste management system for the reservation, which allows for the collection, sorting, transport and transformation of the waste generated. Proper waste management allows us to conserve and use natural resources in a rational and responsible manner. Proper management of resources avoids waste, overexploitation, degradation and pollution of ecosystems, and ensures their availability and quality for present and future generations. This initiative is in line with the internal agreements for the protection of the territory contained in the Environmental Management Plan of the reserve, which proposes the periodic implementation of campaigns to promote recycling, the use of fertilizers and, in general, the proper management of garbage. The areas of intervention of the project will be the sociocultural area, due to the awareness-raising work involved, and a physical area, since the necessary infrastructure will be built for the collection, transportation and transformation of waste.

The indicators defined are: 1. Training for waste management. 2. Schedule of activities constructed and implemented.

Scope: For backfilling a 2- or 3-meter-deep trench, drainage system (PVC pipe) and filtration (*grana*, stone). For the waste management system: garbage containers, bags sorted by color for the proper allocation of organic, recyclable and non-recyclable waste; trained personnel to instruct in the use of separation, awareness-raising billboards. Tools:

mini backhoe, wheelbarrows. To implement the project, specialized personnel and a workforce of 15 people will be hired.

E-6 Research project on the biological diversity of the territory: This initiative contemplates research activities on fauna, flora, and other resources of the territory in order to access payments for environmental services, create conservation strategies for them, and build a collection of information on these issues owned by the reservation. The area of intervention, therefore, would be the territorial area of the reservation.

Biodiversity research is an essential tool for conservation, as it allows to know and value the diversity of species, genes and ecosystems that exist in the territory while encouraging the participation and commitment of the different social actors through the incentives represented by payments for environmental services. By investigating biodiversity, it is possible to identify the threats and benefits it represents for humans and the environment, as well as good practices in the management of the territory among the inhabitants. This initiative is aligned with the internal agreements for the protection of the territory contained in the Environmental Management Plan of the reservation, which talks about research processes around the biodiversity of the territory.

The defined indicators are: 1. Activities proposed within the research process. 2. 2. Own documents generated.

Scope: Field Equipment for Wildlife Observation: binoculars and telescopes for bird and mammal observation, cameras and video cameras to document wildlife. Sampling Equipment: Traps, nets and other devices for the capture and study of insects, amphibians and other small organisms. Soil Sampling and Measuring Equipment, Data Recording Equipment. Sampling and Storage Material. Containers for the collection and storage of biological samples, such as plant specimens, insects or animal tissues. Personnel: Project coordinator, *estantillo* monitoring team, biologists and expert personnel as required. animal tissues.

Huitora reservation

Budget distribution: The community of Huitora, in a community assembly, unanimously established the distribution of resources as follows:

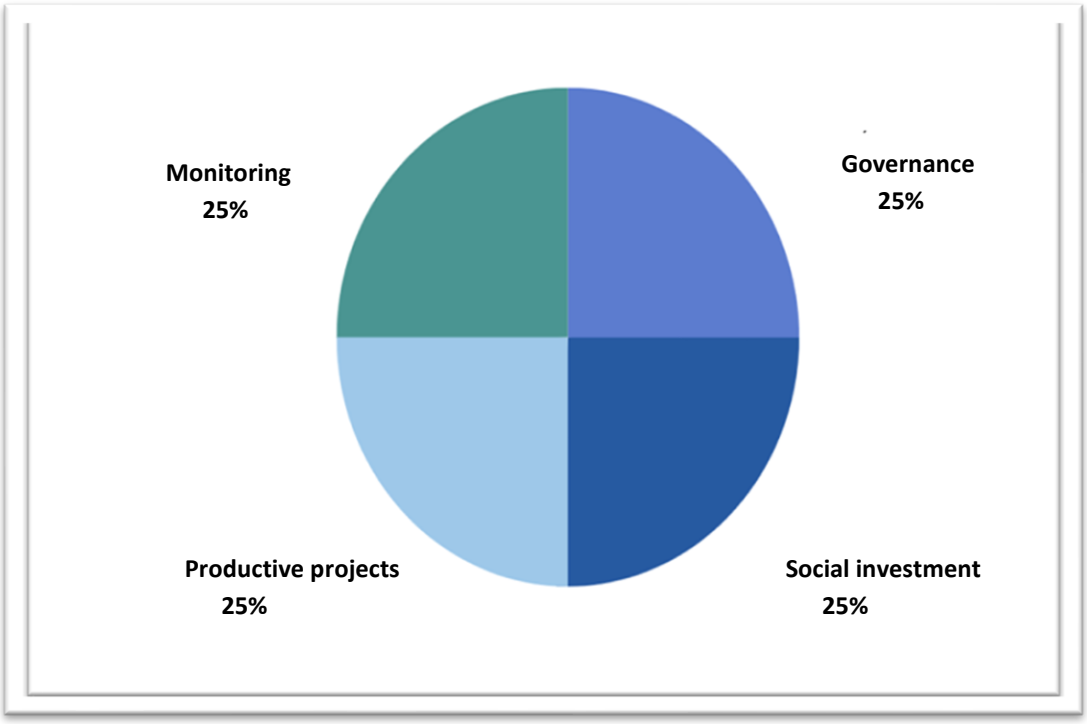


Illustration 3. Benefits for each pillar in Huitora.

This distribution will be reflected in the development of the following activities broken down by *estantillo*:

F Governance: The activities prioritized by the community in the governance or self-governance phase in the formulation of the REDD+ project are aimed at strengthening the community's own control, which makes it possible to build an adequate route for the implementation of the other phases that structure the entire project, and other programs present in the territory, orienting it from the cultural and traditional elements to mitigate the negative impacts that may have on their culture.

F.1 Territorial Governance (Territorial Control and Surveillance): Traditional knowledge encompasses territorial management, which makes it possible to inhabit it according to use and conservation zones. The law of origin provides guidelines for a harmonious and reciprocal relationship with the territory, where the community obtains from it the necessary elements for its subsistence, maintaining proportionality in the use of the resources that make its conservation possible. Therefore, forest governance represents the strengthening of the traditional management of the territory as well as the full use of the rights granted to the community through the constitution of the reservation, expansion and due regulation, if applicable. In this line, the area of intervention would be the territorial space of the reservation.

The indicators for this activity are: 1. Number of trained members of the Forest Governance Committee. 2. 2. Number of scheduled meetings of the Forest Governance Committee.

Scope: Traditional management of the territory implemented and strengthened in the territory corresponding to the reservation, and leaders trained in the cultural practices corresponding to this topic.

F.2 Agreements with neighbors: This initiative seeks to ratify the agreements with the neighbors on the territorial delimitation in order to comply with the internal agreements defined in the Territorial Management Plan of the reserve, which aim at the correct use of the resources and the protection of water sources, waste and garbage collection, planting with native species, and animal hunting, among others. Likewise, the aim is to strengthen future meetings with neighbors to consolidate the care of the resources that have historically been protected by traditional authorities, with neighboring communities to maintain community order and the conservation of ecosystems.

The areas of intervention, therefore, would be the territorial space of the reservation, its boundaries, and also the surrounding areas where other communities and settlers live with whom we intend to work.

The indicators for this activity are: 1. Number of agreements established with neighbors. 2. 2. Number of meetings held to socialize the agreements.

Scope: Territorial limits defined and marked in the territory (not only in maps), and management of the neighboring zones in accordance with the agreement with the neighbors.

F.3 Update and strengthen the Environmental Management Plan: This initiative aims to refresh and strengthen the current Environmental Management Plan of the Resguardo through an autonomous and ancestral process on the management of the territory, considering its law of origin to define the different zones of use and categories, taking into account the new territorial dynamics, as well as the new challenges

aced by the territory for the updating of the environmental management plan to face these scenarios. In this line, the area of intervention of the initiative, therefore, is the territorial and sociocultural area, since it is oriented to the improvement of the living conditions of the territory, as well as the strengthening of the cosmovision and ancestral traditions.

The indicators for this activity are: 1. Updated Environmental Management Plan. 2. Number of new actions and guidelines included in the Environmental Management Plan.

Scope: Implementation of traditional practices of environmental management of the territory (such as ritual dances), in each of the different seasons established in the ecological calendar and strengthening the capacity to manage the territory according to the environmental management plan, considering the changes that have occurred in the climate due to climate change.

F.4 Strengthening of self-government: The strengthening of self-government represents the revitalization of traditional and cultural spaces and practices that enable community coexistence and survival, based on ethnic identity, guaranteeing autonomy in its different processes. The objective of this project is to revitalize the traditional practices that are centered on the management of the territory from the maloca spaces, understanding it as a training space for future generations and the control of the territory. Strengthening the structures of self-government guarantees the autonomy and the right to self-determination of the inhabitants of the reservation.

In this line, the area of intervention of the initiative is therefore the political-administrative area, since it seeks to strengthen self-government for good decision making.

The indicators for this activity are: 1. Number of people who regularly participate in the trainings. 2. Number of people who actively participate in community processes and decision-making in an autonomous manner.

Scope: Greater autonomy of the communities represented in the revitalization of their own cultural practices that allow them to inhabit the territory according to their law of origin, uses and customs.

G. Social investment:

G-1 Construction of housing and community infrastructure: houses, health centers, sports facilities, water supply, electrification, sewerage, playgrounds. This project focuses on community infrastructure, the set of structures, services, and equipment that allow the good functioning of the community and the improvement of its quality of life, therefore, it will be thought and designed based on the main needs of the inhabitants and their daily practices. The area of intervention will be the physical infrastructure, people's living areas, the interior of houses, and social and community meeting spaces. This will guarantee access to basic services, since water, for example, is currently obtained from the Caquetá River and rainwater.

By strengthening the quality of life and contributing to the community having adequate spaces for their needs and way of life, as well as providing the possibility of involving the population in community building activities and maintenance of the spaces, it generates a greater ownership of the territory and distances the population from activities that may cause deforestation, degradation or direct impact on the environment.

This activity is aligned with the *Management Plan's strategy No.2*, which seeks to build and strengthen residential, productive, commercial and basic services infrastructure, as well as to enter into agreements for the construction and maintenance of bridges and ancestral and royal roads. This strategy also highlights the implementation of programs for the construction of decent housing according to the cosmovision of the Huitora

reservation. Likewise, strategy No. 5 is adjusted to provide technical and professional training and education to the Huitorá community to improve productivity, which in this case would be in the area of construction.

The project indicators are: 1. Homes equipped with the required basic services. 2. Community sports facilities. 3. Community health post.

Scope: 49 houses built in different phases, 150 people with access to public services: water (motor pumps, hoses, pipes) and electricity (solar panels, batteries, and transformers) 1 access dock to the community and bridges for internal mobility. 50 people hired for the different works. Materials: wood, palms, vines, laces, screws, rods, concrete, mesh, sand, gravel, wire, wooden planks, asparagus, thermo-acoustic tiles. Tools: axe, curlers, combs, chainsaw.

G-2 Communication antenna and systems room: This initiative seeks to build an adequate and comfortable infrastructure for the location of a computer systems room, equipped with all the equipment required for the proper provision of the service and the proper development of learning. An internet antenna is also required to provide a stable and permanent connectivity service that allows the community to stay connected. Having access to the Internet creates powerful new development opportunities for any society. In the case of indigenous villages, when complemented with their traditional knowledge, it generates valuable tools to advance in different areas of social, economic and environmental development. In addition to contributing to the quality of life and opening spaces for study and knowledge, avoiding the participation of communities in activities that can cause deforestation, degradation or direct impact on the environment. This activity is aimed at fulfilling strategy No. 3 of educating and training communities and state officials in traditional and conventional territorial rights. The area of intervention for this project, therefore, is the community infrastructure, as well as the socio-cultural area by improving the quality of life of the inhabitants through connectivity and internet access.

The indicators defined for this activity are: 1. Internet antennas purchased. 2. Adequate infrastructure for the provision of the service.

Scope: A large one-story structure with a zing roof and furnished with tables, chairs, computer equipment, printers, power points: solar panels, power cables and internet network: antennas.
materials: concrete, cement, sand, gravel, steel rods, shovels, wheelbarrows, mixers.
For the development of this activity is estimated a workforce of 15 people.

G-3 Landfill and waste management system: The project aims at the construction of a sanitary landfill for the final disposal of solid waste in a predetermined area for the correct treatment of the material. The creation of a waste management system that includes the

collection, transportation and transformation of waste generated within the territory is proposed, as well as a recycling plan that will allow maximum use to be made of the waste and reduce its negative effect on the environment. The project helps to solve contamination problems in the water sources, to dispose of solid waste correctly, and to dispose of decomposing materials. Under a correct treatment, the aim is to reduce as much as possible the direct impact on the environment and to manage the usable waste. The activity is in line with the provisions of the reserve's management plan, which prohibits dumping garbage in rivers or streams, as well as chemical products that can cause irreversible damage. It is also aligned with internal agreement number 2 on the care of water and its associated biodiversity and number 3 on the care of our forests and their biodiversity.

In this line, the intervention area of this project corresponds to the physical area destined for the sanitary landfill and the community infrastructure required for the collection, transportation and transformation of waste.

The indicators defined for this activity are: 1. A sanitary landfill system. 2. Group of people in charge of the landfill. 3. Action plan for proper waste management.

Scope: For backfilling, a 2- or 3-meter-deep trench, drainage system (PVC pipe) and filtration (*grana*, stone, etc.). For the waste management system: garbage containers, bags sorted by color for the proper allocation of organic, recyclable and non-recyclable waste; trained personnel to instruct in the use of separation, awareness-raising billboards. Tools: mini backhoe, wheelbarrows. The project will require the hiring of specialized personnel and a workforce of 15 people.

G-4 Councils home and REDD+ office: This project proposes the construction of a house for the council and an office for the REDD+ committee to facilitate the centralization of political-administrative activities and the strengthening of governance in the reservation and beyond. Having a physical space for the exercise of self-government and the REDD+ committee optimizes and improves the administration of the territory, contributing to the community organization for the monitoring of the activities that take place within the boundaries of the reservation, preventing activities that may cause deforestation, degradation or direct impact on the environment. This activity is aligned with strategy No. 2 of the Measures and strategies necessary for the safeguarding of the territory present in the Territorial Management Plan of the reservation, which seeks to strengthen the political-administrative system and the application of justice through dialogue and consultation with the actors of the territory and agreements with external parties for this purpose. The project also aims to comply with the provisions of the Comprehensive Plan for the Life of the Uitoto People of the Department of Caquetá, which mentions the importance of strengthening ancestral and current organizational schemes.

The area of intervention is the community's infrastructure and its political-administrative space. It is aligned with strategy N3 of the Action Plan of the Huitora Territorial Management Plan, which is oriented to the improvement and construction of infrastructure for the administration and application of justice and self-government.

The indicators defined for this activity are: 1. A cabildo house built. 2. 2. An office for the REDD+ committee.

Scope: 2 houses equipped with furniture: tables, chairs, computer equipment, printers, power points: solar panels, power cables and internet network: antennas.
materials: concrete, cement, sand, steel rods, shovels, wheelbarrows, mixers and thermoacoustic tiles. For this we estimate a labor force of 30 people.

G-5 Student scholarships: This initiative aims to reduce dropout rates at different educational levels in the region, from primary, secondary, vocational secondary, university, undergraduate and postgraduate; through the provision of student scholarships based on financial support to young people or those living in the reservation who are interested in continuing their academic training, as well as specializing in a specific area of interest. The support consists of providing financial support for the payment of tuition and subsequent maintenance.

By providing the opportunity to access education at different levels, the participation of young people in activities that can cause deforestation, degradation and direct impact on the environment is avoided, as well as contributing to community development by providing the reserve with professionals in different areas.

In this line, the project aims to prioritize the socio-cultural area of the reservation, aiming at the community benefit, through the retribution of the knowledge and processes acquired by the students for the strengthening of the reservation.

The indicators defined for this activity are: 1. Student scholarships provided. 2. 2. Young people trained in different careers. 3. Resources provided for education.

Scope: It is expected to provide financial support to the largest number of students so that they can continue their academic processes without any problems. Computer to keep records and checkbook.

G-6 Financial support to families: This project, which was prioritized in the social investment plan, aims to provide an economic benefit/support to the families of the reservation to alleviate their basic and immediate needs, in addition to providing autonomy at the time of freely investing the resources provided, preventing the incursion of labor activities that may be detrimental to the conservation and protection of the forest area of the reservation. The activity considers the internal regulations of the community,

where the guidelines for the families and/or beneficiaries are established. In this line, the area of intervention is the sociocultural space, since the beneficiaries will be directly the inhabitants of the reservation.

The indicators for this activity are: 1. Resources delivered to families. 2. Basic and immediate needs alleviated.

Scope: 49 families directly benefited by the support. Materials: computer for record keeping, spreadsheet and checkbook.

G-7 *Campo santo*: This project aims to create a predetermined space to bury the inhabitants of the reservation who die, taking into account the importance of the cultural aspects of the community in this aspect. Creating a cemetery implies allocating a single place for burial and funeral rites, guaranteeing a good management of the territory, as well as stimulating the community organization around its construction and maintenance, guaranteeing the care of the forest and the strengthening of related cultural practices. This initiative has as a space of intervention the infrastructure of the community since it is intended to allocate a physical area for the proper burial, as well as in the socio-cultural space of the community.

The indicators defined for this activity are: 1. A field constructed.

Scope: A determined area of 1.5 to 2.5 hectares for the allocation of the holy field, fenced with material from the region. Materials: scythe, rake and wheelbarrow for the monthly maintenance of the area.

G-8 Construction of classrooms and community home: This project seeks to improve the school infrastructure of the reservation, as well as the construction of new classrooms and their corresponding equipment so that the children can develop their development and learning processes in the best possible way. It also seeks to create a community home where the youngest children can attend, learn about their culture and grow up sharing together. Improving educational spaces revitalizes the learning processes of children and young people, thus strengthening the incorporation of the cultural values of environmental care and protection Likewise, a community home strengthens the social fabric, which is fundamental to prevent possible extractive activities that could endanger the territory's natural resources. This initiative is aligned with the Internal Objectives of the Territorial Management Plan and the Follow-up Proposals contained therein on self-education, as well as with the activities of the community education committee. In this line, we also comply with the provisions of the Integral Plan of Life of the Uitoto people of the Department of Caquetá (2008), which concludes “the need to appropriate the school and reorient its mission so that it responds to the characteristics and needs of the different villages”. The project's areas of intervention would therefore be community and sociocultural infrastructure.

The indicators defined for this activity are: 1. Educational facilities built. 2. Intervene conditions of the students of the reservation. 3. Community home built.

Scope: Construction of an elementary school for 20 children, within the reservation, with classrooms, playgrounds, bathrooms, kitchen and dining room.

A house with 5 rooms, kitchen, living room and dining room. Materials for construction: wood, palms, vines, laces, rods, concrete, mesh, sand, gravel, wire, wooden planks, asparagus, thermoacoustic tile. Tools: axe, hacksaw, combs, chainsaw. Equipment: Furniture, computers, teaching materials, school supplies, sports equipment. Educational personnel: Teachers, administrative personnel, support personnel, cook.

G-9 Museum: This project proposes the construction of the reservation's museum, where the inhabitants and tourists can get closer to the Murui culture through artistic samples of the community, handicrafts and activities that allow them to know in depth the history and the principles that guide their cosmogony. The community infrastructure and the socio-cultural sphere would be the areas of intervention, since in addition to the physical constructions, a program and a methodology for the operation of the space would be created, the methods, means, and technologies that would shape the educational activities that would be developed in this space.

In a second stage, a cultural tourism plan will be developed, which will include the promotion of the physical space and routes of entry to the community for the approach of different people to the museum, allowing the expansion of knowledge of the history and various evolutionary processes of the reservation.

This initiative is aligned with the Territorial Management Plan with agreement number 4 on culture and traditions, which establishes the active participation in their own spaces to strengthen their own culture. In this line, we also comply with the provisions of the Integral Plan of Life of the Uitoto people of the Department of Caquetá, where it is emphasized that the strength of culture lies in knowing, interpreting and socializing in a responsible manner the origin, myths, legends, traditions, symbols, language, among other things.

The indicators defined for this activity are: 1. Infrastructure for the museum built. 2. Encourage the participation of the community in the spaces for the transmission of ancestral knowledge.

Scope: 1 house - cultural museum. Construction: wood, palms, vines, laces, rods, concrete, mesh, sand, gravel, wire, wooden planks, asparagus, thermo-acoustic tile. Tools: axe, hacksaw, combs, chainsaw. Equipment: teaching materials, cultural elements, handicrafts and administrative personnel.

G-10 Hiring people for educational, cultural, traditional and medicinal activities, among others: This project aims to create and maintain a number of resources to be used

specifically for everything related to the hiring of personnel for each activity required by the reservation. The area of intervention, therefore, has to do with the socio-cultural sphere, since it deals with human resources and the traditional work and practices developed in the reservation.

By assigning people to the development of specific activities, the effectiveness of each of the processes is guaranteed, in addition to representing an opportunity for work and economic income for the people of the reservation, avoiding participation in activities that cause deforestation, degradation or direct damage to the environment. This initiative is aligned with the Action Plan of the Territorial Management Plan of the reservation, in the actions of traditional education where "the *Yofuya*: the formation in the different labor and intellectual spaces, and the *Yétarafue:* the moral and personal formation of the individual in the space of *the mambeadero* where knowledge is acquired through the sweet word of the *Jíbina* and *D+ona* (Coca and Tobacco)" is highlighted.

The indicators defined for this activity are: 1. People from the reservation hired in the areas where required. 2. Inhabitants trained in traditional knowledge.

Scope: To hire as many people as possible from the reservation for the development of various activities. More than 12 jobs are expected to be generated.

G-11 Construction of a home for the elderly: This initiative seeks to provide services of all kinds to the elderly of the community, from the construction of a comfortable space to receive them as well as the creation of a plan to assist them and meet their needs from their own cultural framework. The project would also contemplate the human resources necessary for its operation, a staff that can dedicate its time to this and is trained to fulfill its functions.

As grandparents are fundamental people in the process of environmental management and conservation due to their traditional knowledge, protecting them and guaranteeing their good living contributes to the sustainability of ancestral customs and the application of the law of origin, which aim at the maintenance, care and protection of the forests.

This initiative is aligned with the Action Plan of the Territorial Management Plan of the reservation, in the actions that establish that the traditional education of individuals should be at every stage of their lives. It is for this reason that we seek to provide an adequate space for grandparents and grandmothers to have the best conditions to continue sharing their knowledge and thus maintain the *Yétarafu*e: the moral and personal formation of the individual in the space of the *mambeadero* where knowledge is acquired through the sweet word of the *Jíbina* and *D+ona* (Coca and Tobacco)".

Likewise, in the *Integral Life Plan of the Uitoto* people of the department of Caquetá, where it is established to protect collective knowledge and ancestral wisdom, as well as to

conserve knowledge, oral memory and material. The area of intervention, in addition to the community infrastructure, would be the socio-cultural area.

The indicators defined for this activity are: 1. Adequate housing for the elderly constructed.

Scope: A house with 5 rooms, kitchen, living room and dining room. Construction materials: wood, palms, vines, laces, rods, concrete, mesh, sand, gravel, wire, wooden planks, asparagus, thermoacoustic tiles, solar panels. Tools: axe, hacksaw, combs, chainsaw. Equipment: beds and kitchen items. support personnel.

G-12 Construction of docks and bridges: The project aims to improve access conditions to and within the community, guaranteeing the safety of the inhabitants in terms of mobility. Improving the conditions of access to the community is aimed at improving the living conditions of the inhabitants of the reserve, minimizing the possibility of participating in activities that may cause degradation, deforestation or direct environmental impacts. In this line, the intervention areas to be intervened are the physical area of the territory and the socio-cultural space by improving for the benefit of the community.

The indicators defined for this activity are: 1 Docks and bridges built.

Scope: to construct 10 bridges for internal mobility built with local material, with an estimated workforce of 10 people.

G-13 Electrification, sewerage and aqueducts: The project aims to provide basic energy, water and sewage services to the community in a constant and effective manner, generating favorable conditions for the social well-being and development of the region. By improving the living conditions of the community, we are aiming at a social benefit and quality of life, which translates into greater well-being, development and security of the communities, keeping the inhabitants away from activities that may cause deforestation, degradation or direct impact on the environment. In this line, the areas of intervention are the physical and sociocultural space of the Reservation.

The indicators defined for this activity are: Hiring of special institutions for the process. 2. Houses equipped with the basic services required.

Scope: cables, solar panels, sustainable public lighting, PVC pipes, manholes and inspection chambers, seals and sealers, graders, hammers, pumps and coating material. An estimated 20 people will work on the project.

H- Productive projects

The productive projects prioritized by the Huitora community are aimed at the social and productive development of the communities, based on the use of existing resources, as well as the generation of new dynamic dynamics in the region. Along these lines, the following projects are proposed:

H.1 Livestock projects: This project is aimed at developing livestock initiatives associated with the conservation of wildlife and aquatic fauna present in the reserve in order to protect and ensure the existence of the species through the establishment of relevant strategies for sustainable use. This proposal seeks to meet the food needs of the community, strengthening the traditional food security of the inhabitants of the reservation, as well as promoting local production in economic activities. In this line, the areas of intervention are the physical and socio-cultural area of the community.

The indicators for this activity are: 1. Number of beneficiaries trained in areas related to animal husbandry. 2. Number of people who consume animal protein raised in the community. 3. Number of economic resources obtained in national currency.

Scope: predetermined areas for hatchlings.

H.2 Fine woodworking and Carpentry: The project aims at highlighting, recognizing and strengthening the community's knowledge in the field of timber, while taking advantage of existing resources in the territory through the use of naturally fallen trees with less carbon sequestration, as well as the use of surplus resources derived from the *chagra* tomb to develop carpentry and fine woodworking projects, for the sale of articles and endowment of the communities themselves.

In this line, we seek to work on the sociocultural intervention area and the territorial space to identify those trees that can be intervened without directly affecting the forest and its ecosystems.

The indicators for this activity are: 1. Number of people trained in carpentry and woodworking. 2. Number of items produced for the communities.

Scope: The same infrastructure, divided into 2 work areas corresponding to woodworking and carpentry.

Materials: Local wood, plywood, MDF boards, adhesives, screws, nails, hammer, finishes and varnishes, upholstery fabric, hardware, among others.

Tools: table saws, circular saws, jointer planes, gouges and firmer chisels, sanders, drills, routers, rulers, squares, calipers, clamps, chisels, mallets and hammers.

Infrastructure: cement, rods, sand, mixers, mesh, thermo-acoustic tiles.

H.3 Non-timber forest products: Non-timber products are all those products that can be extracted and used without destroying the trees, such as palms or shrubs; in this sense,

the intention is to develop projects with flowers, fruits, seeds, roots, medicinal plants, among others, to maximize the use of existing resources in the territory. For this, the area of intervention is the physical space, since it is necessary to have the necessary infrastructure, equipment and provision to ensure the correct development of the raw material transformation activity, in addition to the identification of the areas that can be intervened for the extraction of some raw materials.

The indicator for this activity is: 1. Number of projects formulated to diversify economic revenues.

Scope: A small infrastructure with processing, storage, and packing areas, with worktables and utensils necessary for each activity. It should also have an administration office and access to water (motor pump, hose, piping) and energy (solar panels, transformer). It will also be necessary to have personnel for each activity, approximately 8 to 10 people hired.

H.4 Crops grown in the region: This project aims to prioritize the development of cocoa and black bell pepper crops, among other plantations under a sustainable agriculture; aimed at productive and profitable systems for the communities while strengthening the food security of the inhabitants, the ancestral planting customs such as the *chagra* and the implementation of the ecological calendar, in addition to meeting the various needs of the different products that are scarce in the area while generating economic activity in the territory.

In this line, the areas of intervention are the territorial space to the extent that work will be done on the territory, by determining specific spaces for planting and the socio-cultural space through the strengthening of millenary planting practices and the improvement of food conditions in the area.

The indicator for this activity is: 1. Number of planted crops of each species.

Scope: A small infrastructure with storage that contains the necessary tools (shovels, axes, natural fertilizers, irrigation system). It will also be necessary to have a staff of approximately 8 to 10 people hired.

H.5 Handicrafts: This project seeks to intervene in the socio-cultural area of the community, through the recognition of handicrafts as part of their culture and structure of life; understanding its importance in the knowledge embodied in each weaving, sculpture, painting, capturing the art, tradition and ancestral historical heritage. In this line, we seek to protect, strengthen and preserve the different techniques and traditional knowledge while strengthening the economy of the communities under the recognition of the preservation of this ancestral knowledge.

Therefore, the project aims to create different expressions of handicrafts such as jewelry, tools, decorative items, ritual objects, storage containers, toys, household items, musical instruments, among others.

The indicators for this activity are: 1. Number of people who participate in the training. 2. Number of handicrafts produced.

Scope: space allocated for the development of handicrafts and storage activities. It is expected to generate at least 5 jobs and a market research plan.

H.6 Dressmaking and tailoring: The project aims to create a physical space equipped with all the necessary elements for the proper provision of the service of mending, manufacturing and sale of clothing for the benefit of the community. In this line, the project aims to intervene in the area of physical infrastructure, for the construction of the infrastructure.

The indicators for this activity are: 1. Number of physical spaces built for dressmaking and tailoring. 2. Number of people trained in dressmaking and tailoring.

Scope: house assigned for dressmaking and tailoring work with electrification points, sewing machines, needles, threads, fabrics, among others. It is expected to generate work for at least 3 people.

H.7 Mechanics Workshop: This initiative aims at the construction of a physical space equipped with all the elements required for the correct provision of the service of repairing different elements such as engines, electric plants, solar panels, graters (*rayadoras),* among others.

In this line, we aim to intervene the physical area of the community through the construction of this necessary physical space in the community.

The indicators for this activity are: 1. Number of beneficiaries trained in mechanical services. 2. Number of physical spaces built. 3. Number of repaired elements.

Scope: Open concrete infrastructure, with thermoacoustic tiles, gravel, shovels, rods.

Tools: wrenches, screwdrivers, hammers, pliers, jack, motion extractor, electric and pneumatic tools, among others.

H.8 Bakery: This project aims to intervene in the physical space of the community with the implementation of a physical facility equipped and equipped with all the necessary elements for the proper production of bread, taking into account the absence of this product in the area as well as its importance in a balanced and complete diet.

The indicators for this activity are: 1. Number of physical spaces built. 2. Number of people trained in the production of bread.

Scope: 1 determined space with lighting, electric plant for ovens, blenders, mixers, refrigerators, molds, showcases, among others. It is expected to generate at least 4 jobs.

H.9 Sports shop: This initiative seeks to intervene the physical space of the community, with the implementation of an establishment that offers all the appropriate equipment for the correct development of the different sports activities; where articles such as shoes, caps, uniforms, gloves, balls, swimsuits, among others, are found.

In this line, the project aims at physical intervention and socio-cultural strengthening through sports activities, which benefit the physical and mental health of the population.

The indicators for this activity are: Number of physical spaces built. 2. Number of sporting goods requested and ordered for the warehouse.

Scope: Small space set up for the sale of goods with shelves, counters, storage space, receipts, calculator and sales book, as well as light points (solar panels).

H.10 Drinking water treatment and commercialization: Considering the scarcity of drinking water in the region and in the community, the project seeks to establish a water treatment system to supply drinking water to the community and the area, solving the difficulties of access to this essential element. This initiative seeks to intervene directly in the sociocultural space by improving the quality of life.

The indicators for this activity are: 1. Number of liters of drinking water supplied to the community on a monthly basis. 2. Number of drinking water storage systems installed.

Scope: motor pump, piping, water storage tank, water quality meters and sensors, and water marketing containers. A minimum of 3 jobs are expected to be generated.

H.11 Transformation of raw materials: Based on the use of existing resources, the project seeks to target the area of physical intervention for the construction, conditioning and provision of an adequate space with sanitary registration, in which the necessary processes for the realization of the proposed products can be carried out, and on the other hand, it strongly targets the sociocultural area through the promotion and production of jams and fruit pulp for juices with local products of the region that have INVIMA registration.

The indicators for this activity are: Number of physical spaces built. 2. Number of local products that have INVIMA registration.

Scope:

H.12 Supermarket: This initiative aims to build a physical space that will offer consumers a wide variety of products of different brands, prices and styles. The space is planned to sell a variety of items such as soft drinks (meats, fruits and vegetables), beverages, candy, personal hygiene and cleaning products, as well as products made by the community itself.

In this line, the project seeks to intervene in the physical space of the communities through the construction of a facility.

The indicators for this activity are: 1. Supermarket built. Number of inventory items ordered and requested for the supermarket.

Scope: cement infrastructure, with ventilation points, power (solar panels), shelves, cash register, storage warehouses and support staff.

H.13 Drugstore: This initiative, prioritized during the workshops, seeks to intervene in the infrastructure and sociocultural area of the community, through the construction of an adequate space to preserve and protect the medicines requested in a correct manner; solving the absence of this service in the territory and aiming to improve the quality of life of the inhabitants through the enjoyment of health and well-being of the community.

The indicators for this activity are: 1. Number of physical spaces constructed. 2. 2. Total number of assets inventoried monthly.

Scope: cement infrastructure, with ventilation points, power (solar panels), shelves, cash register, storage warehouses and support staff.

H.14 Forestry nurseries and reforestation: reforestation with native species: Forest nurseries and reforestation with native species are essential components for the conservation and restoration of forest ecosystems, guaranteeing the conservation of native plants in the region, as well as targeting the genetic quality of the plants to ensure genetic diversity in the forests and the ecosystems that depend on it. The project seeks the commercialization of high-quality seedlings in the region.

The indicators for this activity are: 1. Number of nurseries installed. 2. 2. Number of seedlings per species. Number of seedlings planted per species.

Scope: Temporary infrastructure with a shade roof to protect growing plants.

I. Monitoring:

I-1 Territorial control and surveillance: This monitoring platform project has as an area of intervention the entire reservation, since the activities to be carried out seek to improve territorial control to detect problems of invasion within the reservation, and possible threats of deforestation. Territorial control and surveillance are essential tools for

environmental conservation by helping to prevent activities detrimental to the well-being of the territory, its population and natural resources. In this line, by enforcing environmental regulations, the prevention of illegal activities within the territory is achieved, in addition to managing and enforcing environmental regulations established for proper management of natural resources, as well as prevention of possible environmental disasters.

The activities are aligned with strategy No. 1 of the Measures and strategies for the safeguarding of the territory contained in the Huitora Territorial Management Plan, which focuses on the periodic implementation of actions for the reorganization, expansion and legalization of the reservation. Also with strategy No. 2, which contemplates the construction of a Land Management Plan based on traditional knowledge, and the recognition of indigenous control of space as an element for cultural survival; for this purpose, emphasis will be placed on the POTI (Indigenous Land Management Plan).

The indicators defined for this activity are: 1. Monitoring team and defined routes. 2. 2. Reports on the state of the territory.

Scope: Equipment: Communication equipment, navigation and mapping equipment, observation and recording equipment, camping and security equipment. A monitoring team with 8 to 12 people hired from the reserve.

I-2 Flora and Fauna Monitoring: Protecting wild flora and fauna is vital for the survival of humankind. All the inhabitants of the reserve and the planet benefit daily from the use of wild species as food, and the use of plants as materials or traditional medicine. Wildlife monitoring is essential for environmental conservation because it provides essential and critical information for decision making, in addition to alerting on the identification of threats, possible extinction of animals; it also helps in the evaluation of measures and actions for conservation and promotion of the welfare of biodiversity and ecosystem health. Monitoring provides baseline information to develop effective strategies for the conservation, preservation and functionality of the ecosystems present in the monitoring zones.

This initiative complies with the agreements established in the management plan of the reservation in the internal agreements number 2 on the care of water and its associated biodiversity and number 3 on the care of our forests and their biodiversity. In terms of agreements with neighbors, agreement number 1 on the protection and care of the forests is complied with, and in the institutional agreements, agreement number 1 on the development of projects for the care and defense of the territory is complied with. Therefore, this initiative aims to carry out a permanent follow-up and monitoring of the native species in the area for follow-up, care and prevention.

The indicators defined for this activity are: 1. Monitoring workshops 2. Monitoring team formed. 4. Equipment of the team. 5. Planning of activities carried out..

Scope: Field equipment for wildlife observation such as binoculars and telescopes for bird and mammal watching, cameras and video cameras for wildlife documentation. Sampling equipment: traps, nets and other devices for the capture and study of insects, amphibians and other small organisms. soil sampling and measuring equipment, data recording equipment. Sampling and storage material. Containers for the collection and storage of biological samples, such as plant specimens, insect specimens, etc., and for the collection and storage of biological samples. Personnel: Project coordinator, cliff monitoring team, biologists, and expert personnel as required.

I-3 Monitoring of water sources and natural resources The activities of this project will be carried out on the entire reservation, as it seeks to create a research program on natural resources and water sources, from monitoring and supervision to the implementation of strategies for their care and protection. This initiative is aligned with strategy N4 of the Huitora Territorial Management Plan, focused on the protection of natural resources and the use of environmental services, which plans the development and implementation of "programs of environmental goods and services that guarantee the regulation and distribution in a fair and equitable manner of the economic resources resulting from their use" (PMT). Likewise, this project supports the community processes proposed in the Action Plan to Reduce Deforestation to Zero and Adaptation to Climate Change in the Municipality of Solano, Caquetá. This includes biological monitoring activities, the strengthening of traditional knowledge associated with the chagra, the use of non-timber resources, and the implementation of the reservation's Management Plan.

Although the intervention area covers the entire reservation, special emphasis will be placed on the RSV or conservation zones defined in the Territorial Management Plan, where the aim is to make sustainable use of resources, taking care of the soil, water sources, animals and plants.

The indicators defined for this activity are: 1. Monitoring days carried out. 2. Reports on the state of the territory.

I-4 Monitoring, updating and use of the ecological calendar: This initiative contemplates the monitoring of the use of the ecological calendar by the inhabitants of the reservation and the neighbors with whom its implementation is agreed upon. The purpose of this is to be able to apply the rules and knowledge of environmental management contained in the ecological calendar of the reserve, which seek to preserve harmony in the relationship between humans and nature. The initiative is based on the research that the community has carried out on its ecological calendar and the monitoring of its implementation as set forth in the Territorial Management Plan. It is also aligned with the contents of the reservation's internal regulations related to resource management, and the norms dictated by the Law of Origin and with agreement number 1

on the knowledge and practices of the management plan. The intervention area, therefore, will cover the entire territory and the zoning that the community has established in the Territorial Management Plan, where the zones are divided according to the permitted uses and the guidelines for their intervention.

The indicators defined for this activity are as follows: 1. Calendar socialization workshops.

Scope: Updated ecological calendars, traditional materials: *mambe, ambil, caguana*, traditional food for meetings. Hired experts, material for the meetings and dissemination of information.

I-6 Epidemiological monitoring: The objective of this project is to conduct a study on the distribution, frequency, magnitude, and factors of the diseases that occur among the population of the reservation. As the objective is to identify the risk factors that the community has in its environment, the origin of the outbreaks and the best way to control them, the area of intervention covers the relationship between the community and the environment, since human health from the Murui cosmogony depends on the health of the territory, and the balance between these two. The research to be carried out would integrate the knowledge of traditional medicine, biomedical science techniques and social sciences to study the particular diseases that occur in the territory.

The indicators defined for this activity are: 1. Health brigades carried out. 2. Data collected in the field. 3. # of data systematized and analyzed.

Scope: Field equipment for data collection, testing and sampling kits, personal protective equipment, educational material. Data analysis and processing tools such as computers and databases as platforms to securely store and manage health and epidemiological data. Staff: Epidemiologists, health personnel who can carry out data analysis, interviewers and community surveyors.

2.3.4 Implementation schedule

For each indigenous reservation, an implementation schedule is developed based on the REDD+ activities designed in each community. For a detailed description of the timelines, please see the attached information (See PROYECTO REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE/07_PDD/FORMULACION/TALLER 4/Cronogramas finales v07092023.xlsx).

Table 2. Implementation schedule in Coropoya Reservation:

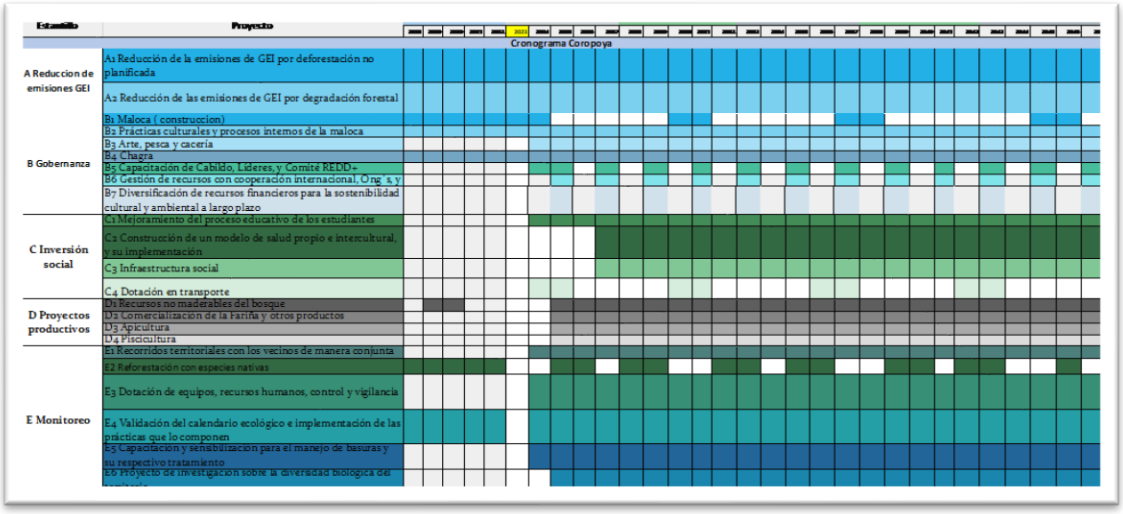
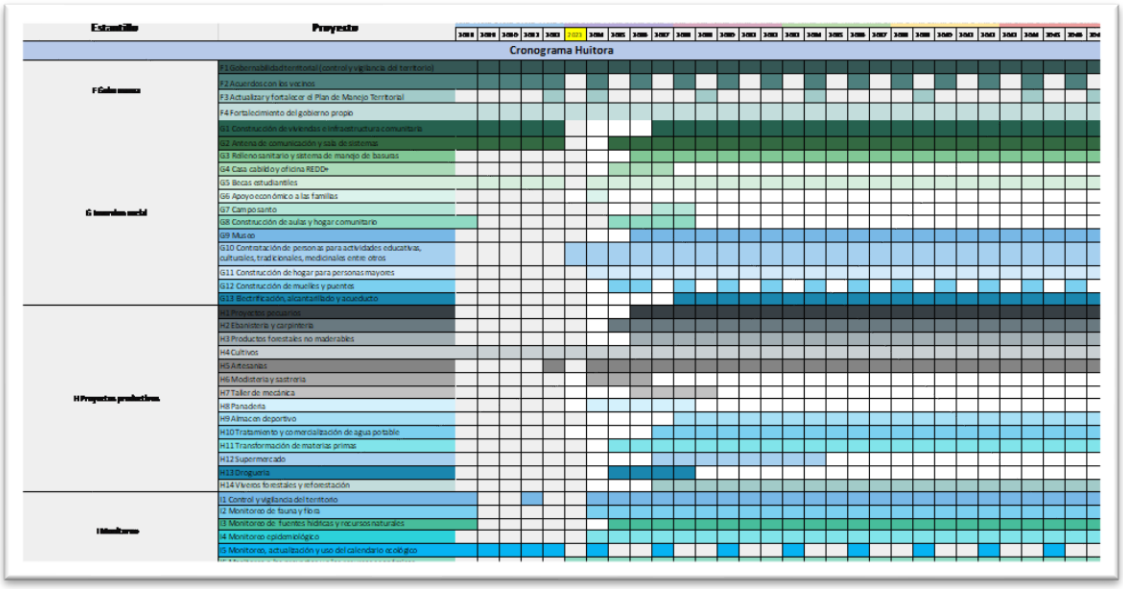


Table 3. Implementation schedule in Huitora Reservation:



2.4 Project location

The REDD+ Huitora project contemplates a specific area that brings together two indigenous reserves, the Huitoto community of Coropoya (coordinates 4,792,581.58E 1,608,168.88N) and the Huitora community (4,822,844.59E 1,593,539.36N), for a total area of 159,817.8 hectares. In addition, a reference region of 1.901.741,9 hectares and is located in the municipalities of Puerto Leguizamo, Solita, Puerto Guzmán, Solano, Milán and Cartagena del Chairá (See Illustration 4).

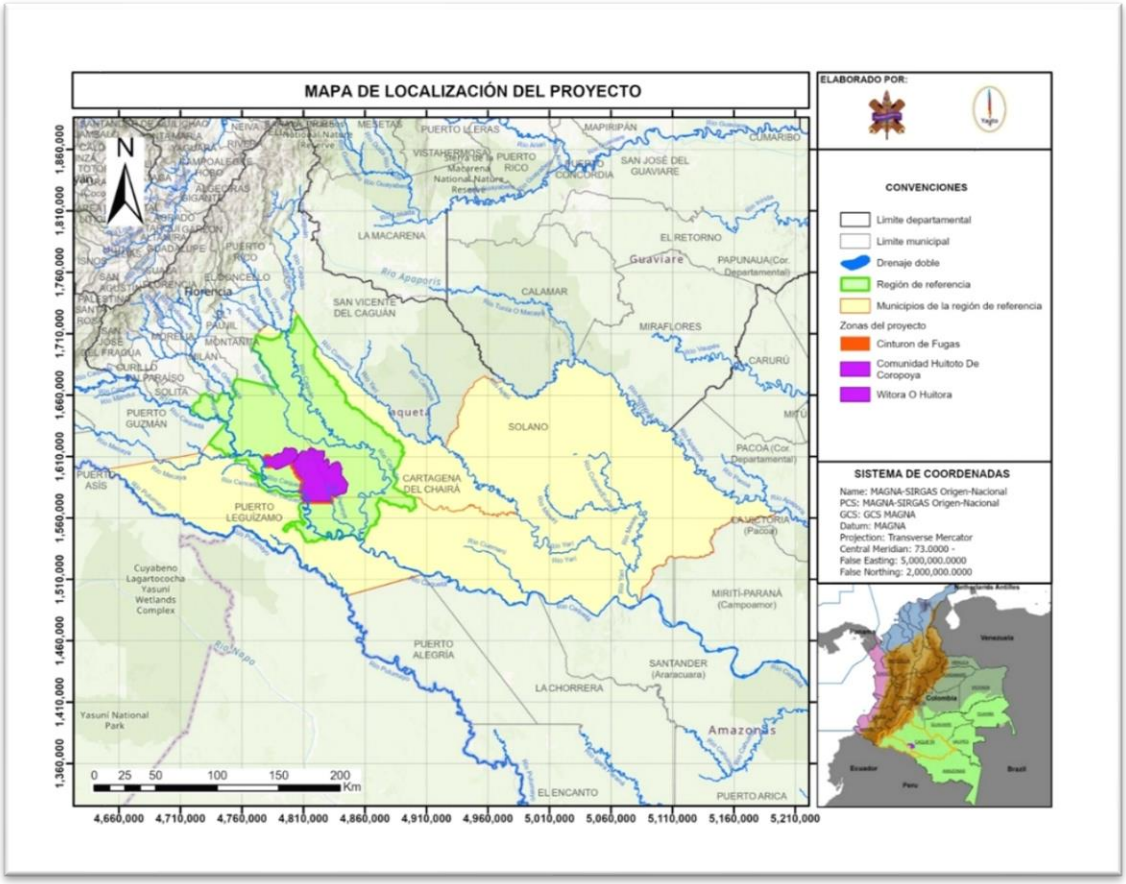


Illustration 4. Project location.

Characteristics of the communities in the reservations

The indigenous communities of Huitora and Coropoya are made up of the Uitoto people, also known as "Murui-Muina". The culture of these people is based on the essence of coca, tobacco and sweet *Yuca*; and they are recognized as "people of the center" because they are part of a complex Amazonian cultural system, sharing with other peoples, certain cultural foundations of the region. As "People of the center" they consider themselves children of tobacco, coca and sweet yucca, being these 3 fundamental elements for the cultural, material and spiritual survival of the communities. These three sacred plants are the principle of life; their cultivation and consumption demand a particular disposition, and a series of practices focused on seeking coherence between thought, word and action. In turn, these plants guide the management of the territory at a spiritual and material level from cultural practices, based on knowledge left by Moo Buinaima, son of Moo Añ+raima father creator of all that exists.

According to the origin of the Uitoto people or "Murui-Muina", the history of man is divided into two: old life and new life. In this new life Moo Añ+raima gives to the Uitoto man two sacred plants Jíbina and D+ona (Coca and Tobacco) (ACILAPP, 2012).

Illustration 5. Sacred plants of the Uitoto people.

Source: Huitora indigenous reservation territorial management plan.

The teachings of these sacred plants are shared in the maloca, which is the synthesis of the Universe-Memory (Huitoto, 2008) and symbolizes the place where creation took place. It is located at the center of community life and tradition is imparted through the Yétarafue (word of advice) (ACILAPP, 2012). The traditional management of the territory is done from the maloca, particularly from the mambeadero (masculine and nocturnal space), where they reflect on the present based on the past, plan for the future and transmit their knowledge. The maloca is complemented by the chagra (a mainly feminine space), where women, keeping in mind the dialogues that take place in the maloca and the mambeadero, transmit the knowledge of the management of the territory to the young women during the day.

Tobacco is the law, in it rests the spirit of the creator father. It is wisdom and the word of command. Culturally it is used for healing, and guidance, it is a guide when handled well, but it also punishes and corrects. Coca, besides being a spiritual food, is a mediating element, keeping the word of man, minimizing the strong and hot that it can bring. Sweet cassava sweetens the heart. It changes the emotional ups and downs, extinguishes the candle, cools the heart of man and of all the people.

In the maloca, rituals and dances are performed to guarantee and strengthen the communities' capacity for governance and territorial control. This is also where the political-administrative process is directed, where decisions are made in assemblies and leadership is promoted. Traditionally, they are dedicated to hunting, fishing, gathering forest resources, and cultivating the chagra.

The grandparents in the maloca with the mambe, the ambil and the caguana, sit in the mambeadero which reproduces the womb of the creative mother, and is the space where through the word, they order the territory, the animals, the chagras, the fish, they conjure to heal and organize the community. They invoke the divinity and the ancestors, and through mythical narratives they instruct the young people with the models and guidelines that the gods and ancestors left behind. It is from the mambeo and conversing how the good path is oriented and taught (HUITORA Territorial Management Plan, 2014).

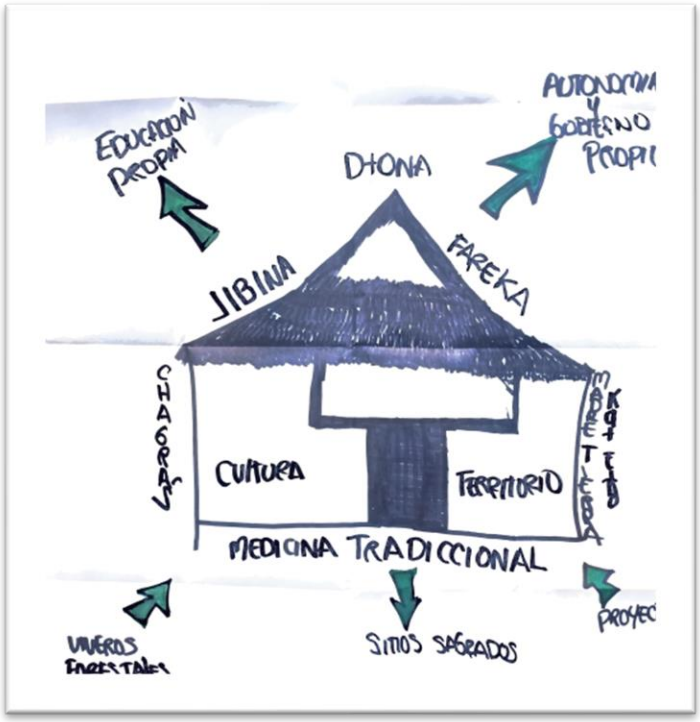


Illustration 6. The maloca.

Source: Workshop 1 Huitora community

As shown in the illustration, the knowledge system of these communities has as fundamental elements for the reproduction of life in the territory and culture: self-government, the chagra as a source of food sovereignty, traditional medicine, and education.

Self-government

The governance of the Huitora and Coropoya communities has two levels, the self-government (internal) and the political-administrative, which they call legal-administrative government (external).

In Huitora, self-government is organized around the traditional authority or council of elders, which, together with the administrative government structure comprising the governor, the secretary, and the treasurer, make up the cabildo's board of directors. It is important to mention that the self-government for this community is based on the Law of origin, which are the rules of the ancestral Law "Yétarafue", a word given to their ancestors

through the Jíbina and d+ona (Coca and Tobacco) as the authority to administer, govern, sanction, form, guide and heal" (HUITORA, 2014, p. 28). The *Cacique* is the highest traditional authority, a position that is conferred by lineage and is a life-long office. As the highest authority, he must have a deep knowledge of the fundamentals of the tradition, in order to guide his community and fully comply with his functions. Therefore, the position of cacique, is usually occupied by older people with knowledge, experience and lineage; who must train and instruct their followers, so that when their cycle on this earth is culminating, they can delegate their functions and their "position" to the next one.

Likewise for the case of self-government in the community of Coropoya, the cacique is the highest authority, takes care of the maloca and manages traditional medicine, he is the one who has a macro perspective of knowledge; for example, when a sick person arrives he can direct him to the wise man who can cure him (territorial, 2014) since there are different careers or paths of knowledge to which the wise men dedicate their whole life, N+mairama (singer), Yetairama (counselor) Jagairama (historian), Ikorira+ma (traditional doctor). The cacique, together with the counselor and the traditional authorities or "sabedores", make up Coropoya's internal government.

Illustration 7. Traditional government.

Source: Territorial management plan

The proper or traditional government always depends on cultural circumstances; the roles, functions and articulation between them are ancestral mandates, while the administrative government, being the one in charge of the articulation of the community with the outside, is the intercultural level of government and deals with the representativeness of the community. In this sense, the latter includes, as guiding principles, documents such as the Life Plan, the Territorial Management Plan, the Internal Regulations, the special indigenous jurisdiction, and other national regulations related to the subject.

This level of representation also includes regional and national associations and organizations to which the communities are affiliated. Both Huitorá and Coropoya are affiliated to ASCAINCA, the association of Huitó councils of the upper Caquetá River, and are thus represented at the municipal, departmental and national levels.

The *chagra*

The chagra is based on the ancestral cultivation of local foods such as sweet and bitter cassava, banana, corn, pineapple, yam, tobacco, coca, sweet potato, sugar cane, papaya, and *ají* among others, implementing a rotation system, where the land is initially prepared for cultivation from the grave and burning of a delimited space.

Amazonian soils contain few nutrients and the minerals in the ash, spread before the rainy season, improve their growing conditions. After harvesting the products, the same process is carried out on another piece of land, considering that the forest area used has a reforestation system with fruit trees (such as *cocuy, chontaduro, laurel, umarí, caimo*, grape*, yarumo* and others), which together with the natural recovery of the forest cover in the stubble area, shows that the chagra is an environmentally sustainable practice.

It is the main means of subsistence for the communities, it is not only the basis for food; it is also the place where the word is put into action, the teachings are materialized through work and the transmission of knowledge from generation to generation is strengthened.

Traditional medicine

Traditional medicine is a system of knowledge that supports the health of individuals, the health of the community and the territory in general. Health within this cosmogony does not refer exclusively to the cure of diseases from the appeasement of symptoms, the disease is seen holistically and treated in a multidimensional way.

The relationship with the territory in which one is born, and lives implies a deep knowledge of it, a symbiotic link between human beings and nature where the physical limits between these two become imperceptible. The health processes, therefore, depend on the resources provided by the forest, if it suffers affectations that will have repercussions on the people and their health.

Within the Murui cosmogony all plants are medicinal (HUITORA, 2014), some are found in the mountain and others are cultivated in the chagras, those who make a career in this field, wise men and women, are the ones who go to the mountain in search of them, who cultivate them and have the knowledge of each one, knowing how to apply their treatments. Coca and tobacco, however, are the main medicinal plants, besides being used in the healing process, they function as oracles for those who have been introduced to this path of knowledge, these plants, and their ancestors through them, provide them with the information to diagnose, heal themselves and others. The deepening in the area of traditional medicine is a very complex field that requires discipline, will and perseverance among others, since in order to acquire the knowledge, it is necessary to have a healthy body, a firm mind and a clean spirit. As stated by many traditional doctors of the Uitoto people, the training to practice traditional medicine requires diets and sacrifices that give

them the spiritual strength and sensitivity necessary to properly diagnose and cure an illness. According to tradition, these treatments are performed from the spiritual plane, so the energetic management must be cautious and appropriate, for which this training is required.

However, this knowledge is continuously threatened by different situations, including the lack of a differential approach in the provision of services at health posts or health brigades where external knowledge is imposed without dialogue of knowledge and without the desire to integrate multiple knowledge; also the lack of maintenance of medical knowledge, diets, care in relation to eating habits and care of the external world that increasingly have a greater impact on the population leads to the emergence of new diseases and the increase of problems such as alcoholism and drug addiction.

As a pillar within the structure that sustains the culture and life of these communities, this knowledge is a valuable object of conservation. The recognition and protection of traditional doctors, and the transmission of their knowledge to younger people, is fundamental for the preservation of balance in the territory. Keeping the forest standing, protecting sacred sites, guarantees medicine to cure diseases and to maintain communication and harmony with the spiritual plane.

Self-education

Education within the Murui knowledge system is an "integral process transmitted by the Creator Father Moo Buinaima through the four sages 'Yúa Buinaima, Z+k+da Buinaima, Noin+ Buinaima and Menigu+ Buinaima' (Huitorá, 2014, p. 67). It is an experience that involves all stages of an individual's life, from the time the mother is pregnant to the time the child is born. This is very important because everything that happens to the parents and their environment affects the pregnant woman positively or negatively. In this way, it should be part of a series of recommendations and preventions that will form it according to the traditions of the people so that it grows healthy and strong, from there on according to tradition. "Yofuya is the formation in the different labor and intellectual spaces and the Yétarafue is the moral and personal formation of the individual in the space of the mambeadero where knowledge is acquired through the sweet word of the Jíbina and D+ona" (Huitorá, 2014, p. 67).

Education, therefore, involves the different traditional learning spaces to inhabit the territory, such as the *chagra*, hunting, fishing, the *mambeadero*, and the dances, where different knowledge is transmitted and young people learn different skills to live and coexist harmoniously in community, in the territory. Language is the central axis of any educational process, since it contains the traditional knowledge derived from the different structural elements of the culture, materialized in the daily activities of the communities, and its practice guarantees the survival of this knowledge.

The communities also see as a fundamental aspect the appropriation of school spaces to reorient their objectives, to offer ethno-education, and to ensure that children and young people remain in direct contact with their culture in an experiential way, cultivating interest and curiosity for their own and ancestral culture, without ignoring the impact and the demands that contact with the outside world and therefore the majority society represent.

Ethno-education is not only about offering contents where culture is taught as just another subject; it is about building educational models focused on recovering, preserving and strengthening the knowledge and skills to live according to their culture and tradition, embodied in the life plan, linking to traditional learning, the academic offer demanded by the imminent contact of the communities with the majority society; methodologies that make it possible to teach different ways of living and experiencing the world, so that children can share freely and participate with equal opportunities in all spheres of life. (UNICEF, 2020).

Traditional land management

The indigenous reservations of Huitora and Coropoya are inhabited by the Murui-Muina people, who are authorities in their territory and live according to their cosmovision. The world for them is a unity where the spiritual, the cultural, the aquatic and the terrestrial continue and articulate (Huitoto, 2008).

The territory and all that inhabits it guarantee the good life of the people, protecting them by providing them with air, water, food, medicine, shelter, etc.... In the same way, the communities have protected it through their traditional practices, it is a personal and community care that starts from familiarity and experience. This territorial management is based on the *mambeadero*, a microcosmic space that organizes social spaces such as the *chagra*, hunting and fishing areas, and the maloca. Grandparents share their most powerful knowledge in it, and perform their care to preserve harmony, protect those who move in it to develop their productive activities, and also those who leave it.

The vision of the use and management of the territory is based on the conservation of the balance between human beings and nature through the transmission and assimilation of knowledge on how to cultivate the *chagra*, hunt, fish and perform ritual dances. The conservation of the territory for future generations depends on this, since the sustainable use of resources is the basis for the reproduction of life in these communities.

Ecological Calendar

The food and cultural activities of the communities, such as ritual dances, are carried out according to their ecological and cultural calendar, which is a scheme that organizes time based on the summer and winter seasons, placing the activities according to the food, medicine and other resources available at each time of the year. The periods of greatest harvest and sowing are identified, as well as the periods of greatest abundance of each animal species to guide hunting and fishing. The importance of the ecological calendar is that through it they measure the time always in relation to nature and the territory, identifying the times to carry out different activities, generating a positive impact on the environment.

Traditional Dances

As part of the traditional management of the territory they perform traditional dances; "In our part there is also the dance, because life is in the food that the land gives under the work and what we sow. The elders thought of doing their recreations, they have invented their forms of dances. There are several kinds of dances, each kind of dance has its structure and order. They always celebrated and harmonized when everyone left their territory to cultivate what is an integral *chagra*. Cassava, sweet potato, yam, pineapple.

This means, everything that belongs to us.

After they did that, they produced and celebrated the dance. What we call the Monifue (abundance), the harvesting of the product. That is how they fed psychologically, it was like raising the spirits of the whole town, that is how the grandfather, the cacique and his followers merged from the *mambeadero*. From there they took care of everything, they blessed the *chagras,* the children, they cured the children, and many rites" (Huitora management plan).

Traditional dances are performed as part of environmental management, maintaining harmony between the material and spiritual planes, and a balance between the social and the natural. The management of the territory is articulated through dialogue between the owners of the dances that complement each other when they take turns to perform them according to the ecological calendar. The owners of the dance, the knowers, have the knowledge of the management of the environment and its changes.

2.5 Additional information on the GHG Project

The project reduces emissions from unplanned deforestation and forest degradation, avoiding GHG carbon dioxide (CO_2) emissions, in the aboveground biomass, belowground biomass and soil carbon pools. The historical reference period is 12 years, from 2005 to 2017, due to the availability of reliable information to establish baseline emissions.

3 Quantification of GHG emissions reduction

3.1 Quantification Methodology

BioCarbon Registry Standard. Version 3.4. June 28, 2024.

Methodological Document AFOLU Sector

Quantification of GHG Emission Reductions from REDD+ Projects. Version 4.0. 27-May-2022.

All parameters and activity data, as well as emission factors, are taken from the NREF for Colombia submitted to the UNFCCC, from https://redd.unfccc.int/files/02012019_nref_colombia_v8.pdf

3.1.1 Methodology applicability conditions

Table 4. Conditions of applicability of the methodology and its compliance.

Applicability condition	Compliance
a) The areas within the geographical boundaries of the project correspond to the forest category at the beginning of the project activities and ten years prior to the project start date.	Complies. According to the cartographic analysis carried out, it can be determined that the project area corresponds to forest that was present ten years prior to the start date of activities. Evidence in the section Eligible areas within the GHG project boundaries (AFOLU sector projects).
b) The areas within the geographical boundaries of the project do not correspond to the category of wetlands.	Compliant: The entire eligible area is made up of forests and there are no wetlands.
c) There are no organic soils within the geographical boundaries of the project.	Compliant: There are no areas of peatlands or organic soils within the geographical boundaries of the project.
d) The identified causes of deforestation include: expansion of the agricultural frontier, mining, timber extraction, and infrastructure expansion.	Complies. The expansion of the agricultural frontier and timber extraction for subsistence and sale were identified as causes of deforestation in the project area. The evidence is presented in the Causes and Agents of Deforestation/Degradation section.
e) The causes of degradation include: selective logging, firewood extraction, forest fires, forest grazing and expansion of the agricultural frontier - illicit crops.	Complies. In the project area, selective logging and expansion of the agricultural frontier were identified as causes of forest degradation. The evidence is presented in the Causes and Agents of Deforestation/Degradation section.
f) No reduction in deforestation or degradation is expected to occur in the absence of the project.	Complies. Deforestation and degradation trend has been maintained historically and may be maintained in the absence of the project. Evidence in section Sub-step 1a. Identification of probable land use alternatives in the Project areas.
g)) Carbon stocks in soil organic matter, litter and dead wood in deforested areas are likely to decrease or remain stable.	Complies. Without the implementation of the project, the plausible land uses for the project area correspond to extensive cattle ranching, so the carbon content of the dead wood and litter pools could not increase in the absence of project

Applicability condition	Compliance
	implementation. Without project implementation, the plausible land uses for the project area correspond to extensive cattle ranching, so the carbon content of the dead wood and litter pools could not increase in the absence of project implementation.
h) The quantification of GHGs other than CO_2 must be included in the quantification of emissions caused (if applicable) by forest fires during the monitoring period.	Complies. During the monitoring period, if forest fires are detected, GHG emissions will be quantified and included in the emissions estimates associated with the project.

Normative references:

(a) BCR STANDARD version 3.4.

(b) The guidelines, other guidance and guides defined by BIOCARBON CERT, within the framework of GHG projects.

(c) The IPCC guidelines for national greenhouse gas inventories (2006 and 2019). Volume 4. Agriculture, Forestry and Other Land Uses.

(d) The applicable national legislation, related to GHG projects (See section Compliance with applicable legislation.).

3.1.2 Methodological deviations

No methodological deviation is applied, however, section 3.5 Causes and agents of deforestation/degradation was included in the template, which is not included in the template and in the methodological document BCR0002 v4.0 appears after the identification and description of the baseline and additionality scenario.

3.2 Project boundaries, sources and GHGs

The spatial and temporal boundaries of the Marena Ichena - Nag+ma Enoye Rafue REDD+ project are described below.

3.2.1 Spatial limits of the Project

For the definition of spatial boundaries, we used 1:100,000 scale mapping from official sources from the Instituto Geográfico Agustin Codazzi (IGAC) for the base mapping and IDEAM for the forest/non-forest coverage mapping. These sources of information comply with the methodological criterion of being reliable information, which, when published and prepared by the national authorities, meets all the standards of quality and accuracy. All geographic data is handled according to standards defined by resolution 471 of 2020, issued by the IGAC, which, in compliance with its functions as the country's highest authority on technical issues related to geodesy, photogrammetry, basic cartography, geography, land use planning, territorial entity boundaries and geographic names.

Following these principles, official sources of information are understood to be officially validated.

3.2.1.1 *Project Area*

The municipalities that make up the study area are three, Cartagena del Chairá, Solano in the department of Caquetá and Puerto Leguízamo (Putumayo), the area comprising each municipality is described in Table 5, with the greatest representativeness in the project area is the municipality of Solano with 106.002,8 hectares and the municipality with the least representativeness is Puerto Leguízamo with 1.802,8 hectares.

Table 5. Municipalities within the project area.

Department	Municipality	Area in ha
Caquetá	Solano	106.002,8
	Cartagena del Chairá	52.012,2
Putumayo	Puerto Leguizamo	1.802,8
Total, area		**159.817,8**

Referring again to numeral 2.4 Project location, the project area comprises two indigenous reservations described in Table 6. The eligible area of the project corresponds to 157.321,83 hectares and is described in the section Eligible areas within the GHG project boundaries (AFOLU sector projects).

Table 6. Indigenous reservations that make up the project area.

Name of the indigenous reservation	Coordinates	Area in ha
Huitoto de Coropoya	4.792.581,58E 1.608.168,88N	28.496,9
Huitora	4.822.844,59E 1.593.539,36N	131.320,9

3.2.1.2 *Reference region*

The project is located in the Colombian Amazon and has as reference region the departments of Caquetá and Putumayo between the coordinates 4.792.202,22E 1.620. 537.08N (MAGNA-SIRGAS Origin-National Coordinate System), in the department of

Caquetá it covers the municipalities of Solano and Cartagena del Chairá, and in the department of Putumayo it covers the municipality of Puerto Leguízamo, being the municipality of Solano the one with the largest coverage within the project (see Illustration 4. Project location.). The area of the reference region is 1,550,933.06 hectares.

The reference region corresponds to the area in which the analysis of deforestation, land use change and analysis of agents and drivers of deforestation is carried out. The selection of the reference region was made considering the guidelines set forth in the methodological document BCR0002 version 4.0, in section "9.2 Reference region for baseline estimation" [5], which indicates that the reference region should be similar to the project area in terms of access, agents and determinants of deforestation/degradation and possible changes in land use. The delimited reference region includes the entire project area and is located in the municipalities of Cartagena del Chairá, Puerto Leguízamo, and Solano within the Amazon subnational reference level[6]. (See purple circle in the Illustration 8. Map of subnational reference regions of Colombia. and Illustration 4. Project location.)., which complies with the criteria and conditions of the methodology.

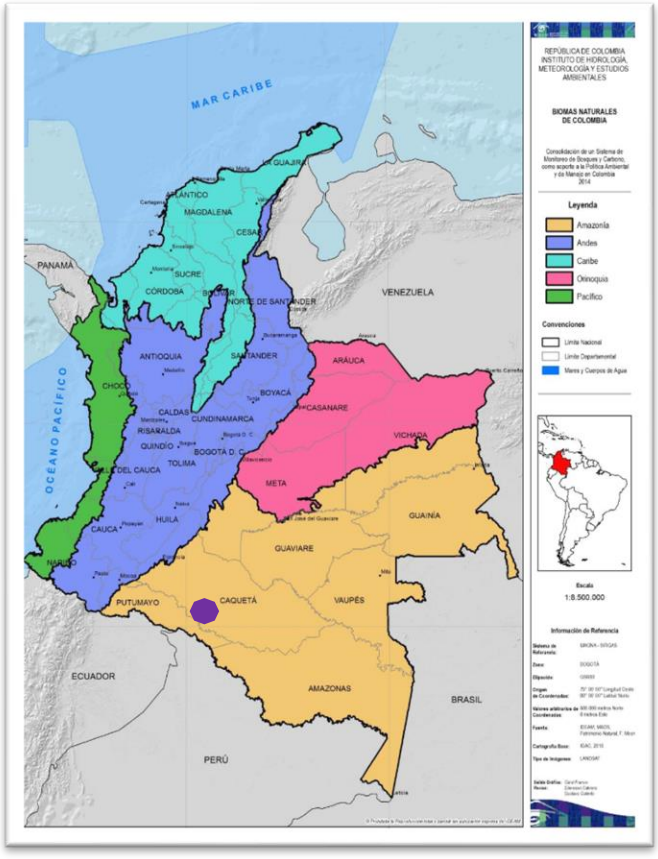


Illustration 8. Map of subnational reference regions of Colombia.

- [5] BIOCARBON CERT, 2024. QUANTIFICATION OF GHG EMISSION AND REDUCTIONS REDD+ projects BRC 0002, version 4.0. Mayo 27, 2024. PAG 19.

[6] https://redd.unfccc.int/files/02012019_nref_colombia_v8.pdf

Prepared from the biomes map (IDEAM, 2014).

The reference region was delimited conservatively, not including the entire Amazon subnational region, nor the entire department of Caquetá, precisely to include only the geographic areas from which the deforestation agents who are interested in acting in the project area come. Accessibility in the Amazon region is mainly by river, which defines the main criterion for delimiting the reference region; river beds delimited by municipal boundaries so as not to reach the upper parts of the basins (see Illustration 9. Map with the boundaries of the project reference region).

The criteria for delimiting the reference region are the following:

(a) **The reference region must include the project area:** To comply with this item, Illustration 4 shows that the project area and the leakage belt are located within the reference region.

(b) **The reference region must be larger than the project area. The size of the reference area must be commensurate with the mobility of deforestation agents who may have access to the project area. The reference area must be limited to up to 10 times the project area:** The size of the reference region is 9,7 times larger than the project area and is concentrated in the waterways that allow access to the project area by agents of deforestation and forest degradation. It is delimited by including the subdivision of the hydrographic zones of the Caquetá, Caguán, Yarí, and Putumayo rivers, as noted in the Water Resources description chapter. In this area, access is mainly through waterways that allow agents to enter directly into the project area as identified in section 3.5.2 Key stakeholders, interests and motivations through primary information collection as described for farmers, crossing agents and groups outside the law, where it is observed that crossing rivers for the transport of goods or people often leads to the contamination of water with gasoline and the expansion of the agricultural frontier that generates river pollution (Caquetá, Urutuya, Caguán). Being important connectors between the region and that pass through the project area, they also represent great interest among the actors due to their importance in the country, where it has been shown that a large part of the jungle through which the eastern Caquetá originally flowed has been cleared for pastures, rice, corn, cassava and sugarcane crops, and in the last two decades, particularly coca crops (Aquae Foundation, n.d.). In the case of the Caguán River, conditions have not been different due to the violation of the fundamental rights of riverine populations due to mining (mercury contamination), oil activities, hydroelectric projects, deforestation (on and around riverbanks), and poor wastewater management, due to the actions or inactions of entities (SINCHI Institute, 2023). Also, with a significant presence of illegal groups, the Llanos del Yarí was a region of great strategic importance for the FARC, as it served as a security corridor for the powerful Eastern Bloc, connecting the Duda River basin with the Apaporis River, which flows into the Caquetá River and both into the Amazon (UN Human Rights, 2016). Finally, since the 1980s, the territory of the department of Putumayo

has been a focus of clashes between illegal armed groups given its geography is conducive to coca cultivation and processing. Considering tributaries of the Putumayo River that have served as transportation routes for illegal groups, smuggling, and the coca trade (Rutas del conflicto, n.d.).

(c) The geographic boundaries of the reference region that do not overlap with the project area and the project area must be at least 80% similar in the following physical variables: precipitation, temperature, vegetation strata, soils, slope, access roads. There is at least 80% similarity in the physical variables of the reference region and the project area, as evidenced in Chapter 3.2.1.2.1 Similarity analysis (Table 17).

(d) **Socio-economic and land use conditions, as well as applicable legislation and policies related to land use, should be similar to those of the project area and should be consistent with the reference region:** Socio-economic (see section Causes and agents of deforestation/degradation) and land use conditions, as well as applicable laws and policies related to land use, are similar to those of the project area and consistent with the reference region. This is also related to the land tenure figures existing in the two areas where it is evident that in the reference region there are twenty (20) indigenous reservations that are a legal and socio-political institution of a special nature, made up of an indigenous community or group, which with a community property title, owns its territory and is governed for the management of this and its internal life, by an organization adjusted to the indigenous jurisdiction or its cultural guidelines and traditions (SIAT-AC, n.d.), since the middle of the 20th century the national government begins to recognize in its legislation, the rights of indigenous peoples, over the territories ancestrally occupied by them (CORPOAMAZONIA, n.d.) reaffirming compliance with this condition (See 3.2.1.2.6 Land tenure).

(e) **Differences in land tenure or legal status between the project area and the reference region should not affect the causes and agents of deforestation and degradation, nor the trends in deforestation and degradation:** Differences in land tenure or legal status between the project area and the reference region do not affect the causes and agents of deforestation and degradation (see section Land tenure), which shows that Indigenous Reservation areas are included in the reference region and that, regardless of the form of land tenure, deforestation occurs as a generalized action, as can be seen in the following illustration. This behavior has a direct impact on the passage of deforestation and forest degradation agents through the main rivers, as evidenced in item (b) that also run through the reference region and that also clearly present the highest percentage of deforestation around them (See Illustration 9), coinciding with the fact that a large part of the forest through which the eastern Caquetá originally flowed has been cleared for pastures, rice, corn, cassava and sugar cane crops, and in the last two decades, particularly coca crops (Aquae Fundación, n.d.).

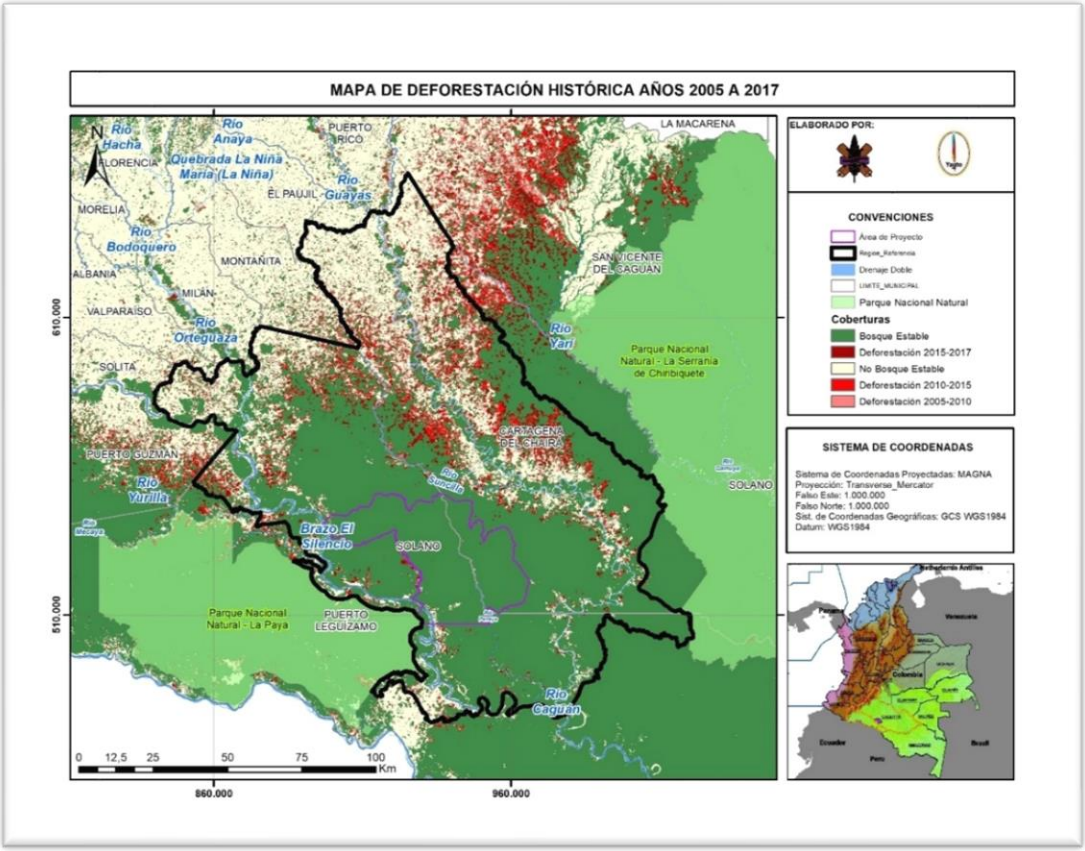


Illustration 9. Map of historical deforestation from 2005 to 2017 in the reference region.

(f) **The agents and drivers of deforestation/degradation, identified in the reference region, can access the project area:** Access to the project area by the agents and drivers of deforestation and degradation identified in the reference region is frequent and constant due to the important tributary rivers that connect to the territory, as explained above in section (b) and where, in addition, there have historically been groups outside the law and conflicts over the occupation or ownership of land.

(g) **The project area is of interest to the stakeholders identified in f; above:** The project area has similar characteristics to those of the reference region, as evidenced above in section (c) and has been historically affected by deforestation and forest degradation (section e). Furthermore, according to the chronological report issued by the Institute of Hydrology, Meteorology and Environmental Studies, IDEAM, it is possible to identify that between 2015 and 2020, 15,957 hectares of native forest were cut down in the municipality of Leguízamo as a result of extensive livestock farming and the planting of illicit crops (Radio Nacional de Colombia, 2022). Furthermore, after Puerto Asís, Leguízamo is the municipality in the department of Putumayo with the second highest rate of deforestation of Amazonian forests, whose properties, it was reiterated, are used for coca cultivation and livestock farming activities (Radio Nacional de Colombia, 2022). Also, the study by (Forero et al., 2018) mentions that, in the case of Puerto Leguízamo, since the 1990s the territory has been marked by constant

deforestation to implement extensive livestock production systems, which marks a transcendental milestone of change and ecological disconnection, due to the high deforestation for the implementation of clean pastures. It is important to highlight that the roads have a direct impact on forest fragmentation, since road infrastructure projects encourage changes in land cover and use. Multi-temporal satellite images show: 1) the road axis as the basis for the transformation, 2) the beginning of the ecological fracturing of Amazonian ecosystems in the lower Putumayo, and 3) the encroachment of the agricultural frontier into protected areas, such as La Paya Natural Park (which borders the project areas) during the last decade. However, climatic aspects also influence this interest on the part of the agents since climatic factors in the Amazon basin are of great importance to the world, as it is the largest hydrographic basin in the world, occupying an area of 6.5 million km² and being drained by the largest river on the planet, to which drainages from the Andes fall (Forero et al, 2018). It is located in the equatorial belt of South America, an important strip for the global climate, as it is where the greatest evapotranspiration is generated in the world and is a region influenced by the dynamics of the intertropical convergence zone (ITCZ) of trade winds from the northern and southern hemispheres. Furthermore, it is estimated that 50% of the rainfall there is a result of evapotranspiration from the tropical forest (Forero et al., 2018). This information is reinforced by what was identified through the social information collected in the community workshops found in the Causes and agents of deforestation/degradation section, which demonstrate the special interest of these stakeholders in this territory.

(h) **Special management areas or areas within the geographic boundaries of other GHG projects are excluded:** In order to comply with this section, a spatial analysis was developed using Geographic Information Systems, which shows that special management areas such as protected areas, 1% compensation, moorlands, and peace forests are excluded (see section Avoidance of double counting and Illustration 11). In addition, it is evident that no GHG projects are included within the reference region (See Illustration 10).

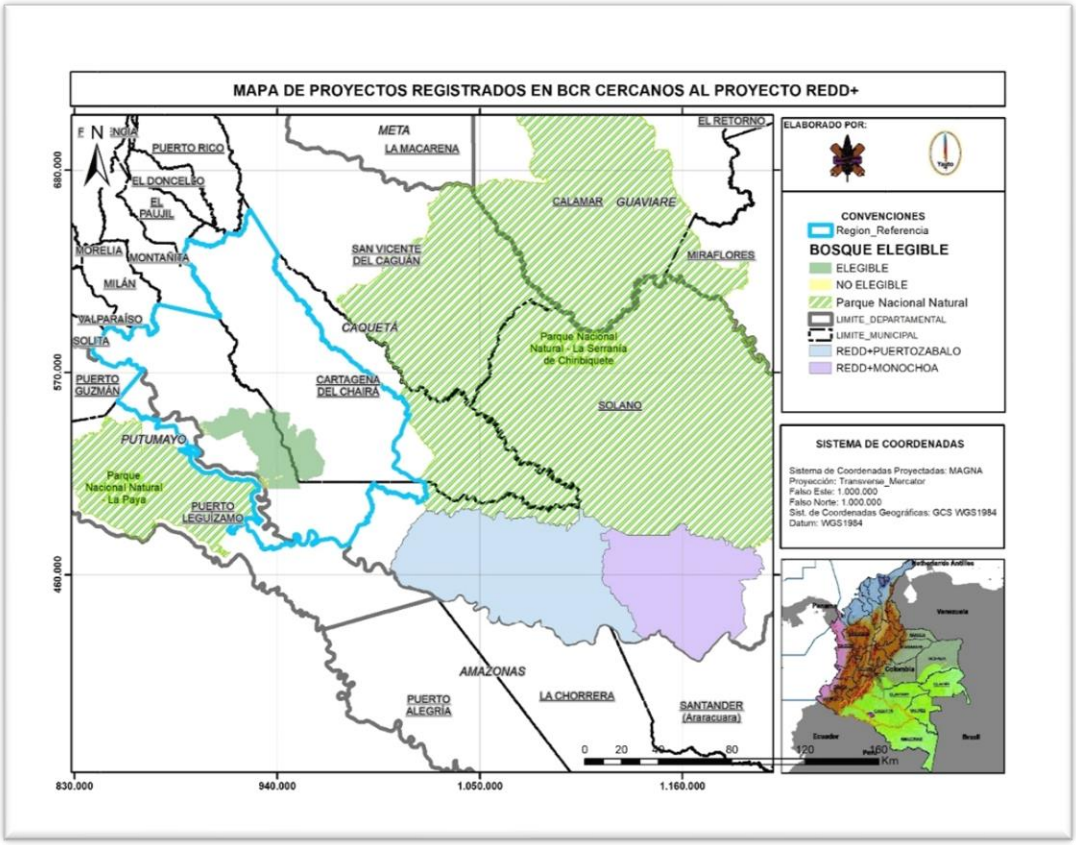


Illustration 10. Exclusion of areas with other GHG projects.

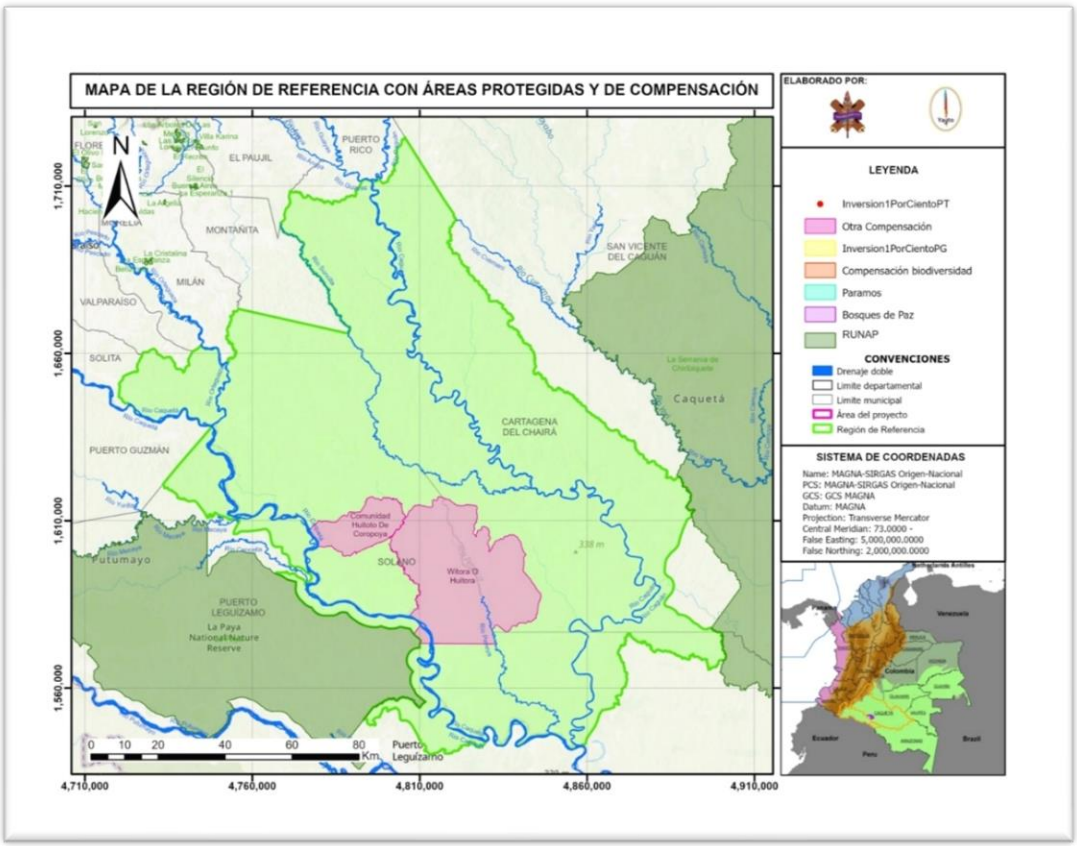


Illustration 11. Exclusion of special management areas in the reference region.

(i) **Excludes areas with restricted access to the agents and causes of deforestation and forest degradation:** As demonstrated in the previous section, all areas of National Natural Parks are excluded because they are a priori considered areas with restricted access to the agents and drivers of deforestation and degradation, as seen in Illustration 10 and Illustration 11.

Delimitation of the reference region:

• To the north: Watershed of the Caguán Alto and Guayas rivers, and municipal boundaries of the municipalities of Cartagena del Chairá, El Paujil, Montañita, Milán, Solita and Puerto Guzmán.

• To the east: Municipal boundary of Cartagena del Chairá, boundary of the Caguán Bajo River hydrographic sub-zone and boundary of the Serranía de Chiribiquete National Park.

• To the south: Boundary of the Caguán Bajo River hydrographic sub-zone, municipal boundary of Solano and boundary of the Caquetá Medio River hydrographic sub-zone.

• To the west: Boundary of the La Paya National Park and boundary of the Caquetá Medio River hydrographic sub-zone.

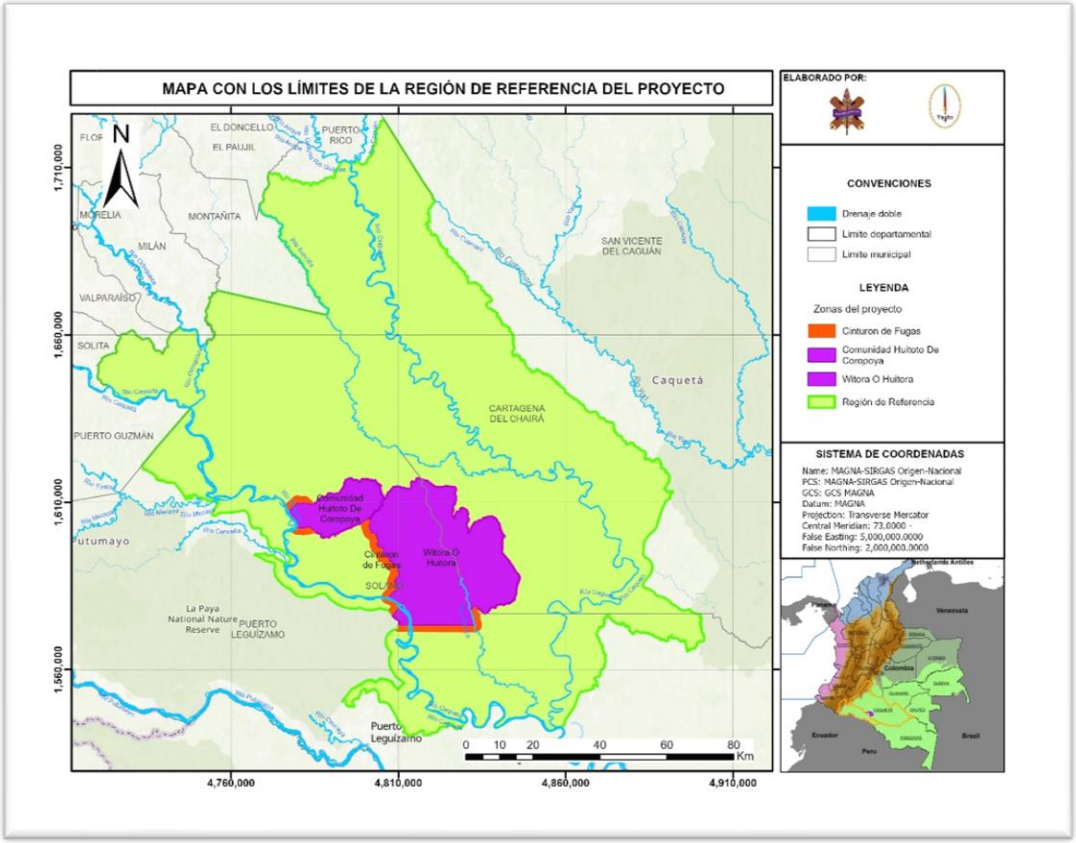


Illustration 12. Project reference region boundary map.

The following is a description of their biophysical and political characteristics according to land tenure and land use rights.

3.2.1.2.1 Similarity analysis

One of the criteria for delimiting the reference region is according to the similarity to the project area in terms of access, agents and determinants of deforestation/degradation and possible land use changes. In addition, the geographic boundaries of the reference region that do not overlap with the project area and the project area present a similarity, in terms of the following physical variables:

3.2.1.2.2 Vegetation strata

According to the Land Cover Shapefile (2023), a comparison is made between the strata corresponding to Forest within the reference area without overlap and the project area, finding that there is a similarity of more than 90% between both, with respect to the four (4) main covers which are Humid basal forest and Basal flooded forest and, to a lesser extent, Fragmented forest with secondary vegetation and Fragmented forest with pastures and crops (See Table 7 and Table 8).

Table 7. Classification of forest strata in the reference area.

Description	Area (ha)	Area (%)
Wet basal forest	1,087,234.99	78.23%
Fragmented forest with pastures and crops	17,233.43	1.24%
Fragmented forest with secondary vegetation	27,934.84	2.01%
Floodable basal forest	257,250.67	18.51%
Total	**1,389,792.91**	**100.00%**

Table 8. Classification of forest strata in the project area.

Description	Area (ha)	Area (%)
Wet basal forest	143.308,86	92,11%
Basal flooded forest	11.702,92	7,52%
Fragmented forest with secondary vegetation	380,52	0,24%
Fragmented forest with pastures and crops	191,28	0,12%
Total	**155.583,57**	**100,00%**

3.2.1.2.3 Soils

Within the comparison of the types of soil present in the reference area without overlap with the project area, based on the information provided by the shapefile of continental, coastal marine ecosystems of 2017, it is found that the associations of the soils called Typic Paleudults, Typic Hapludults, and Oxic Dystrudepts predominate in both areas, finding

similar characteristics and complying with the parameters of the delimitation of the reference area, it is observed that the first six (6) types of land use coincide in more than 80% with respect to those present (See Table 9 and Table 10).

Table 9. Soil classification in the reference area.

Description	Area (ha)	Area (%)
Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	767.005,17	57,28%
Plinthic Hapludoxs, Typic Paleudults, Oxic Dystrudepts, Typic Dystrudepts	222.894,66	16,04%
Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aquic Udifluvents	217,705.82	15.66%
Typic Hapludoxs, Typic Hapludults	88,319.38	6.38%
N.A.	38,414.47	2,76%
Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aeric Fluvaquents	28,200.40	2,03%
Typic Hapludoxs, Oxic Dystrudepts, Typic Dystrudepts	12,141.85	0,87%
Typic Dystrudepts, Oxiaquic Dystrudepts, Typic Humudepts	9,815.90	0,71%
Fluventic Dystrudepts, Fluvaquentic Endoaquepts, Typic Fluvaquents	2,768.44	0,20%
Typic Humaquepts, Hydric Haplofibrists	1,204.32	0,09%
S.I.	181.99	0,01%
Typic Endoaquepts, Typic Udifluvents, Fluventic Endoaquepts	95,45	0,01%
Total	**1,389,791.56**	**100,00%**

Table 10. Soil classification in the project area.

Description	Area (ha)	Area (%)
Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	132.739,12	83,06%
Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aquic Udifluvents	6.771,00	4,24%
Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aeric Fluvaquents	6.637,87	4,15%
Plinthic Hapludoxs, Typic Paleudults, Oxic Dystrudepts, Typic Dystrudepts	6.578,33	4,12%
Typic Hapludoxs, Typic Hapludults	6.162,06	3,86%
N.A.	830,47	0,52%
Typic Humaquepts, Hydric Haplofibrists	98,98	0,06%
Total	**159.817,83**	**100,00%**

3.2.1.2.4 Climate

Regarding the identification of similarity between the reference area without overlap and the project area, it is found that, for both, more than 95% of the climate corresponds to warm humid, based on the information provided by the shapefile of continental, coastal marine ecosystems of 2017 (See Table 11 and Table 12).

Table 11. Climate classification in the reference area.

Description	Area (ha)	Area (%)
Warm Humid	1.351.434,63	97,24%
N.A.	38.358,28	2,76%
Total	**1.389.792,91**	**100,00%**

Table 12. Climate classification in the project area.

Description	Area (ha)	Area (%)
Warm Humid	158.987,36	99,48%
N.A.	830,47	0,52%
Total	**159.817,83**	**100,00%**

3.2.1.2.5 Relief

Regarding the identification of similarity between the reference area without overlap and the project area, based on the information provided by the shapefile of Caquetá and Putumayo department soils, it is found that, for both, more than 50% of the relief corresponds to hills and mounds, followed by flood plains, complying with the guidelines described in the BCR0002 methodology in its most updated version, in both these reliefs correspond to more than 87% of the total (See Table 13 and Table 14).

Table 13. Classification of the relief in the reference area.

Description	Area (ha)	Area (%)
Hills and mounds	762.718,35	54,88%
Flood plain	246.966,20	17,77%
Hills and mesas	220.421,16	15,86%
Mesas	87.973,89	6,33%
Vallecitos	31.965,24	2,30%
Body of water	15.426,70	1,11%
Middle terraces	10.562,43	0,76%
High terraces	7.643,86	0,55%
Level 1 terraces	4.586,32	0,33%
Depressions	1.528,77	0,11%
Urban area	138,98	0,01%
Total	**1.389.792,91**	**100,00%**

Table 14. Classification of the relief in the project area.

Description	Area (ha)	Area (%)
Hills and mounds	139.317,45	87,17%
Flood plain	6.771,00	4,24%
Vallecitos	6.637,87	4,15%
Mesas and slopes	6.162,06	3,86%
N.A.	830,47	0,52%
Depressions	98,98	0,06%
Total	**159.817,83**	**100,00%**

3.2.1.2.6 Access routes

Access routes for the reference area and the project area are assessed according to the tributaries that enter the indigenous reservations, which are also part of the main ones in the reference area; these correspond to the Caguán River, Peneya River, Suncilla River and Caquetá River, as observed in the description chapter

Water Resources, being connectors in the departments and municipalities that group the study areas and complying with the description present in the BCR0002 methodology and observing that the actors of deforestation and forest degradation can access the territories through the same routes.

3.2.1.2.7 Precipitation

According to the Multiannual Average Total Annual Precipitation Shapefile for the period 1981-2010, precipitation in the two study areas is dominated by the precipitation range of 2,500 to 3,000 mm, which allows for describing and establishing similar behaviors. In the case of the reference region, the range of 3,000-4,000 mm is algo present (See Table 15 and

Table 16).

This similarity is explained, according to IDEAM[7], because the Amazon is a vast expanse of vegetation that contributes a large amount of humidity to the air, which is transported by the trade winds to the west. The Colombian territory, being located in the northwest of this area, receives a significant amount of this humidity, which induces particular characteristics to the climate, especially in the southeastern sector known as the Colombian Amazon. In the Colombian Amazon, the humid air masses in their movement towards the West encounter the Andes mountain range. As they are forced to rise by the orography, the humidity condenses, generating vertical cloud development and abundant precipitation. This makes the north-west of the Amazon (that is, the Colombian Amazon territory) one of the rainiest sectors of the entire region; in this way, in the Colombian territory, sectors such as the Amazonian foothills and plains stand out for being quite rainy. The effects of the Amazon are not only limited to the southeastern sector but also transcend the south and center of the Colombian Andean region. At certain times of the year, synoptic systems from the Amazon bring significant amounts of humidity and precipitation to the southern part of the Andean region, particularly to the upper part of the Putumayo, Caquetá and Magdalena rivers.

Table 15. Precipitation ranges in the reference area.

Range (mm)	Area (ha)	Area (%)
2500 - 3000	1.014.548,82	73%
3000 - 4000	375.244,09	27%
Total	**1.389.792,91**	**100%**

Table 16. Precipitation ranges in the project area.

Range (mm)	Area (ha)	Area (%)

[7] IDEAM - UNAL, Variabilidad Climática y Cambio Climático en Colombia, Bogotá, D.C., 2018.

2500 - 3000	159.817,79	100%

After verifying the data of the reference region and the project area, Table 17 was built, where the percentages of each physical variable are analyzed to determine their similarity, so, in comparison, the variables exceed the required 80% except for the Typic Paleudults, Typic Hapludults, Oxic Dystrudepts soil (See Soils), the hills and hillocks reliefs and the rainfall of 2500 - 3000 and 3000 - 4000 (See Precipitation), which were already contextualized in the explanation of the variables in the previous sections.

Table 17. Similarity between the reference region and the project area.

	Description	Reference Region	Proyecto	Compative	Similarity
		Area (%)	Area (%)		
VEGETATION	Wet basal forest	78.23%	92.11%	13.88%	86.12%
	Fragmented forest with pastures and crops	1.24%	7.52%	6.28%	93.72%
	Fragmented forest with secondary vegetation	2.01%	0.24%	1.77%	98.23%
	Floodable basal forest	18.51%	0.12%	18.39%	81.61%
SUELOS	Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	55.24%	83.06%	27.82%	72.18%*
	Plinthic Hapludoxs, Typic Paleudults, Oxic Dystrudepts, Typic Dystrudepts	16.04%	4.12%	11.92%	88.08%
	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aquic Udifluvents	15.66%	4.24%	11.42%	88.58%
	Typic Hapludoxs, Typic Hapludults	6.38%	3.86%	2.52%	97.48%
	N.A.	2.76%	0.52%	2.24%	97.76%
	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aeric Fluvaquents	2.03%	4.15%	2.12%	97.88%
	Typic Hapludoxs, Oxic Dystrudepts, Typic Dystrudepts	0.87%	0.00%	0.87%	99.13%
	Typic Dystrudepts, Oxiaquic Dystrudepts, Typic Humudepts	0.71%	0.00%	0.71%	99.29%
	Fluventic Dystrudepts, Fluvaquentic Endoaquepts, Typic Fluvaquents	0.20%	0.00%	0.20%	99.80%
	Typic Humaquepts, Hydric Haplofibrists	0.09%	0.06%	0.03%	99.97%
	S.I.	0.01%	0.00%	0.01%	99.99%
	Typic Endoaquepts, Typic Udifluvents, Fluventic Endoaquepts	0.01%	0.00%	0.01%	99.99%
CLIMATE	Warm Humid	97.24%	99.48%	2.24%	97.76%
	N.A.	2.76%	0.52%	2.24%	97.76%
RELIEF	Hills and mounds	54.88%	87.17%	32.29%	67.71%
	Flood plain	17.77%	4.24%	13.53%	86.47%
	Mesas and slopes	0.00%	3.86%	3.86%	96.14%
	N.A.	0.00%	0.52%	0.52%	99.48%
	Hills and mesas	15.86%	0.00%	15.86%	84.14%
	Mesas	6.33%	0.00%	6.33%	93.67%

	Description	Reference Region	Proyecto	Compative	Similarity
		Area (%)	Area (%)		
	Vallecitos	2.30%	4.15%	1.85%	98.15%
	Body of water	1.11%	0.00%	1.11%	98.89%
	Middle terraces	0.76%	0.00%	0.76%	99.24%
	High terraces	0.55%	0.00%	0.55%	99.45%
	Level 1 terraces	0.33%	0.00%	0.33%	99.67%
	Depressions	0.11%	0.06%	0.05%	99.95%
	Urban area	0.01%	0.00%	0.01%	99.99%
PRECIPITATION	2500 - 3000	73%	100%	27%	73%
	3000 - 4000	27%	0.00%	100%	0%

3.2.1.2.8 Climatic Classification

Climatic zoning of the project area was carried out using geographic information systems, using the 2017 shapefile of continental, coastal marine ecosystems downloaded from IDEAM. In Illustration 13. Climate classification map in the reference region., it can be observed that the climatic zoning corresponds to Warm Humid in greater proportion with 1,814,356.74 hectares and to a lesser extent Warm Super Humid (Table 18. Climate classification according to Caldas Lang for the region of reference.).

Table 18. Climate classification according to Caldas Lang for the region of reference.

Color	Climate classification	Area in ha
	Warm Humid	1.510.364,42
	N.A.	39.244,93
Total, general		**1.549.609,36**

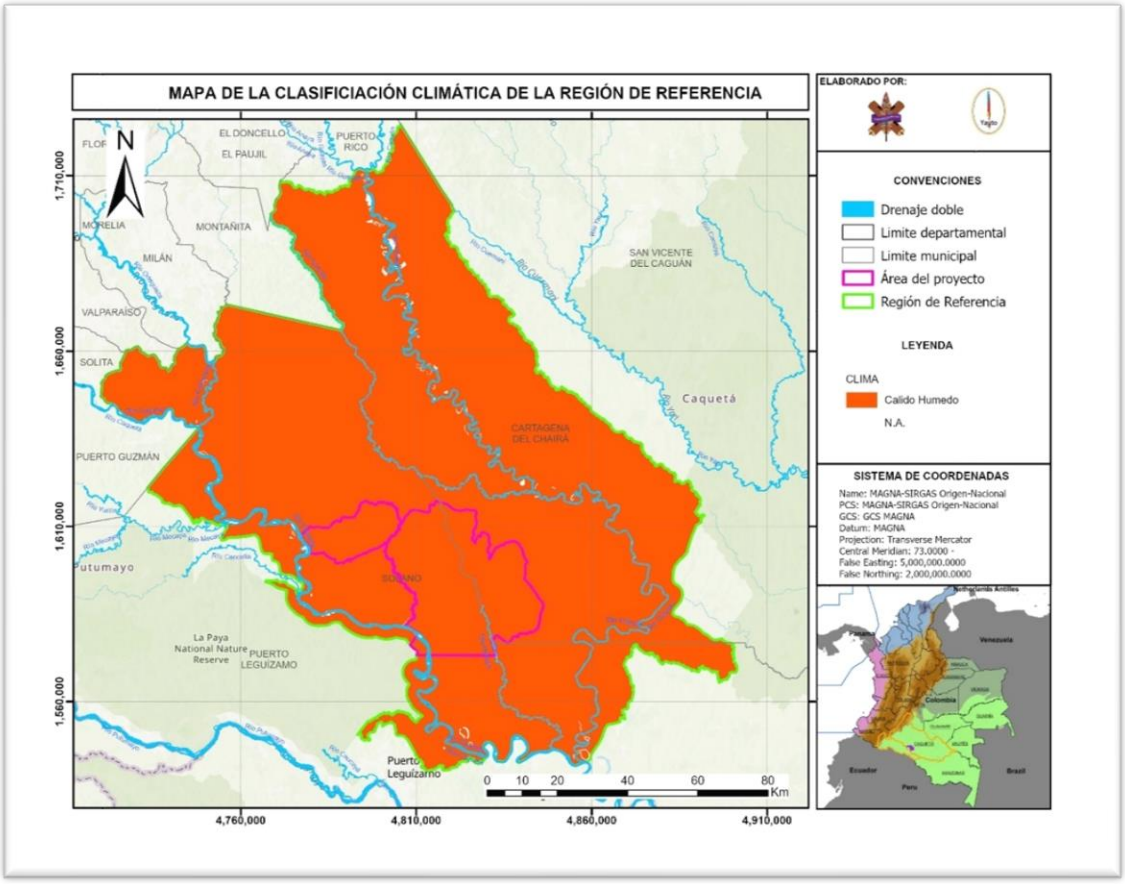


Illustration 13. Climate classification map in the reference region.

3.2.1.2.9 Water Resources

Based on secondary information and in accordance with the hydrographic zoning established by IDEAM (2022) and through the use of geographic information systems, it was identified that the project area is located in the hydrographic area of the Amazon River, and is made up of four (4) hydrographic zones for the reference region that correspond to Caguán, Caquetá, Putumayo and Yarí, which in total include fourteen (14) hydrographic subzones (see Illustration 14 and Table 19).

Table 19. Hydrographic network of the reference region.

Hydrographic area	Hydrographic zone	Hydrographic sub-zone	Total area ha
Amazonas	Caguán	Río Caguán Alto	322.56
		Río Caguán Bajo	667,403.98
		Río Guayas	1,429.95
		Río Sunsiyá	208,912.00
	Caquetá	Río Caquetá Medio	309,399.93
		Río Orteguaza	87,023.47
		Río Mecaya	411.45
		Río Sencella	678.01
		Río Peneya	159,059.01
	Putumayo	Río Putumayo Directos (mi)	817.26
		Río Putumayo Medio	268.54
	Yarí	Alto Yarí	1,894.69
		Río Luisa	317.19
Total general			1,549,610.14

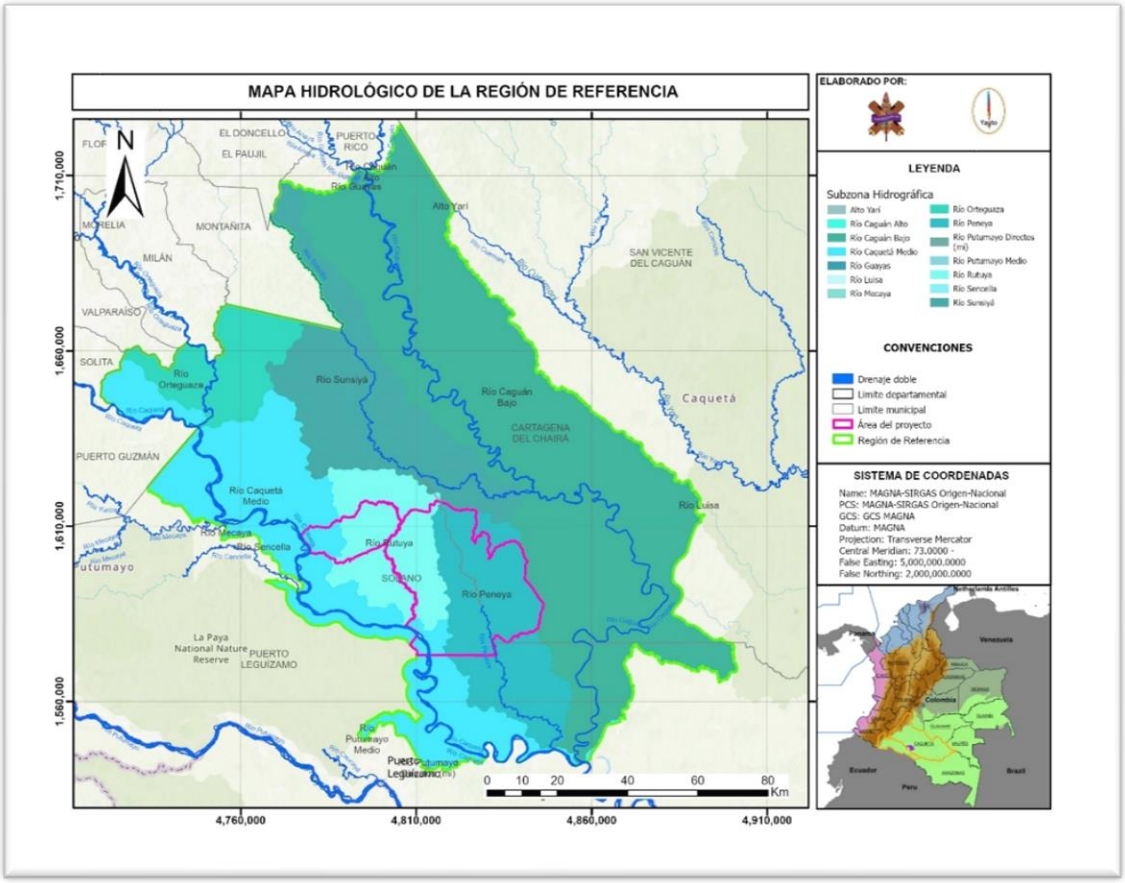


Illustration 14. Hydrological map of the reference region.

3.2.1.2.10 Ecosystems

A total of nineteen (19) ecosystems described in Table 20 were obtained for the project area, which were obtained from the use of geographic information systems, using the map of Land Cover of 2023, 1:100,000 scale of SINCHI as shown in Illustration 15, the ecosystem of greater representativeness in the reference region is the humid basal forest with 883,369.38 hectares which coincides with the results in the project area, and the ecosystem with the lowest representativeness is the Agroecosystem of crop and pasture mosaic with 29.09 hectares.

Table 20. Conventions of the ecosystems present in the reference region.

Color	Ecosystem	Area in ha
	Crop-grassland mosaic agroecosystem	29,09
	Mosaic agroecosystem of crops, pastures and natural areas.	235,54
	Agroecosystem of mosaic of pastures and natural spaces.	64.552,84
	Livestock agroecosystem	196.288,23
	Humid basal shrubland	966,89
	Basal flooded shrubland	8,092.07
	Humid basal forest	883,369.38
	Fragmented forest with pastures and crops	11,914.06
	Fragmented forest with secondary vegetation	19,432.54
	Basal flooded forest	186,851.57
	Humid basal grassland	201.55
	Basal flooded grassland	1.048,05
	Laguna Aluvial	3.700,80
	Rio de Aguas Blancas	35.544,13
	Artificialized territory	281,97
	Transitional transformed	63.673,18

Color	Ecosystem	Area in ha
	Secondary vegetation	69.391,03
	Basal swamp zone	4.007,26
	Natural sandy areas	29,18
	Total, general	**1.549.609,36**

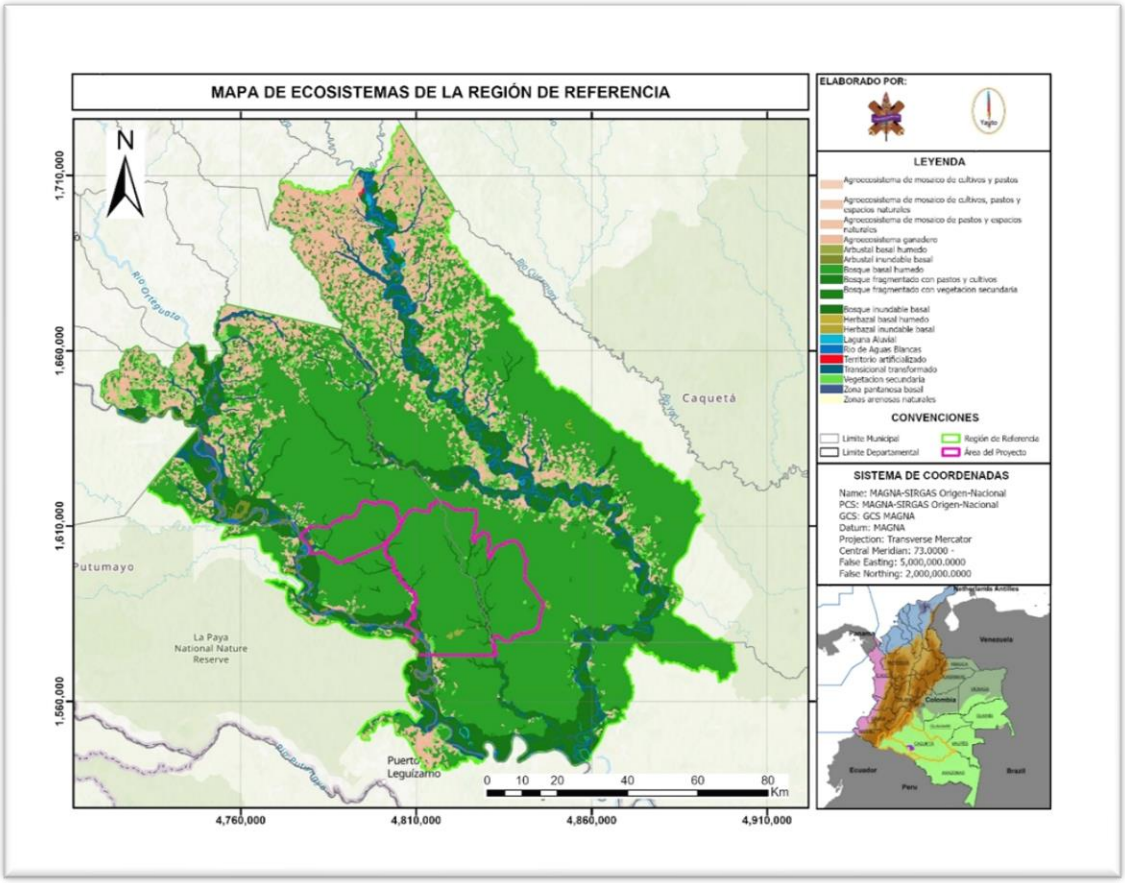


Illustration 15. Ecosystems map of the reference region.

3.2.1.2.11 Geology, geomorphology and soils

The reference region was characterized from the information provided by the shapefile of continental, coastal marine ecosystems of 2017, and by means of geographic information systems, where it was identified that the soils present in the area are twelve (12) as set out in Table 21, finding in greater proportion the soil type Typic Paleudults, Typic Hapludults, Oxic Dystrudepts with a total of 900.487,97 hectares and in smaller proportion Typic

Endoaquepts, Typic Udifluvents, Fluventic Endoaquepts with 95,45 hectares (Illustration 16).

Table 21. Conventions of soil types in the reference region.

Color	Soil types	Area in ha
	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aeric Fluvaquents	34.838,27
	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aquic Udifluvents	224.476,82
	Fluventic Dystrudepts, Fluvaquentic Endoaquepts, Typic Fluvaquents	2.768,44
	N.A.	39.244,94
	Plinthic Hapludoxs, Typic Paleudults, Oxic Dystrudepts, Typic Dystrudepts	229.473,00
	S.I.	181,99
	Typic Dystrudepts, Oxiaquic Dystrudepts, Typic Humudepts	9.815,90
	Typic Endoaquepts, Typic Udifluvents, Fluventic Endoaquepts	95,45
	Typic Hapludoxs, Oxic Dystrudepts, Typic Dystrudepts	12.141,85
	Typic Hapludoxs, Typic Hapludults	94.781,43
	Typic Humaquepts, Hydric Haplofibrists	1.303,30
	Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	900.487,97
Total, general		**1.549.609,36**

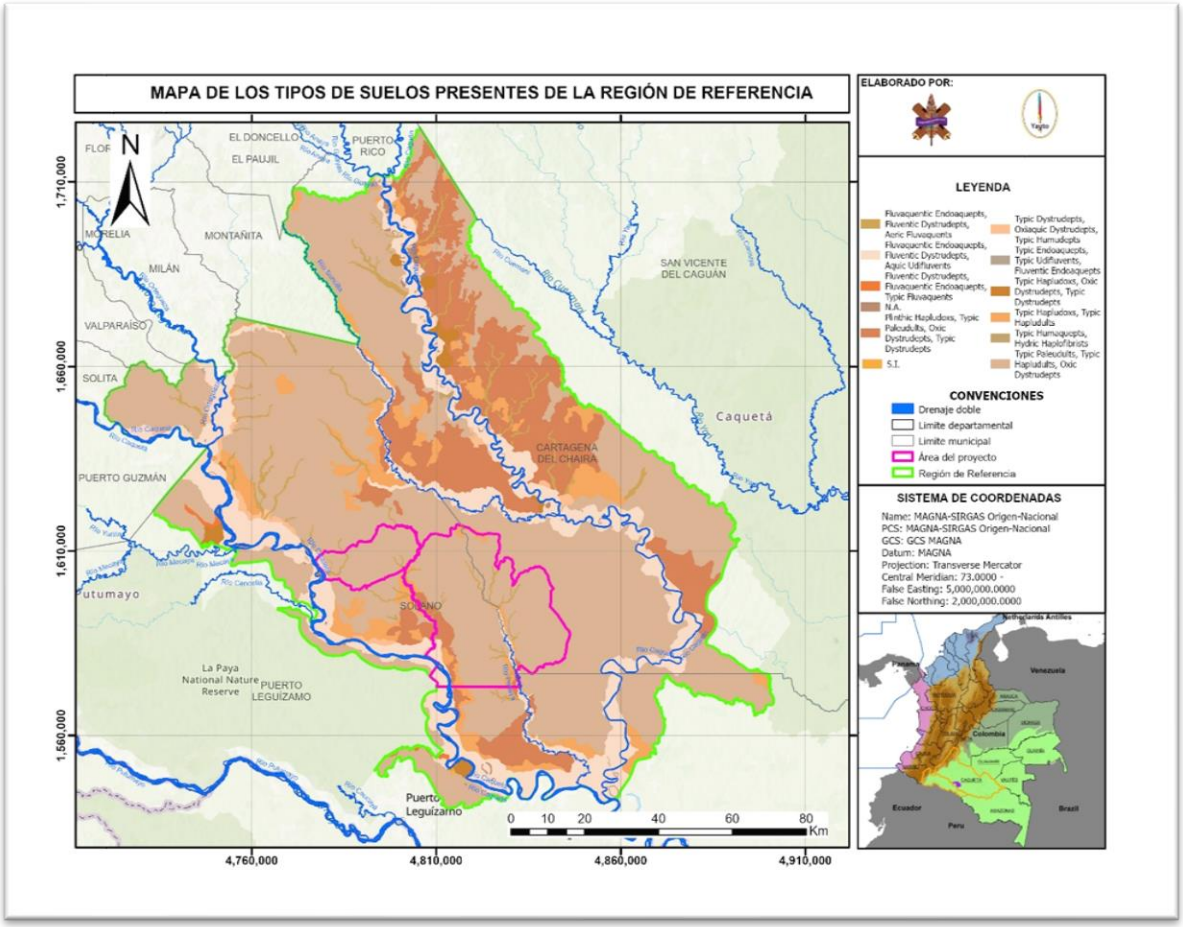


Illustration 16. Soil types map of the reference region.

Additionally, the characterization of the landscapes present in the reference region is performed according to the information provided by the shapefile of continental, coastal marine ecosystems of 2017 and from the layer of soils of the department of Caquetá and Putumayo at scale 1:100,000[8], the complementary information is obtained which is consigned (Table 22). Five types of landscape were identified: Body of water with 16,086.13 hectares, the Lomerío landscape, which is made up of five (5) types of relief and a total coverage of 264,205,98 hectares; followed by the valley landscape, made up of two (2) types of relief with a total of 34,632.16 hectares; followed by the alluvial valley landscape, made up of three (3) types of relief with a total of 244.210,90 hectares and urban zone landscape with 71.03 hectares.

In terms of their characteristics, the soils of the study area coincide with the results found for the project area, being characterized as poorly to well drained, shallow to deep, strongly to extremely acidic, with high aluminum saturation and low base saturation and moderate to very low fertility.

Table 22. Landscape types and soil characteristics present in the region of reference.

Landscape type	Type of relief	Features	Lithology	Area (ha)
Body of water	Body of water	Body of water	Body of water	16.086,13
Lomerío	Depression	Very poorly drained, very shallow, extremely acidic. Very low fertility	Poorly decomposed organic deposits on gleyized clays	1.628,33
	Hillocks and hills	Well drained, moderately deep to deep, very strong to extremely acidic, high aluminum saturation. Very low fertility	Variegated clays of the Orito formation and upper Tertiary.	843.476,23
		Deep, well-drained soils, moderately fine textures, extremely acidic, very high aluminum saturation and low to very low fertility	Claystones	57.062,55
	Hillocks y mesas	Well-drained, deep, very acidic, high aluminum saturation, low base saturation. Low fertility.	Claystones and mudstones alternating with ferruginous sands of the Orito formation	228.523,94
	Mesas	Well to poorly drained, deep to very shallow, extremely acidic, high aluminum saturation. Very low fertility.	Highly altered claystones and mudstones	94.726,48
	Vallecitos	Pobre a moderadamente bien drenados, muy superficiales a moderadamente profundos, extremadamente ácidos. Fertilidad baja	Sedimentos coluvio aluviales heterométricos	36.038,86
		Very shallow soils, fine and very fine textures, very poorly and well drained, very strongly and extremely acidic, medium and very high aluminum saturation and moderate and high fertility	Fine alluvial deposits	2.749,60

[8] Datos Abiertos Agrología | GEOPORTAL (igac.gov.co)

Landscape type	Type of relief	Features	Lithology	Area (ha)
Valley	Flood plane	Shallow and very deep soils, imperfectly to well drained, fine to moderately coarse textures, moderately to very strongly acidic, high and very high aluminum saturation and low, medium and high fertility	Heterogeneous alluvial deposits	30.046,11
	Level 1 terraces	Deep, well-drained soils, fine to medium textures, moderately to extremely acidic, moderate to low fertility	Subrecent fine alluvial deposits	4.586,05
Alluvial valley	Flood plane	Poorly to well drained, shallow to moderately deep, very strong to strongly acidic. Low to moderate fertility.	Deposits of coarse to fine alluvial materials.	**222.147,34**
		Poorly drained, shallow, extremely to very acidic. Low fertility.	Organic deposits with alternating fine alluvial materials	3.763,24
	High terraces	Well to poorly drained, deep to shallow, extremely to strongly acidic, moderate to low cation exchange capacity. Low fertility	Fine and medium alluvial deposits	7.677,94
	Medium terraces	Well to poorly drained, deep to shallow, extremely acidic, high aluminum saturation. Low fertility.	Fine and moderately fine alluvial sediments, in sectors there are sand and gravel deposits	10.622,37
Urban zone	Urban zone	Urban zone	Urban zone	71,03
Total, general				**1.559.206,20**

3.2.1.2.12 Land tenure

The land tenure figures in the region of reference are based on the information gathered from the National Land Agency (ANT) and it can be seen that it is characterized by territories belonging to twenty (20) indigenous communities that have their respective Resolution where they are awarded vacant land, including the Huitora and Coropoya indigenous reserves that are present in the project area (see Table 23 and Illustration 17).

Table 23. Indigenous reservations present in the region of reference.

Num.	Indigenous reservation	Resolution	Date of Resolution	Ethnicity	Awarded Area
1	Resguardo Indígena Huitoto - El Quince	RESOLUCION No.97	27/07/1982	HUITOTO	1272.41
2	Resguardo Indígena Coreguaje de San Miguel	RESOLUCION No.34	10/12/1997	COREGUAJE	172.73
3	Resguardo Indígena Muruy El Progreso	RESOLUCION No.2	24/05/1996	MURUY	2093.20

Num.	Indigenous reservation	Resolution	Date of Resolution	Ethnicity	Awarded Area
4	Resguardo Indígena Coreguaje de El Triunfo	RESOLUCION No.52	29/09/1992	COREGUAJE	194.12
5	Resguardo Indígena Paez El Guayabal	RESOLUCION No.44	24/09/1996	PAEZ	607.06
6	Resguardo Indígena Murui - Witoto de Aguas Negras	RESOLUCION No.52	17/10/1995	MURUI WITO	18407.51
7	Resguardo Indígena Inga De Niñeras	RESOLUCION No.84	26/09/1988	INGA	3393.20
8	Resguardo Indígena Paez de el Libano	RESOLUCION No.2	22/07/2003	PAEZ	442.47
9	Resguardo Indígena San Luis	RESOLUCION No.28	22/07/2003	COREGUAJE	90.85
10	Resguardo Indígena Coreguaje Asentada en la Regiones De Puerto Naranjo, Peñas Rojas, Cuerazo, El Diamante	RESOLUCION No.252	19/06/2011	COREGUAJE	3397.58
11	Resguardo Indígena Coreguaje de Hericha	RESOLUCION No.218	26/10/2010	COREGUAJE	0.03
12	Resguardo Indígena Predio Putumayo	RESOLUCION No.105	29/03/2007	WITOTO	860.71
13	Resguardo Indígena Huitoto - Paraje de Witora O Huitora	RESOLUCION No.240	16/11/2022	HUITOTO	131320.93
14	Resguardo Indígena Coreguaje de Jerico-Consaya	RESOLUCION No.241	16/11/2022	COREGUAJE	32705.03
15	Resguardo Indígena Huitoto de Coropoya	RESOLUCION No.242	16/11/2022	HUITOTO	28496.86
16	Resguardo Indígena Huitoto de Lagarto Cocha	RESOLUCION No.7	28/04/1992	INGA	159.91
17	Resguardo Indígena de Coreguaje de la Esperanza	ACUERDO No.377	10/07/2024	COREGUAJE	0.16

Num.	Indigenous reservation	Resolution	Date of Resolution	Ethnicity	Awarded Area
18	Resguardo Indígena F+Ruide Naira+	ACUERDO No.172	22/07/2021	MURUI	1911.90
19	Resguardo Indígena Huitoto De Jirijiri	RESOLUCION No.275	21/06/2023	WITOTO	4081.14
20	Resguardo Indígena Coreguaje de La Teofila	ACUERDO No.401	30/10/2024	COREGUAJE	24032.90

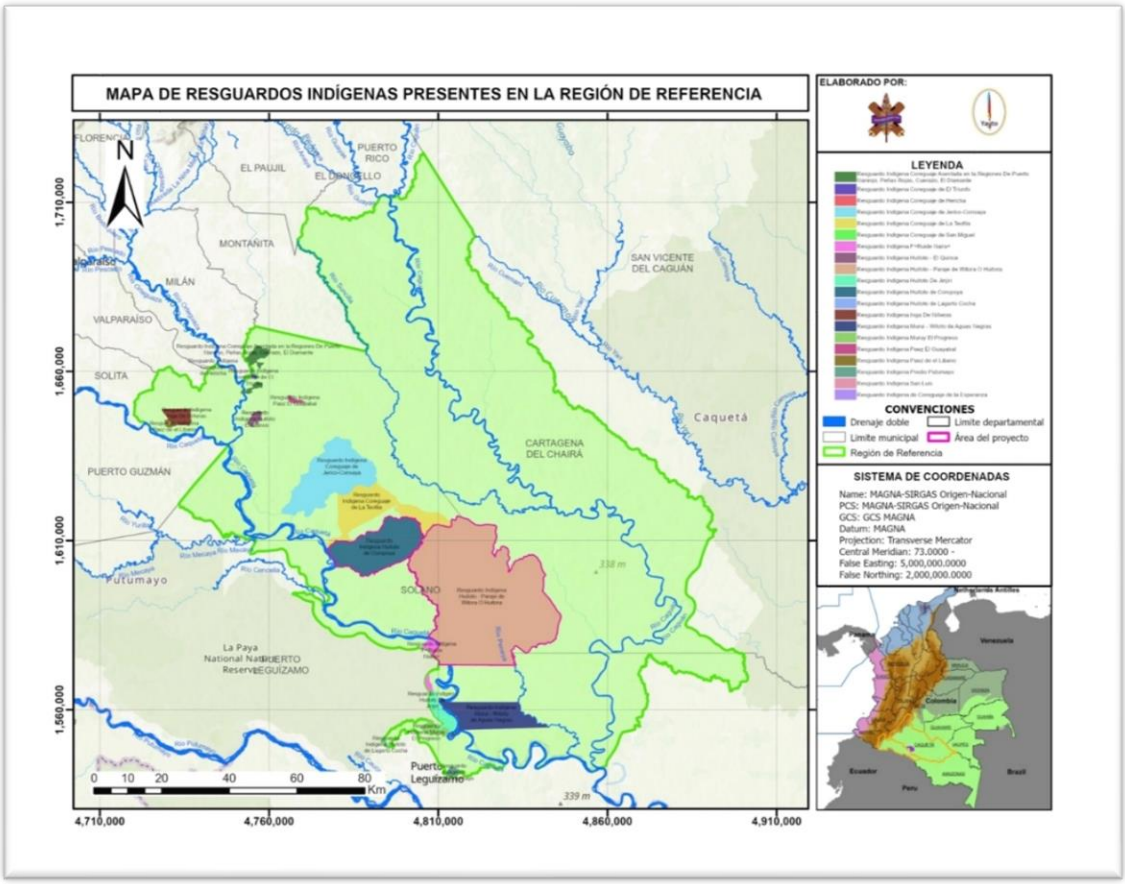


Illustration 17. Indigenous reservations present in the reference region.

3.2.1.3 *Leakage area*

According to Methodology BCR0002 Version 4.0, section 9.3 Leakage area is defined as the area of forest to which a displacement of deforestation or degradation activity may occur, and which is beyond the control of the REDD+ project holder. That is, areas to which the agents of deforestation or degradation may move as a consequence of project activities.

Leaks are due to areas where the agents can move due to the drivers (causes) that can leave the project area due to the influence of REDD+ activities. For the leak area, an analysis was carried out with the deforestation and degradation agents of the reference region, which included corroborating the secondary information in the formulation workshops with the communities in the territory, and an analysis of the mobility of agents mentioned in the criteria to delimit the leak area. The institutional motivations, causes and agents that can deforest and degrade within the leak area are the same motivations identified within the reference area and that put the forests in the project area at risk. The same criteria for the project area were applied to identify, through geographic information systems, the areas of stable forest and non-forest in the leak area, verifying that they are similar, that is, areas of stable forest at risk of deforestation, in an area equal to or greater than that which would be deforested in the baseline scenario. The leak area does not overlap with the project area and is included in the reference area as described in the criteria below.

The leakage area was delimited on the basis of the following criteria (see

and Illustration 19):

a) Including all forest areas within the mobility range of the identified agents, through a participatory assessment carried out in formulation workshop 2[9], on social mapping developed with the community based on printed maps showing historical deforestation, community members, experts in monitoring and territorial governance, identified the areas most easily accessible to deforestation agents after being restricted from entering the project area to implement land-use changes. This defined average mobility distances of between 1 and 2 kilometers from the boundary of the reserves outward, on the access roads, i.e. the rivers. Based on this information and a geospatial proximity analysis in geographic information systems, the area of leakage was determined.

Illustration 18. Social mapping for agent mobility analysis.

[9] See Drive PROYECTO REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE/ 07_PDD/ FORMULACION/ TALLER1-2-3/ ACTAS_TALLERES-1-2-3.pdf

b) Leak area is geographically distinct from the project area, without overlapping. As seen in Illustration 19, the leak zones are adjacent to the project area without overlapping.
c) Excluding areas of restricted access to agents of deforestation and degradation. Therefore, the areas of National Natural Parks are excluded because of their strict conservation use regime (see Illustration 19).
d) There is no overlap with areas of other GHG projects. The leakage area is located within the project's reference region, therefore there are no overlaps with other GHG projects, as seen in Illustration 10.

As a result of the spatial analyses for compliance with these criteria and their delimitation, the project has a leakage area of 16,046.98 hectares, which is made up of the accessible zones around the project area in the Caquetá, Urutuya, Peneya rivers and the La Teofila and Coropoya streams. This leakage area will be monitored in each monitoring report to verify the deforestation that occurs there and to discount it from the emission reductions because it is considered a displacement of deforestation due to project activities.

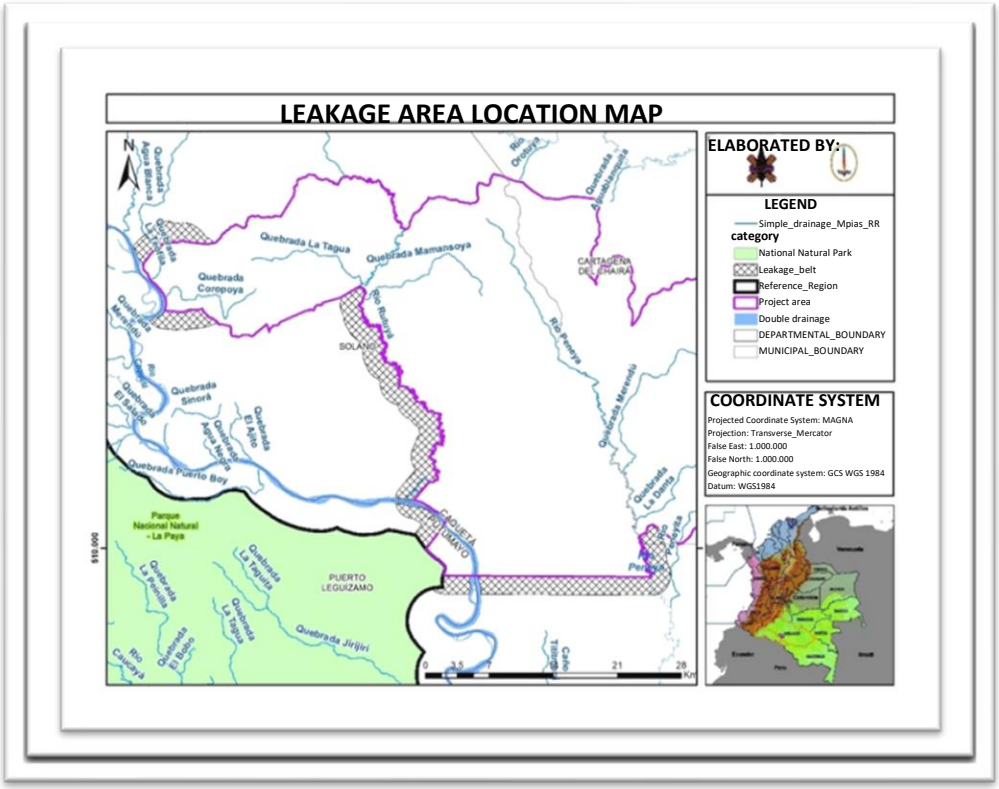


Illustration 19. Leakage area location.

3.2.2 Carbon pools and GHG sources

Carbon pools are aboveground biomass, belowground biomass and soil carbon; emissions of a single GHG are monitored in these pools, i.e, CO_2.

According to BCR0002 Methodology Version 4.0, the estimation of carbon offsets in the project should consider, at a minimum, aboveground and belowground biomass pools or sinks, while the other pools are subject to the characteristics of the project area. For this reason, for the REDD+ Marena Ichena - Nag+ma Enoye Rafue project, in order to adopt a conservative approach for the calculation of emission reductions, and in compliance with the methodology and the national NREF[10], the aboveground biomass deposits from non-tree vegetation and those generated by dead wood and litter, both in the baseline scenario and in the project scenario, were not taken into account. Table 24 details the relevant carbon pools (considered by the BCR Methodology and the national NREF) for quantifying carbon stock changes within the project boundary in both the baseline and project scenarios.

Table 24. Carbon pools considered by the project.

Carbon sink	Included?	Justification
Aerial biomass	Trees: Included	It is the main source of carbon affected by project activities. The greatest amount of carbon is found in this deposit, so it is always considered significant and mandatory in the selection, according to the methodology. This sink is considered by the national NREF and is therefore included in the project accounting.
	Non-woody vegetation: Excluded	Inclusion is optional, according to the methodology, and is dependent on the end use of the land. Excluded for the project area, since the final land use (after the change) does not correspond to the establishment of permanent crops. Excluded for the project area, since the final land use (after the change) does not correspond to the establishment of permanent crops.
Subway biomass	Included	Optional, according to the methodology. It is included and considered due to the carbon contained in the roots and its application in the national NREF. In addition, it represents 20% of the carbon stock in relation to aboveground biomass.
Leaf litter	Excluded	Dead wood and leaf litter are not removed from the soil. However, the organic carbon content in this pool is not increased by project implementation relative to the baseline scenario. Likewise, it is not significant for REDD projects, according to methodological requirements, and is not included in the national NREF since there is no information available (MADS & IDEAM, 2019).
Dead wood	Excluded	Optional reservoir, according to methodological requirements and likewise, it is not included in the national NREF due to the lack of available information (MADS & IDEAM, 2019).
Soil organic carbon	Included	Optional, according to the methodology. However, according to the national NREF, the change in carbon content in this pool is significant, so it should be included assuming that the soil carbon content is expelled in equal proportions for 20 years, once the deforestation event happens (MADS & IDEAM, 2019).

[10] https://redd.unfccc.int/files/02012019_nref_colombia_v8.pdf

Carbon sink	Included?	Justification
Lumber products	Excluded	It is not included in the national NREF because there is no information currently available (MADS & IDEAM, 2019). Consequently, and in order to adopt a conservative approach, the following is excluded.

Table 25. Selected sources of emissions and GHGs.

Sources	GEI	Selected	Justification
Woody biomass combustion	CO_2	No	It is accounted for as changes in the carbon stock.
	CH_4	Yes	It will be accounted for in the case of biomass burning as part of the activities.
	N_2O	Yes	It will be counted in the case of biomass burning as part of forestry activities.

The emission factors used by the project for the calculation of GHG emission reductions are taken from the national NREF[11], and correspond to the Amazon subnational region, coinciding with the spatial limits of the geographical location of the project, from which the values for the selected pools of Aerial Biomass (AB), Belowground Biomass (BB) and Soil Organic Carbon (SOC) are taken, and are summarized as follows:

Table 26. Emission factors in the Amazon Biome.

Biome	BA (t CO_2/ha)	BS (t CO_2/ha)	BT (t CO_2/ha)	COS20years (t CO_2/ha)	Total emissions (t CO_2 ha-1 año-1)
Amazon	444,38	98,18	542,56	13,52	556,08

Source: Inventario Forestal Nacional, IDEAM (2018).

3.2.3 *Time Limits and Periods of Analysis*

3.2.3.1 *Project Start Date*

January 01, 2018

The start date is chosen by the written declaration through a letter of intent (see 03_START DATE), with the understanding that activities have been carried out to avoid deforestation and degradation in the territory for many years. These early actions are being developed with community instruments such as the Integral Life Plan of the Uitoto People of the Department of Caquetá and the Territorial Management Plan of the Coropoya Indigenous Reservation. It should be clarified that the emission reductions resulting from project activities are not attributable to the implementation of legally required actions because the deforested hectares in the Amazon region are, according to investigations by several entities, located mainly in the Forest Reserve Zone of 2nd Law.[12] Therefore, it is

[11] https://redd.unfccc.int/files/02012019_nref_colombia_v8.pdf
[12] https://fcds.org.co/en/publicaciones/la-amazonia-colombiana-perdio-113-572-hectareas-de-bosque/

understood that in the absence of project activities, this phenomenon of forest loss would develop unhindered within the project area.

3.2.3.2 *Period for quantification of GHG emission reductions*

20 years, from January 1, 2018 to December 31, 2037, renewable for 20 more years for a total of 40 years, until December 31, 2057

3.2.3.3 *Monitoring periods*

The monitoring will be carried out in annual periods, from January 1 to December 31 of each year.

3.2.3.4 *Historical reference period*

According to the guidelines of the methodological document BCR002 version 4.0, the analysis of the historical deforestation rate for the reference region and the leakage area must be carried out at least twice (project start date and at least ten years before the project start date).

3.3 Identification and description of the baseline or reference scenario

3.3.1 *Temperature and precipitation*

For the characterization of temperature and precipitation, the data recorded in the geo portal of the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) are consulted[13], which identifies that the municipality of Solano has eight meteorological stations[14] (see Table 27), but there is no access to the data log.

Table 27. Meteorological stations in the municipality of Solano Caquetá.

Code	Name	Category	Technology	Status
44135030	CHIRIBIQUETE	Category: Main Climate	Automatic with Telemetry	Suspended
44135010	ARARACUARA	Category: Main Climate	Conventional	Active
44137080	PUERTO LAS BRISAS	Limnometric	Conventional	Active
44147010	ARARACUARA	Limnometric	Conventional	Suspended
44100010	CORDOBA	Pluviometric	Conventional	Active
44127010	LOS ESTRECHOS	Limnometric	Conventional	Active
44055010	TRES ESQUINAS	Category: Main Climate	Conventional	Active
44140020	CUEMANI	Limnometric	Conventional	Active

For this reason, information is taken from the ordinary weather station of Puerto Leguizamo (Putumayo) identified with code 47045010, which is available in the document Territorial Planning Instrument for the municipality, located 3 kilometers from the

[13] Consulta y Descarga de Datos Hidrometeorológicos (ideam.gov.co)
[14] Catálogo Nacional de Estaciones del IDEAM | Datos Abiertos Colombia

Caquetá River, and records an average temperature of 24°C and a precipitation that records a monomodal rainfall regime with an annual precipitation between 2,500 and 4,000 mm[15].

3.3.2 *Climatic classification*

The climatic zoning of the project area was performed by means of geographic information systems, using the shapefile of continental and coastal marine ecosystems of 2017 downloaded from IDEAM, and is presented below in Illustration 20, in which it can be seen that the climatic zoning corresponds to Warm humid.

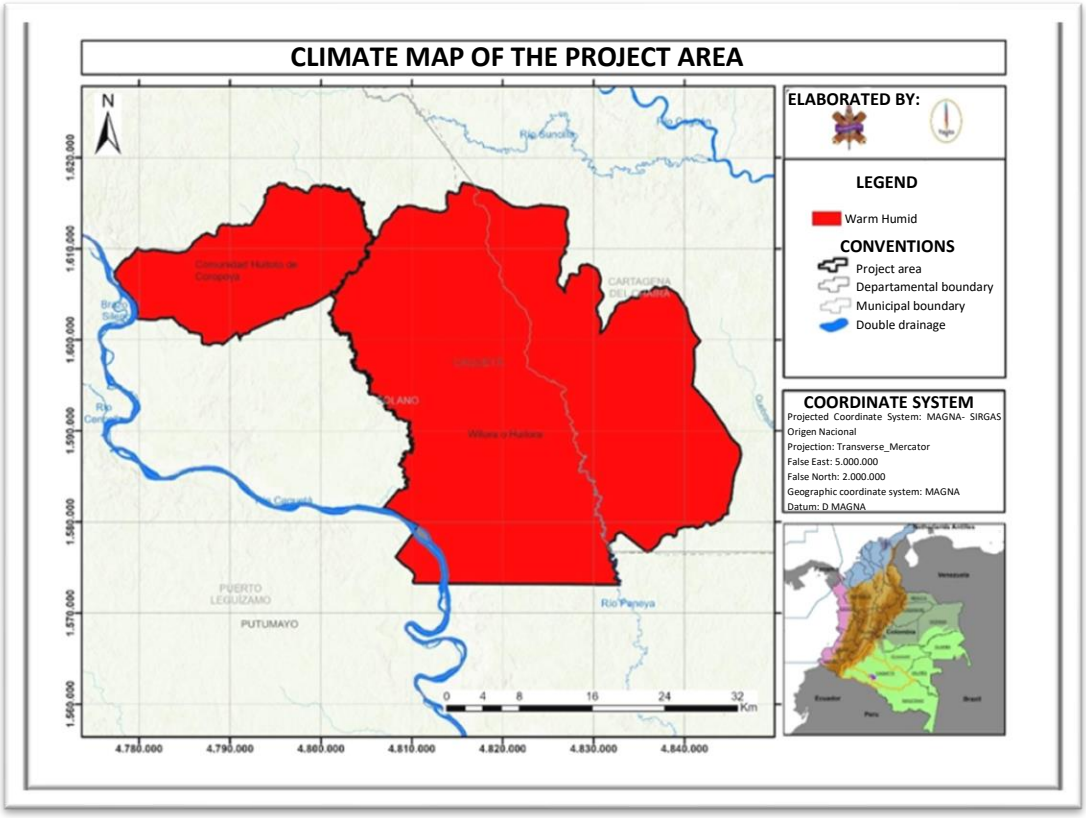


Illustration 20. Climate classification map of the project area.

3.3.3 *Water Resources*

Based on secondary information and according to the hydrographic zoning established by the IDEAM and using geographic information systems, it was identified that the project area is located in the hydrographic area of the Amazon River and in the hydrographic zone of the Caqueta River, which is composed of thirteen (13) hydrographic subzones[16] (see Table 28). And the project identifies the Rutuya, Peneyá and Peneyita rivers, as well as the

[16] MEMORIASMAPAZONIFICACIONHIDROGRAFICA.pdf (ideam.gov.co)

Coropoya, Mamansoya, La Tagua, La Teofila, Merendú and La Danta streams, which are located on the map in Illustration 21.

Table 28. Hydrographic network of the project area.

Code AH	Hydrographic Area (HA)	Code ZH	Hydrographic Zone (HZ)	Code SZH	Hydrographic Sub-Zone
4	Amazonas	44	Caquetá	4401	Alto Caquetá
				4402	Río Caquetá medio
				4403	Río Orteguaza
				4404	Río Pescado
				4407	Río Rutuya
				4408	Río Mecaya
				4409	Río Sencella
				4410	Río Peneyá
				4414	Río Cuemaní
				4415	Río Caqueta bajo
				4417	Río Cahuinarí
				4418	Río Miritíi-Paraná
				4420	Río Puré

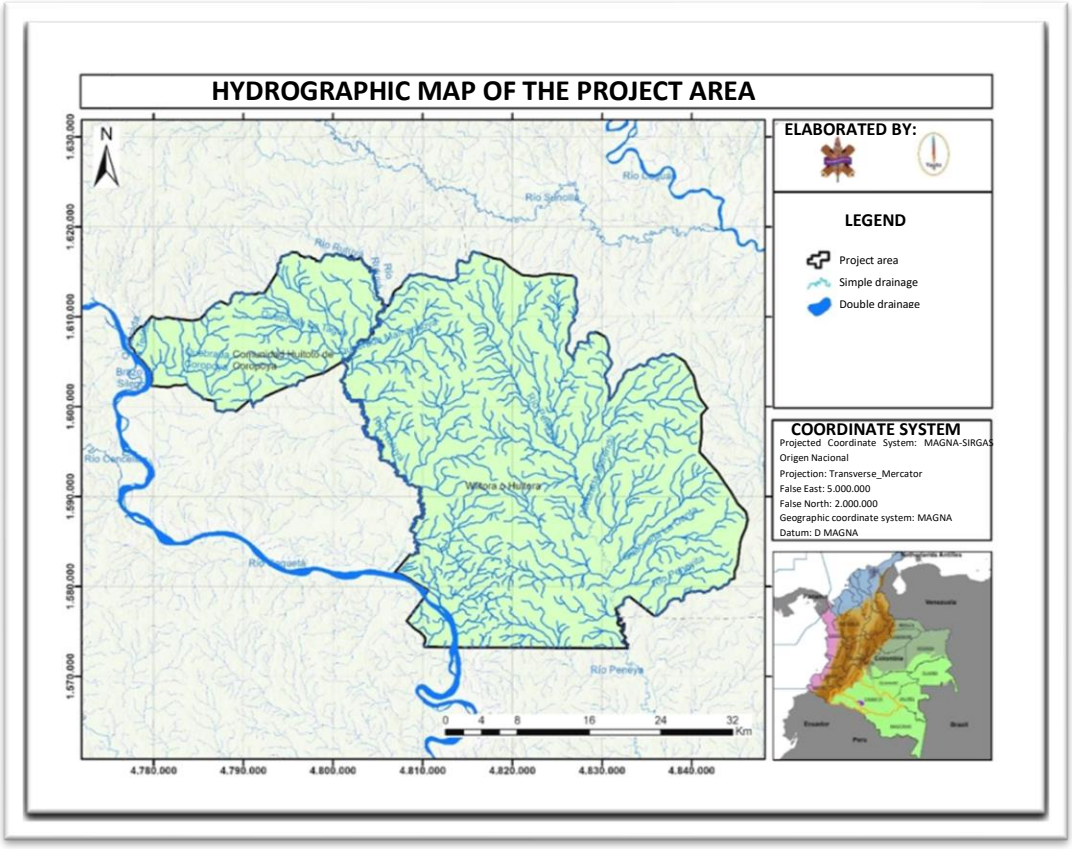


Illustration 21. Hydrological map of the project area.

3.3.4 Ecosystems

A total of thirteen (13) ecosystems described in Table 29 were obtained for the project area, which were obtained from the use of geographic information systems, using the shapefile of continental, coastal marine ecosystems of 2017, as shown in Illustration 22 the ecosystem of greater representation in the area is the humid basal forest with 143,308.9 hectares, and the ecosystem of lesser representation is the Agroecosystem of grassland mosaic and natural spaces with 21.1 hectares.

Table 29. Conventions of the ecosystems present in the project area.

Color	Ecosystem	Area in ha
	Agroecosystem mosaic of pastures and natural areas	21,1
	Livestock agroecosystem	81,2
	Humid basal shrubland	630,0
	Basal flooded shrubland	466,0
	Humid basal forest	143308,9
	Fragmented forest with pastures and crops	191,3
	Fragmented forest with secondary vegetation	380,5

Color	Ecosystem	Area in ha
	Basal flooded forest	11702,9
	Basal flooded grassland	413,4
	Rio de Aguas Blancas	830,5
	Transitional transformed	371,6
	Secondary vegetation	866,6
	Basal swamp zone	553,9
	Total, general	**159817,8**

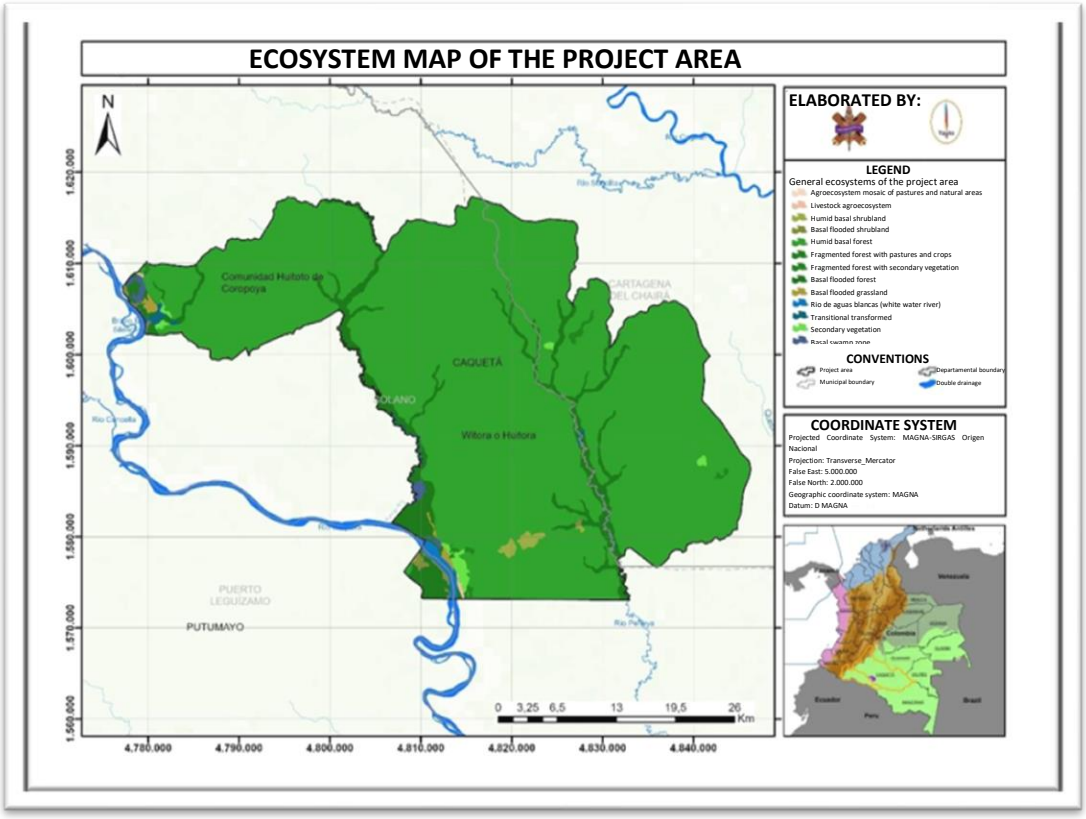


Illustration 22. Ecosystem map of the project area.

3.3.5 *Vegetable coverings*

It was obtained for the project area a total of nine (9) types of vegetation cover described in Table 30, which were obtained from the use of geographic information systems, using the shapefile of land covers 2018, as shown in Illustration 23 the cover of greater representativeness in the area is the dense forest cover with 155502.8 hectares, and the cover of less representativeness is the grassland mosaic and natural spaces with 67.7 hectares.

Table 30. Conventions of the types of vegetation cover present in the project area.

Color	Type of vegetative cover	Area in ha
	2.3.1. Clean pastures	142,1
	2.4.3. Mosaic of crops, pastures and natural areas	144,3

	2.4.4. Mosaic of pastures with natural spaces	67,7
	3.1.1. Dense forest	155.502,8
	3.1.3. Fragmented forest	291,7
	3.2.1. Grassland	413,4
	3.2.2. Shrubland	236,5
	3.2.3. Secondary or transitional vegetation	1.883,0
	4.1.1. Swampy areas	536,4
Total, general		**159.817,8**

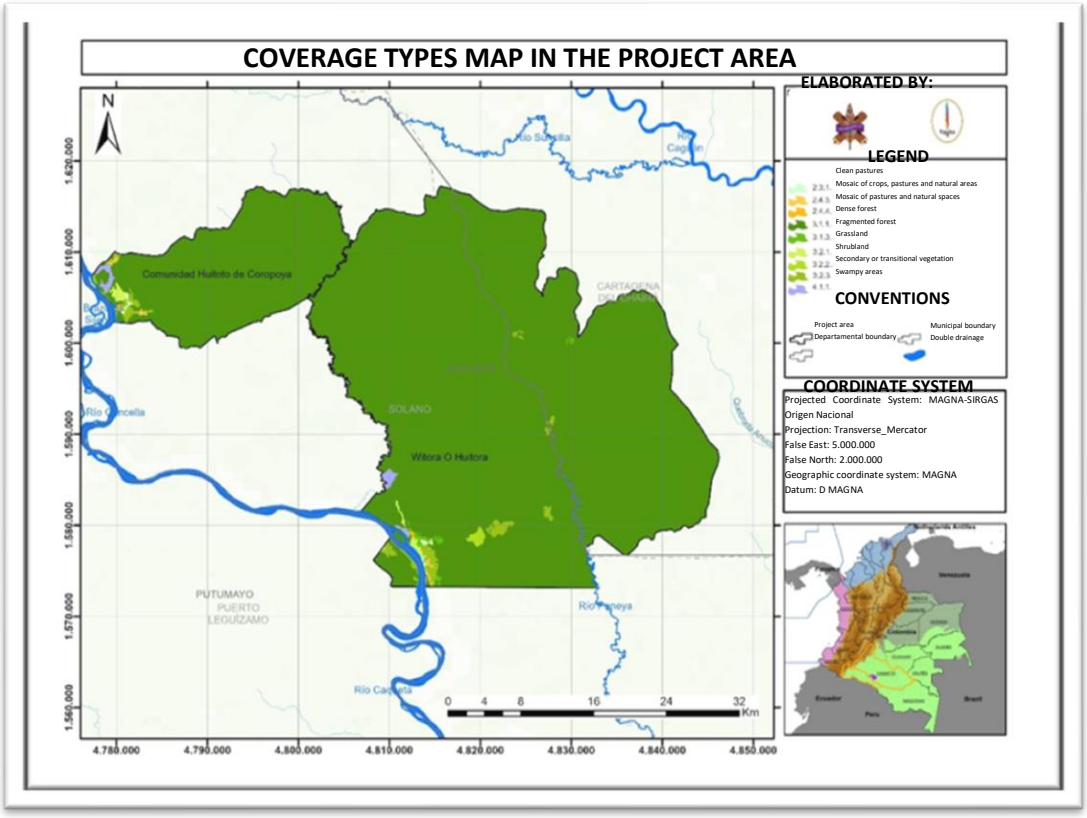


Illustration 23. Map of the cover types present in the project area.

3.3.6 Geology, geomorphology and soils

In the project area from the information provided by the shapefile of continental, coastal marine ecosystems of 2017, and through geographic information systems, it was identified that the soils present in the area are six (6) as set out in Table 31, additionally in Illustration 24 it is observed that the soil with the highest representativeness is the Typic Paleudults, Typic Hapludults, Oxic Dystrudepts with 132739.12 hectares and the one with the lowest representativeness is the soil Typic Humaquepts, Hydric Haplofibrists with 98.98 hectares. Additionally, Table 31 shows that there is no soil data for 830.47 hectares.

Table 31. Conventions of soil types in the project area.

Color	Type of soil	Area in ha
	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aeric Fluvaquents	6,637,87

Color	Type of soil	Area in ha
	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aquic Udifluvents	6,771,00
	N.A.	830.47
	Plinthic Hapludoxs, Typic Paleudults, Oxic Dystrudepts, Typic Dystrudepts	6.578,33
	Typic Hapludoxs, Typic Hapludults	6.162,06
	Typic Humaquepts, Hydric Haplofibrists	98,98
	Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	132.739,12
Total, general		**159.817,83**

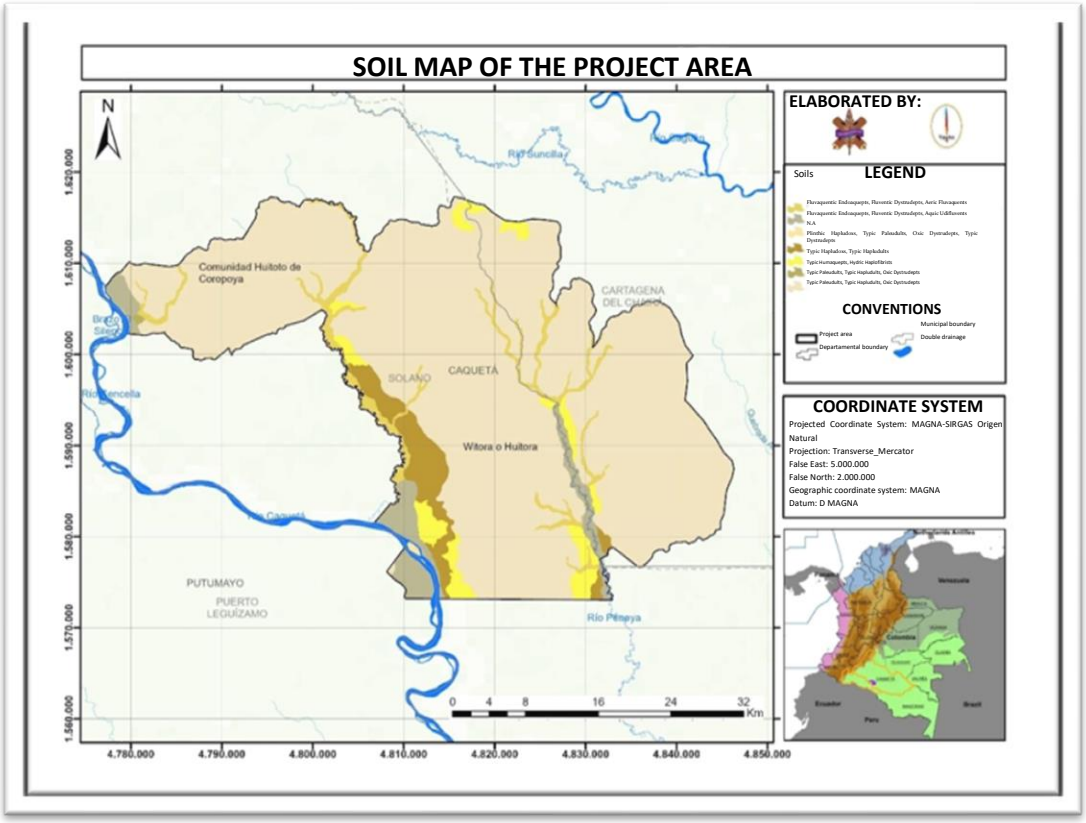


Illustration 24. Map of soil types present in the project area.

Additionally, from the soil layer of the department of Caquetá at a scale of 1:100,000[17], complementary information is obtained for the study area, as shown in Table 32, where two types of landscape are identified: the lomerío landscape, which is made up of five (5) types of relief and a total coverage of 152,181.45 hectares, and the alluvial valley landscape, made up of one (1) type of relief, the flood plain, with a total of 5,813.32 hectares.

In terms of their characteristics, the soils of the study area are poorly to well drained, shallow to deep, strongly to extremely acidic, with high aluminum saturation and low base saturation and moderate to very low fertility.

[17] Datos Abiertos Agrología | GEOPORTAL (igac.gov.co)

Table 32. Landscape types and soil characteristics present in the project area.

Landscape type	Type of relief	Features	Lithology	Area in ha
Lomerío	Depression	Very poorly drained, very shallow, extremely acidic. Very low fertility	Poorly decomposed organic deposits on gleyized clays	117,02
	Hillocks and hills	Well drained, moderately deep to deep, very strong to extremely acidic, high aluminum saturation. Very low fertility	Variegated clays of the Orito and Upper Tertiary formation	132.660,26
	Lomas y mesas	Well drained, deep, very strongly acid, high aluminum saturation, low base saturation. Low fertility	Claystones and mudstones alternating with ferruginous sands of the Orito formation.	6.629,09
	Mesas	Well to poorly drained, deep to very shallow, extremely acidic, high aluminum saturation. Very low fertility	Highly altered claystones and mudstones	6.100,04
	Vallecitos	Poor to moderately well drained, very shallow to moderately deep, extremely acidic. Low fertility	Heterometric alluvial colluvial-alluvial sediments	6.675,04
Total, Lomerian landscape				**152.181,45**
Alluvial valley	Flood plane	Poorly to well drained, shallow to moderately deep, very strong to strongly acidic. Low to moderate fertility	Coarse to fine alluvial material deposits	5.813,32
Total, alluvial valley landscape				**5.813,32**
Total, general				**157.994,78**

3.3.7 Biodiversity

In this section you will find an inventory of between 20 and 30 species of flora and fauna of the municipality of Solano, Caquetá. The selection of the species described in this section was the result of the compilation of secondary information from books, guides, scientific journal articles and other institutional and governmental publications, as a result of the joint work that technicians, peasants and indigenous people have been carrying out in the region.

The fauna and flora of the municipality of Solano is of special interest due to its geographic location and the presence of different habitats that could allow the confluence of elements of biota from the Amazon, Orinoquia, the Guiana Shield and the Andean region, in addition to having more than 50% of its territory within the Chiribiquete National Natural Park.

For the species report, the threat classifications set out in Resolution 1256 of 2018 of the Ministry of Environment and Sustainable Development (MADS), the red books, which are a work of identification of those species with the highest risk of extinction in the country and recommend a series of appropriate measures for their conservation and the red list of the International Union for Conservation of Nature (IUCN)was taken into account; on which the classification is made in the category of threat (Illustration 25). And whose data are used to calculate the Red List Index (RLI), which is one of the biodiversity indicators used by the Convention on Biological Diversity (CBD), convention that involves Colombia.

In addition, the report of the species covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) also includes the species grouped in appendices according to the degree of threat and protection they need due to international trade. Appendix I includes species in danger of extinction, Appendix II includes species whose trade must be controlled to avoid utilization that puts the survival of these species at risk, and Appendix III includes species included at the request of a Part (country) that already regulates the trade of such species and requires the collaboration of other countries to prevent the exploitation of these species in an unsustainable or illegal manner.

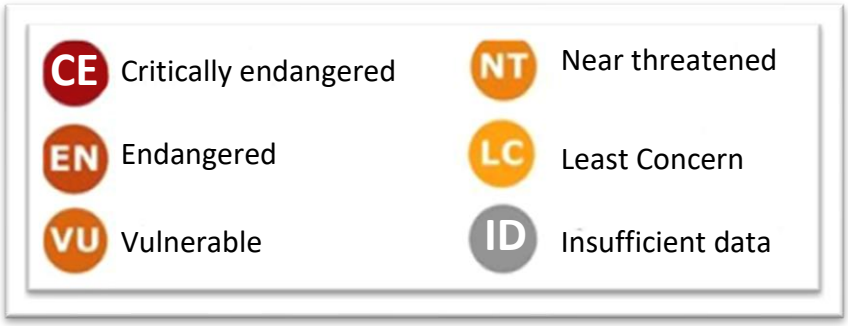


Illustration 25. IUCN Threat Category Conventions.

3.3.8 Fauna

The following is a description of the main fauna species present in the Huitora REDD+ project area.

3.3.1.1 Mammals

This is a record of twenty (20) species of mammals found in the municipality of Solano, these are of interest because several of them are endemic species, others are migratory, and some are listed in the categories of threat of the IUCN. One of the most relevant records is that of Plecturocebus caquetensis, or as it is commonly called *Mico caquetense*

or *Mico macaco*, which is a species endemic to Colombia and Caquetá, and is currently in the Critically Endangered (CE) category.

Additionally, to review this list you can go to Table 33, where each species is mentioned with the respective category of threat assigned by the IUCN, in this record there are eight (8) species listed under the category of Least Concern (LC), six (6) as Vulnerable (VU), two (2) Endangered (EN), two (2) Near Threatened (NT) and one with insufficient data (ID). Photographs of some of these mammals can be found in Illustration 26.

Table 33. Mammals recorded for the department of Caquetá and the municipality of Solano.

***Abbreviations:** CE: Critically endangered. EN: Endangered. VU: Vulnerable. NT: Near threatened. LC: Least concern. ID: Insufficient data.*

Common Name	Scientific name	Family	Threat Category	Report
Mico tutamono	*Aotus vociferans*	AOTIDAE	LC	UICN, 2015
Mono bombo /Aullador / Coto	*Alouatta seniculus*	ATELIDAE	LC	UICN, 2021
Churuco / Mico churuco	*Lagothrix lagothricha*	ATELIDAE	VU	UICN, 2020
Mono araña	*Ateles belzebuth*	CEBIDAE	EN VU	UICN, 2019 Rodríguez-Mahecha et al. 2006
Chichico /Mico chichico	*Saimiri cassiquiarensis macrodon*	CEBIDEAE	LC	UICN,2015 SIB
Venado /Venado colorado	*Mazama americana*	CERVIDAE	ID	UICN,2015
Ocarro	*Priodontes maximus*	CHLAMYPHORIDAE	VU EN	UICN,2013 SIB, 2014
Boruga/ Guagua	*Cuniculus paca*	CUNICULIDAE	LC	UICN,2016
Gurre / Armadillo	*Dasypus novemcinctus*	DASYPODIDAE	LC	UICN,2013
Guara/ Guatín	*Dasyprocta fuliginosa*	DASYPROCTIDAE	LC	UICN,2016
Tigrillo	*Leopardus pardalis*	FELIDAE	LC	UICN,2014
Jaguar /Tigre	*Panthera onca*	FELIDAE	NT	UICN,2016

Common Name	Scientific name	Family	Threat Category	Report
			VU	SIB
Nutria neotropical	*Lontra longicaudis*	MUSTELIDAE	NT VU	UICN,2020 SIB
Perro de río/ Lobo de río /Nutria	*Pteronura brasiliensis*	MUSTELIDAE	EN EN	UICN,2020 SIB,
Oso hormiguero palmero	*Myrmecophaga tridactyla*	MYRMECOPHAGIDAE	VU	UICN, 2013
Mico volador / Oso mono	*Pithecia milleri*	PITHECIIDAE	VU VU	UICN, 2015 SIB
Mico caquetense / Mico macaco	*Plecturocebus caquetensis*	PITHECIIDAE	CR CR	UICN, 2015 SIB
Danta	*Tapirus terrestris*	TAPIRIDAE	VU	UICN, 2018
Cerrillo	*Pecari tajacu*	TAYASSUIDAE	LC	UICN, 2011
Manao/Puerco mono / candelillo prieto	*Tayassu pecari*	TAYASSUIDAE	VU	UICN,2012

Illustration 26. A terrestrial Tapirus. B Lagothrix lagothricha. C Pteronura brasiliensis. D Myrmecophaga tridactyla. Source: Colombia Amazonian Magazine No. 10 (2017).

3.3.1.2 Avifauna

From an ornithological point of view, Colombia is known as one of the countries with the greatest diversity of birds on the planet, since according to the information reported by the MADS, the country has a record of more than 1,900 species of birds, of which only 79 are within the national territory.

For the municipality, a total of twenty-one (21) species were taken into account, see the record in Table 34, which were selected considering the information present in the document "Characterization and cultural use of fauna and flora and the CAP for the eight reservations of the NZD (Net Zero Deforestation) project" carried out with the technical support of the United States Agency for International Development (USAID).

Crax globulosa or Camarana as it is known in the region, is a bird that faces a considerable threat due to hunting, mainly for consumption purposes, followed by cultural uses. Additionally, another threat is due to the loss of its habitat; For these reasons, the IUCN at a global level has it under the category of Endangered (EN), a registry that is also maintained at the national level. Of the other species recorded in Table 34, there are different threat categories at the global and national level. There is also a photographic record of some of them in Illustration 19, including Crax globulosa, from which only one illustration could be obtained.

Table 34. Birdlife recorded for the department of Caquetá and the municipality of Solano.

Abbreviations: *CE: Critically endangered. EN: Endangered. VU: Vulnerable. NT: Near threatened. LC: Least concern. ID: Insufficient data*

Common Name	Scientific name	Family	Threat category	Report
Águila arpía	*Harpia harpyja*	ACCIPITRIDAE	VU NT**	UICN, 2021 Libro rojo, 2017 CITES I
Águila crestuda real	*Spizaetus ornatus*	ACCIPITRIDAE	NT	UICN, 2021 CITES II
Paloma / Torcaza	*Patagioenas subvinacea*	COLUMBIDAE	VU* LC	MADS, 2018 UICN, 2021
Gallito de roca	*Rupicola rupicola*	COTINGIDAE	LC	UICN, 2016 CITES II
Paujil negro	*Crax alector*	CRACIDAE	LC	UICN, 2021
Camarana / Coconuco	*Crax globulosa*	CRACIDAE	EN EN**	UICN, 2016 Libro rojo, 2017 CITES III
Paujil colorado	*Mitu tomentosum*	CRACIDAE	NT	UICN 2016
Guacharaca	*Ortalis guttata*	CRACIDAE	LC	UICN, 2019
Pava de monte / Pava tarro / torcaza	*Penelope jacquacu*	CRACIDAE	LC	UICN, 2016
Mochilero	*Psarocolius angustifrons*	ICTERIDAE	LC	UICN, 2018
Corcovado	*Odontophorus gujanensis*	PHASIANIDAE	NT * LC	MADS, 2018 UICN, 2021
Loro churuquero / Churuquero	*Amazona farinosa*	PSITTACIDAE	NT* LC	MADS, 2018 UICN, 2021 CITES II
Perico / Comejenero	*Brotogeris cyanoptera*	PSITTACIDAE	LC	UICN, 2016 CITES II
Lorito	*Touit huetii*	PSITTACIDAE	LC	UICN, 2021 CITES II
Trompetero	*Psophia crepitans*	PSOPHIIDAE	NT* LC	MADS, 2018 UICN, 2021

Common Name	Scientific name	Family	Threat category	Report
Yataro / Tucán real	*Ramphastos tucanus*	RAMPHASTIDAE	VU* LC	MADS, 2018 UICN, 2021 CITES II
Tucán pico acanalado	*Ramphastos vitellinus*	RAMPHASTIDAE	VU* LC	MADS, 2018 UICN, 2021 CITES II
Gallineta negra	*Crypturellus cinereus*	TINAMIDAE	LC	UICN, 2016
Moteado / Tinamú goliblanco	*Tinamus guttatus*	TINAMIDAE	NT	UICN, 2019
Gallineta común / Panguana	*Tinamus major*	TINAMIDAE	NT* LC	MADS, 2018 UICN, 2020
Colibrí	Chlorostilbon olivaresi	TROCHILIDAE	LC	UICN, 2016 CITES II

** Category described in MADS Resolution 1256 of 2018.*

*** Libro rojo de aves de Colombia Vol. II 2017.*

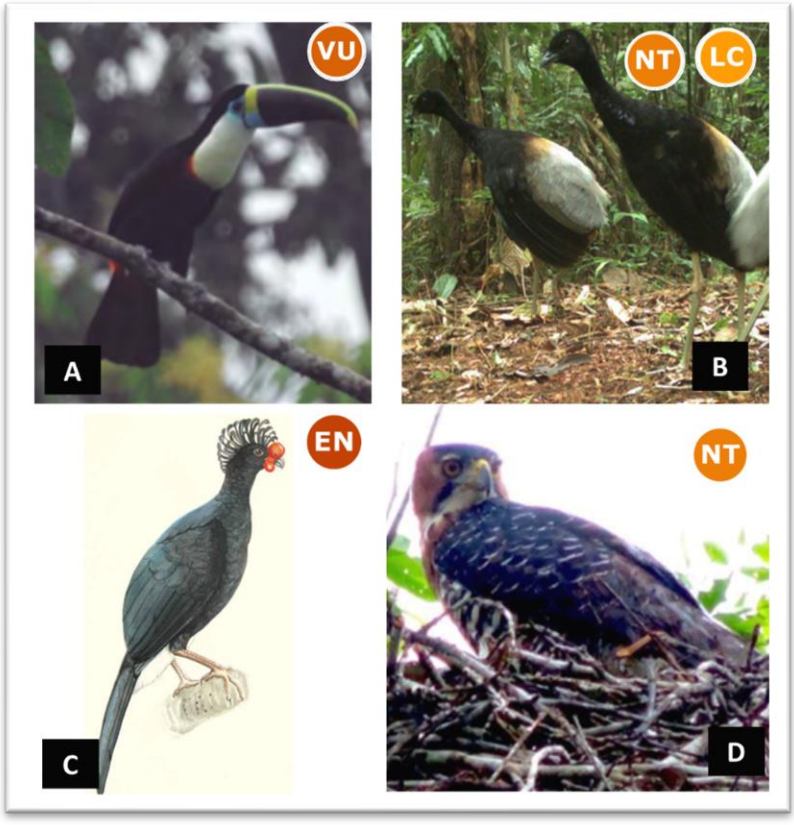


Illustration 27. A Ramphastos tucanus. B Psophia crepitans. C Crax globulosa. D Spizaetus ornatus.

***Photo A**: Guía de Aves y Mamíferos del Resguardo Indígena Inga de Niñeras y del Núcleo Mononguete. **Photo B and D:** Inventario Rápido Biológico y Social No. 30 Bajo Caguán – Caquetá. **Photo C**: Libro rojo de aves de Colombia Vol. II*

3.3.1.3 Fish

As with the selection of the avifauna, the USAID document "Characterization and cultural use of fauna and flora and the CAP for the eight reservations of the NZD project" was used to record fish, identifying the fish species with the highest importance within the community either because they are recognized for consumption such as the Prochilodus nigricans (bocachico), Hyphessobrycon copelandi (shad), Roeboides affinis (denteth) and another such as the fish Rhytiodus argenteofuscus (cheo) characteristic of their bodies of water.

Of the twenty-five (25) species described, twelve (12) of them do not have any national or global threat category, one (1) is under the insufficient data (ID) category, and the remaining species are cataloged within the categories Endangered (EN), Vulnerable (VU), Near Threatened (NT) and Least Concern (LC), these categories differ between the national and global registry, as shown in Table 35.

As visual support, illustrations contained in the Red Book of freshwater species of Colombia were taken, of four (4) species of which all are under the Vulnerable (VU) category of the IUCN, see Illustration 28.

Table 35. Fish recorded for the department of Caquetá and the municipality of Solano.

***Abbreviations:** CE: Critically endangered. EN: Endangered. VU: Vulnerable. NT: Near threatened. LC: Least concern. ID: Insufficient data.*

Common Name	Scientific name	Family	Threat Category	Report
Cheo	*Rhytiodus argenteofuscus*	ANOSTOMIDAE	LC	UICN, 2020
Jetón	*Ageneiosus inermis*	AUCHENIPTERIDAE	-	-
Sabaleta	*Brycon spp.*	BRYCONIDAE	-	-
Gamitana / Gambitana / Cachama negra	*Colossoma macropomum*	CHARACIDAE	NT* NT**	Libro rojo, 2012 MADS, 2018
Sábalo	*Hyphessobrycon copelandi*	CHARACIDAE	-	-
Denton	*Roeboides affinis*	CHARACIDAE	LC	UICN, 2007

Common Name	Scientific name	Family	Threat Category	Report
Mojarra	*Aequidens tetramerus*	CICHLIDAE	-	-
Pez perro	*Hydrolycus sp*	CYNODONTIDAE	-	-
Dormilón / Dormilona	*Hoplias malabaricus*	ERYTHRINIDAE	LC	UICN, 2019
Temblon	*Electrophorus electricus*	GYMNOTIDAE	LC	UICN, 2017
Cucha	*Hypostomus niceforoi*	LORICARIIDAE	ID	UICN, 2014
Lechero	*Brachyplatystoma filamentosum*	PIMELODIDAE	VU* EN**	Libro rojo, 2012 MADS, 2018
Baboso rayado	*Brachyplatystoma juruense*	PIMELODIDAE	VU* VU**	Libro rojo, 2012 MADS, 2018
Blanco pobre	*Brachyplatystoma vaillantii*	PIMELODIDAE	VU* EN**	Libro rojo, 2012 MADS, 2018
Barbudo	*Leiarius marmoratus*	PIMELODIDAE	-	-
Cajaro	*Phractocephalus hemioliopterus*	PIMELODIDAE	-	-
Barbiplancho	*Pinirampus pirinampu*	PIMELODIDAE	-	-
Doncello	*Platystomatichthys sturio*	PIMELODIDAE	-	-
Pintadillo / Rayado	*Pseudoplatystoma tigrinum*	PIMELODIDAE	VU*	Red Book, 2012
Pez hacha / Cabo de hacha	*Sorubimichthys planiceps*	PIMELODIDAE	NT* VU**	Red Book, 2012 MADS, 2018
Chontaduro	*Zungaro zungaro*	PIMELODIDAE	VU* EN** LC	Red Book, 2012 MADS, 2018

Common Name	Scientific name	Family	Threat Category	Report
				UICN, 2014
Bocachico	*Prochilodus nigricans*	PROCHILODONTIDAE	-	-
Garopa	*Metynnis maculatus*	SERRASALMIDAE	LC	UICN, 2018
Cachama blanca	*Piaractus brachypomus*	SERRASALMIDAE	-	-
Puño	*Pygocentrus nattereri*	SERRASALMINAE	-	-

** Red Book of Freshwater Fish of Colombia (2012)*

*** Category described in MADS Resolution 1256 of 2018.*

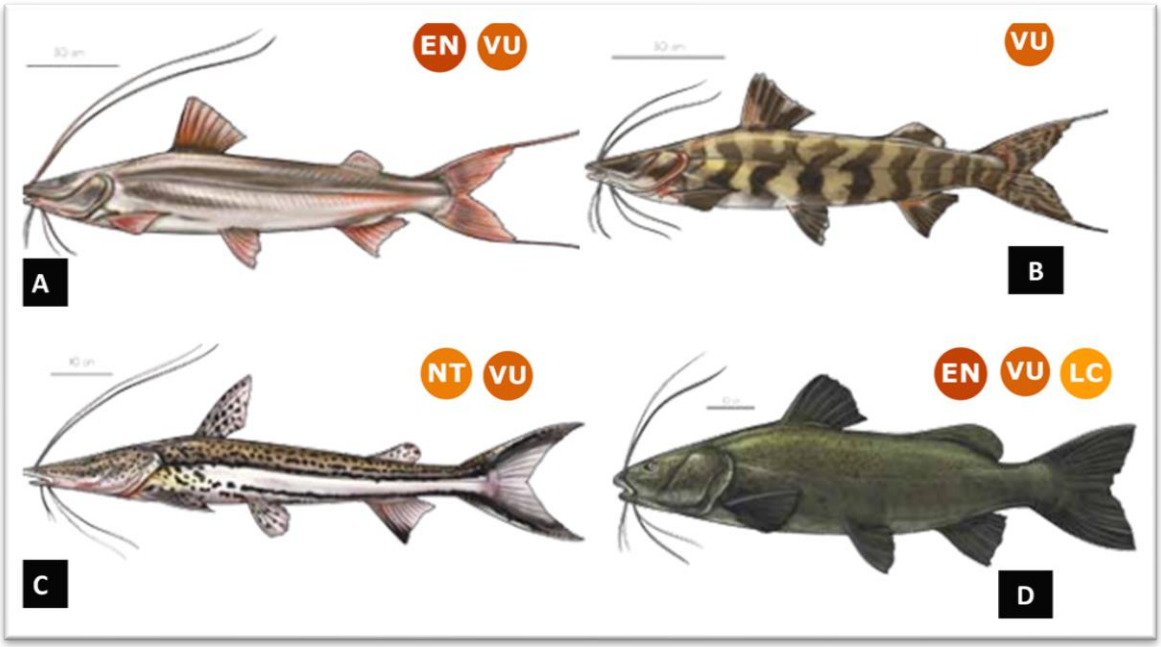


Illustration 28. A Brachyplatystoma filamentosum. B Brachyplatystoma juruense. C Sorubimichthys planiceps. D Zungaro zungaro.

***Photos:** Red book of freshwater species of Colombia (2012).*

3.3.1.4 Herpetofauna: Reptiles and amphibians.

Information on the herpetofauna of the municipality and in general for the department is scarce, therefore, this record took into account indirect information from work carried out in the NNP (National Natural Park) Serranía del Chiribiquete and inventories carried out in Bajo Caguán.

In the country, one (1) species is registered under the threat category Critically Endangered (CR) Podocnemis expansa (Arrau Turtle), which is also included in Appendix II of CITES, as it is a species that could be threatened by trade and one (1) species Endangered (EN) Atractus puntiventris (Pointed Ground Snake).

Eleven (11) of the species described in Table 36 are reported within the category of Least Concern (LC), three (3) do not have a report from the IUCN, however, one of them, the Caiman trigonatus, is included in the CITES Appendix II. The other species are in the Vulnerable (VU) category.

In Illustration 29, there are some photographs of the herpetofauna described.

Table 36. Herpetofauna recorded for the department of Caquetá and the municipality of Solano.

***Abbreviations:** CE: Critically endangered. EN: Endangered. VU: Vulnerable. NT: Near threatened. LC: Least concern. ID: Insufficient data.*

Common Name	Scientific name	Family	Threat category	Report
Babilla	*Caiman crocodilus*	ALLIGATORIDAE	LC* LC	Red Book, 2015 UICN, 2016 CITES I, II
Caimán	*Caiman trigonatus*	ALLIGATORIDAE	-	CITES II
Cachirre	*Paleosuchus palpebrosus*	ALLIGATORIDAE	LC* LC	Red Book 2015 UICN, 2018 CITES II
Boa de jardín	*Corallus hortulanus*	BOIDAE	LC** LC	Taller, 2013 UICN, 2013 CITES II
Sapo cornudo	*Rhaebo ceratophrys* *(Rhinella ceratophrys)*	BUFONIDAE	LC	UICN, 2014
	Rhinella proboscidea	BUFONIDAE	LC	UICN, 2004
	Caecilia aprix	CAECILIIDAE	-	-
Rana bocona cornuda	*Ceratophys cornuta*	CERATOPHRYIDAE	-	-

Common Name	Scientific name	Family	Threat category	Report
Matamata	*Chelus fimbriata*	CHELIDAE	LC*	Red Book, 2015 CITES II
Charapita de cananguchal	*Platemys platycephala*	CHELIDAE	LC*	Red Book, 2015
Culebra tierrera	*Atractus puntiventris*	COLUBRIDAE	EN* EN***	Red Book, 2015 MADS, 2018
Quilla	*Helicops angulatus*	COLUBRIDAE	LC** LC	Taller, 2013 UICN, 2015
	Dendropsophus brevifrons	HYLIDAE	LC	UICN, 2010
Rana	*Osteocephalus planiceps*	HYLIDAE	LC	UICN, 2010
Rana de árbol	*Osteocephalus verruciger*	HYLIDAE	LC	UICN,2018
Juanboy	*Leptodactylus pentadactylus*	LEPTODACTYLIDAE	LC	UICN, 2008
Tortuga charapa	*Podocnemis expansa*	PODOCNEMIDIDAE	CR* VU	Red Book, 2015 UICN CITES II
Morrocoy	*Chelonoidis carbonarius*	TESTUDINIDAE	VU*	Red Book, 2015 CITES II
Morrocoy amarillo	*Chelonoidis denticulata*	TESTUDINIDAE	LC* VU	Red Book, 2015 UICN, 1996 CITES II

* Red Book of Reptiles in Colombia (2015)

** Squamata Workshop (2013)

Common Name	Scientific name	Family	Threat category	Report
*** Category described in MADS Resolution 1256 of 2018.				

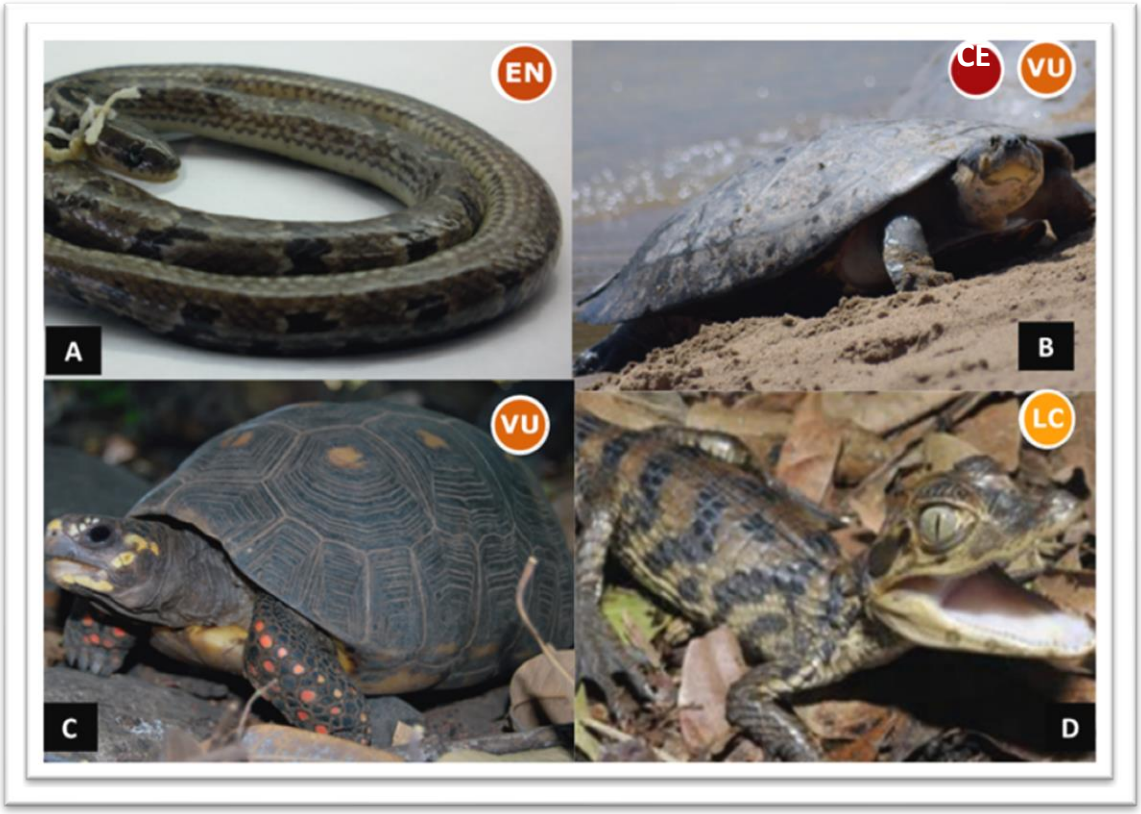


Illustration 29. A Atractus punctiventris. B Podocnemis expansa. C Chelonoidis carbonarius. D Caiman crocodilus.

Photo A, B and C: *Red book of reptiles in Colombia (2015).*
Photo D: *Inventario Rápido Biológico y Social No. 30 Bajo Caguán – Caquetá.*

3.3.9 Flora

The identification of the flora was carried out with the review of documents made by indigenous communities belonging to the project that have been working together with technical teams in the local monitoring of the forest and recovery of degraded areas in the Huitora indigenous reservation in the municipality of Solano Caquetá[18].

Most of the flora species reported for the department of Caquetá correspond mainly to the Andean-Amazonian transition zone and the Amazonian plain, and have a greater participation of vascular plants that are equivalent to 55% of the total collection, counting 2,679 species, distributed in 203 families and 1,133 genus, of which 2,172 species are departmental records. This information is prior to the research and compilations carried out by the Uniamazonia Botanical Garden and the Enrique Forero-HUAZ Herbarium, which have documented and systematized the information. Additionally, the greatest

[18] PDF) MONITOREO LOCAL DEL BOSQUE Y RECUPERACIÓN DE ÁREAS DEGRADADAS EN EL RESGUARDO INDÍGENA HUITORÁ DEL MUNICIPIO DE SOLANO CAQUETÁ (researchgate.net)

contribution of flora to the department corresponds to the municipality of Solano with a contribution of 112 species of native plants that are part of the floristic diversity of the Peregrinos trail, which has a catalog of wild flora.

Table 37. Flora species registered for the department of Caquetá and the municipality of Solano.

Abbreviations: *CE: Critically endangered. EN: Endangered. VU: Vulnerable. NT: Near threatened. LC: Least concern. ID: Insufficient data.*

Common name	Scientific name	Familiy	Category of threat	Report
Costillo	*Aspidosperma macrocarpon*	APOCYNACEAE	LC	IUCN
Achapo	*Cedrelinga cateniformis*	APOCYNACEAE	LC	IUCN
Perillo	*Couma macrocarpa*	APOCYNACEAE	LC	IUCN
Avivhuri	*Couma utilis*	APOCYNACEAE	-	UNAL
Milpes	*Oenocarpus bataua*	ARECACEAE	LC	UNAL
Algodoncillo	*Onoseris onoseroides*	ASTERACEAE	-	UNAL
Palo de arco	*Handroanthus serratifolius*	BIGNONIACEAE	EN	IUCN
Achiote	*Bixa orellana*	BIXÁCEAS	LC	IUCN
Gomo	*Cordia dentata*	BORAGINACEAE	LC	IUCN
Charapillo	*Parinari klugii*	CHRYSOBALANACEAE	NT	UNAL
Mochilero	*Terminalia amazonia*	COMBRETACEAE	LC	IUCN
Castaño	*Caryodendron orinocense*	EUPHORBIACEAE	LC	IUCN
Guarango	*Parkia velutina*	FABACEAE	LC	IUCN
Granadillo	*Platymiscium pinnatum*	FABACEAE	-	UNAL
Tamarindo	*Tamarindus indica*	FABACEAE	LC	IUCN
Comino	*Aniba perutilis*	LAURACEAE	VU	IUCN
Palo rozo	*Aniba rosaeodora*	LAURACEAE	EN	IUCN
Carrecillo	*Apeiba membranacea*	MALVACEAE	LC	IUCN
Peine Mono	*Apeiba tibourbou*	MALVACEAE	LC	IUCN
Ceiba	*Ceiba pentandra*	MALVACEAE	LC	IUCN
Balso	*Ochroma pyramidale*	MALVACEAE	LC	IUCN
Zapotillo	*Sterculia speciosa*	MALVACEAE	LC	IUCN
Cedro	*Cedrela odorata*	MELIACEAE	VU	IUCN
Sangre Toro	*Virola surinamensis*	MYRISTICACEAE	EN	IUCN
Ahumado	*Minquartia guianensis*	OLACACEAE	NT	IUCN
Balato	*Manilkara bidentata*	SAPOTACEAE	LC	IUCN
Caimo	*Pouteria caimito*	SAPOTACEAE	LC	IUCN

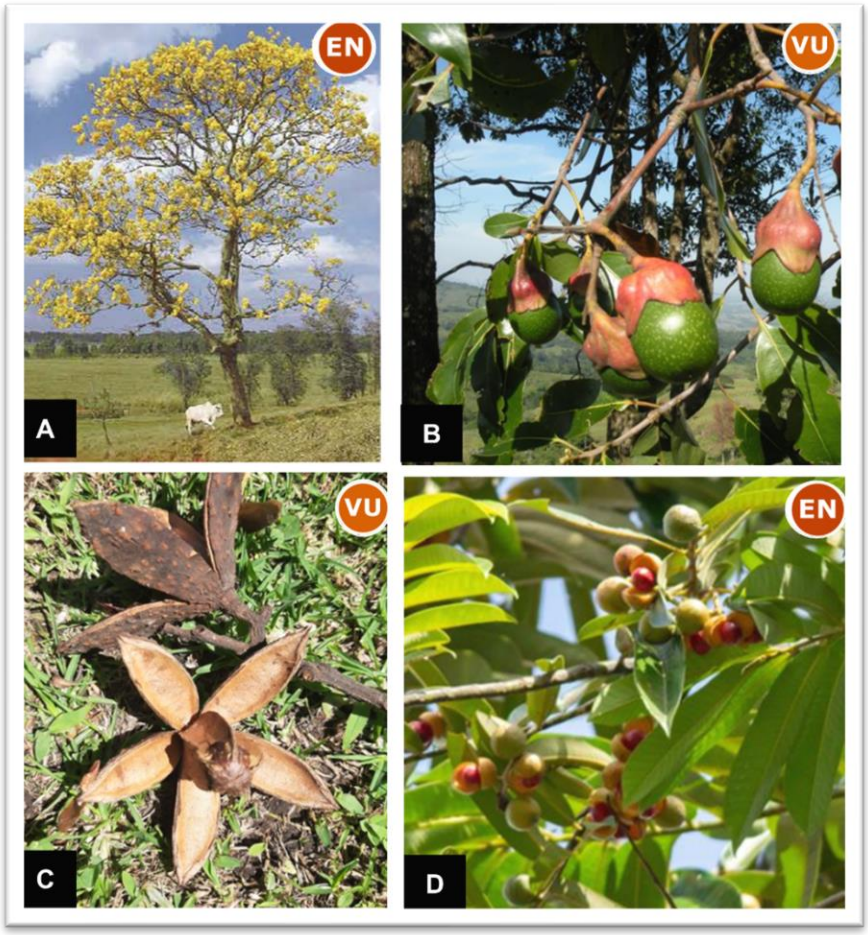


Illustration 30. A Handroanthus serratifolius B Handroanthus serratifolius C Aniba perutilis D Cedrela odorata.

Photo A, B, C, D: Naturalist contributor[19]

3.3.10 Values Subject to conservation -VSC.

The values of conservation (VSC) for the project area correspond to the Serranía de Chiribiquete National Natural Park, which is located between the departments of Guaviare and Caquetá [20,21], with greater territorial coverage in the municipality of Solano - Caquetá, where there are six reservations, a councils and a community of the Korejuajes and Uitotos peoples of the *Alto Rio Caquetá* [22].

In Resolution 1256 of 2018, the VSCs of the Serranía de Chiribiquete NNP are considered integral conservation priorities, understood as units of analysis of a multidimensional nature that include intangible elements of culture and evidence the interdependent

[19] GBIF
[20] Resolution 1256 of 2018 resolucion-1256-de-2018.pdf (minambiente.gov.co)
[21] Management plan 2018 - 2022 serranía de chiribiquete national natural park plan-de-manejo-pnn-chiribiquete-2018-2022.pdf (parquesnacionales.gov.co)
[22] Characterization and cultural use of fauna and flora and the CAP for the eight NZD project reserves. PAooJJTV.pdf (usaid.gov)

relationships existing between human communities and nature, rather than as isolated elements of biodiversity.

1. The forest cover corresponding to the Amazon and Orinoquia Rainforest Biome, and the Yarí-Miritíí (Guyana) and Caguán-Florencia (Amazonia) Biogeographic Districts, which have a high level of ecological integrity, and therefore contribute to the structural and functional connectivity Andes-Orinoquia-Amazonia and the provision of ecosystem services, especially those related to: water regulation, carbon fixation and sequestration, prevention and mitigation of risks due to regional climate variability and Global Climate Change, and the generation of natural supply demanded outside the protected area.
2. The Serranía de Chiribiquete, which corresponds to remnants of the Guiana Shield -being the main national and regional reference of the protected area-, about which there is interest from different entities to generate knowledge for its potential for endemism, representativeness and for being part of the Chiribiquete Cultural Tradition, and whose appropriation as a geographical landmark in the territory by local communities makes it an element of identity.
3. Elements with value for the archaeological heritage of the country, corresponding to the Chiribiquete Cultural Tradition and represented by: the group of pictographs and other archaeological vestiges in rocky shelters in the hills - remnants of the Guiana Shield-, the petroglyphs in *raudales or chorros*, and the sites with vestiges of "*terras pretas*".
4. Relationships of the indigenous peoples, bearers of cultural knowledge - myths of origin, shamanic thought, ceremonial centers and traditional strategic sites - for the management of the territory, which define the importance of the protected area within the Chiribiquete Cultural Tradition and its components: network of culturally important salt flats, places of enchantment, ancient malokas, petroglyphs in *raudales or chorros*, Casa del Jaguar (Carijona myth and shamanic concentration center), among others.
5. The headwaters of the Ajaju and Macaya rivers, the Huitoto stream in the middle basin of the Yarí river and the headwaters of the Metá and Miritíí rivers, as areas where there is evidence of the presence of indigenous groups that are part of Indigenous Peoples in Isolation, possibly of the Uitoto, Carib and Arawak linguistic families,
6. The networks of saltlick that are related to part of the habitat of fauna species that are demanded by local communities to supply their dietary needs, and for which there are regulatory systems specific to the indigenous communities present in this territory that make their conservation possible.
7. The upper and middle basins of the Apaporis River, the Cuñaré channel of the Mesay River basin, the lower basin of the Yarí River and the lower basin of the Yavilla River, because of their resource supply for the local communities settled in the protected area's zone of influence, especially: the fishery resource for local consumption, species at risk such as large catfish, and species of the Crocodylidae family.

8. Intrusions of magnetic pulses associated with the appearance of nepheline syenite that correspond to rare sites in the Amazonian landscape, units of igneous origin of Paleozoic age that would represent the last stage of magmatism of what would be the crystalline basement of the Guiana Shield.
9. Transitional landscapes between three biogeographic provinces Andes-Amazonian-Orinoquia, which include structural units and denudations to the southeast in the portion of natural transitional savannas of Yarí towards the Amazonian forests and, in the region of the upper Itilla, in a unique geological-morphological unit in the northeastern Colombian Amazon region, "Plateau" in which the headwaters of the Itilla River are formed and form the boundary between the watersheds of the Guayabero and Vaupés rivers.

And as conservation objects are:

1. Maintain the ecological integrity of the ecosystems of the western end of the Guayana biogeographic province, to contribute to the perpetuation of endemic and/or threatened species, and of the ecological processes that sustain the community between the biomes of the Andes, Guayana and Amazonia.
2. Maintain the function of the ecosystems present in the area, to promote: 1) the capacity to buffer the effects of climate variability through water regulation in the basins of the Apaporis, Yarí, Vaupés and Caquetá rivers. 2) climate regulation at the regional level, through forest conservation and transmission with natural savanna ecosystems, as a contribution to adaptation and mitigation of Global Climate Change.
3. Preserve areas where natural environment/cultural system interactions have left archaeological remains of importance for the country's tangible and intangible heritage and generated cultural manifestations of spiritual and mythological significance for the indigenous peoples ancestrally related to the region between the Caquetá, Yarí, Apaporis and Vaupés rivers.
4. Preserve areas where there is evidence of the presence of indigenous peoples of the Uitoto, Carid and Arawak linguistic families, who have not had permanent contact with national society, in order to facilitate their isolation.
5. Maintain the capacity of the ecosystems to generate the natural supply demanded outside the protected area by local communities, especially by the indigenous peoples ancestrally related to the region between the Caquetá, Yarí, Apaporis and Vaupés rivers.

3.4 Additionality

3.4.1 Identification and description of baseline and additionality scenarios

3.4.1.1 Baseline scenario

In accordance with the guidelines established in BCR0002 Version 3.1 methodology and BCR's "Baseline and Additionality. Version 1.3" of BCR, the criterion of numeral (c) Changes in carbon stocks within the project boundaries is defined, identifying the most

likely land use at the beginning of the project, chosen because it is the recommended statement for the application of this methodology.

3.4.1.2 Step 0. Project start date

Project start date: January 01, 2018. As described in the Project Start Date section.

3.4.1.3 Step 1. Identification of alternative land-use scenarios

The steps taken to identify the land use alternatives are presented below.

3.4.1.4 Sub-step 1a. Identification of probable land use alternatives in the Project areas.

A geospatial processing of land use was carried out, analyzing the coverages present in the reference region by means of multitemporal change for the historical reference period (2007-2017), where it is established that the deforestation of forests is mainly due to the conversion of forest land to pasture cover and secondary vegetation and fragmented forests, as shown in Table 38.

Table 38. Multitemporal analysis of land cover for the historical reference period.

MULITEMPORAL CHANGE HISTORICAL REFERENCE PERIOD		LAND COVERS YEAR 2018											
		Open areas with little vegetation	Humid areas	Shrublands	Forests	Fragmented forests	Meadow	Pastures	Water surfaces	Artificialized territories	Degraded land	Secondary vegetation	Grand total
LAND COVER YEAR 2007	Open areas with little vegetation	461,92		45,18	23,11			137,06	1.276,99			488,38	**2.432,64**
	Humid areas		3.051,96		356,75	8,04	132,23	1.248,48	80,78			274,44	**5.152,67**
	Shrublands	4,93		2.166,72	265,59			950,85	403,20			6.625,86	**10.417,15**
	Forests	3,08	814,49		960.556,62	8.274,17	7,67	109.244,33	1.067,68		773,86	39.395,80	**1.120.137,71**
	Fragmented				2.693,50	13.758,17	14,81	14.388,50			81,32	6.806,81	**37.743,11**
	Meadow		14,08		12,41		910,65	179,71	9,18			112,75	**1.238,78**
	Pastures	9,40	40,05		1.338,04	2.139,93	4,71	215.830,61	297,14	93,66	732,77	51.466,94	**271.953,26**
	Water surfaces	1.085,90	3,55		173,32	4,15		278,55	25.819,82			768,25	**28.133,53**
	Artificialized territories									262,46			**262,46**
	Degraded land				12,12	3,61		866,93	4,84		10,29	45,48	**943,27**
	Secondary vegetation	34,57	105,69		1.361,29	721,90		31.917,69	451,90	0,56	209,01	37.714,29	**72.516,90**
	Grand total	**1.599,81**	**4.029,82**	**2.211,91**	**966.792,75**	**24.909,96**	**1.070,07**	**375.042,70**	**29.411,54**	**356,68**	**1.807,26**	**143.698,99**	**1.550.931,48**

3.4.1.5 Sub-step 1b. consistency of land use alternatives with applicable laws and regulations.

After identifying the three (3) land use alternatives that correspond to the implementation of a climate change mitigation project (CCMP), pasture for livestock and secondary vegetation and fragmented forests, the following three (3) land use alternatives have been identified. It is demonstrated that all of them comply with all the mandatory legal and regulatory requirements applicable in national, regional and local laws, through an analysis of the practices developed in the region, starting with the livestock sector, which is the main use of pastures in Colombia, historically the conditions were adapted for the development of livestock in the country, However, as the decades went by, cattle ranching ceased to be a domestic activity and became an extractive activity, which led to attempts to increase production and lower costs, adopting a type of ranching known as extensive..[23]

It is understood that this activity offers socioeconomic benefits to rural populations since according to the information obtained by the Livestock Roadmap 2018 to 2022, this sector generates 810 thousand direct jobs.[24], but its implementation has an impact on the expansion of the agricultural frontier, which affects ecologically important regions by means of the pruning of deforested forest, which is related to land tenure in the country, which in this sense is a major factor of conflict due to the accelerated consolidation of pastures with a few heads of cattle[25,26], which is given in order to have control over the territory and to exercise their productive activity.

This activity, although common, is a model that has negative impacts on ecosystems, generating erosion, deforestation and contamination of water sources. According to research conducted by Sierra Cardona, 2023, "this activity is one of the largest sources of biodiversity loss and greenhouse gas (GHG) production in Colombia and contributes 66 million tons of carbon dioxide annually, which is equivalent to one and a half times more

[23] Gallo Aponte, W., & Sanabria Rodelo, A. (s/f). Evaluación de Impacto Ambiental y ganadería extensiva en Colombia. Universidad Externado de Colombia. Retrieved on August 12, 2023, from https://bdigital.uexternado.edu.co/server/api/core/bitstreams/0e08b404-c874-4031-a755-5b0d1c168d7c/content

[24] FEDEGAN. (2018). Ganaderia en Colombia, Hoja de Ruta 2018 a 2022.

[25]Etter Rothlisberger, A., & Zuluaga, A. F. (2017). Áreas aptas para la actividad ganadera en Colombia. Humboldt.org.co. http://reporte.humboldt.org.co/biodiversidad/2017/cap4/403/

[26] Gómez Cadavid, C. (s/f). MEDIO AMBIENTE Y RURALIDAD, EFECTOS DEL EXTRACTIVISMO LEGAL E ILEGAL. Universidad de los ANdes. Retrieved on August 12, 2023, from https://cider.uniandes.edu.co/sites/default/files/noticias/2021/noviembre/Extractivismo%20-ilelgal-amazonica-4.pdf

GHG emissions than the burning of fuel by transportation, manufacturing and construction industries."[27]

In an article from Contexto Ganadero[28], the authors compile that a study by Manuel Francisco Díaz and Stefan Burkart, published in CIAT's publication Políticas en Síntesis, details how public policies designed for cattle production in our country have changed from 1979 to the present day, In addition, other regulatory provisions involved in the livestock sector are highlighted in Table 39.

Table 39. Livestock sector regulations in Colombia.

Regulations	Description
Law 16 of 1990	Establishing the national agricultural credit system, creating the fund for the financing of the agricultural sector, Finagro, and other provisions.
Law 89 of 1993	Whereby the Livestock and Dairy Development Quota is established, and the National Livestock Fund is created".
Law 101 of 1993	Agricultural and Fishery Products Price Stabilization Funds.
Law 395 of 1997	Declaring the eradication of foot and mouth disease throughout the Colombian territory to be of national social interest and a sanitary priority and issuing other measures to this end.
Decree 1615 of 1998	"Whereby Law 363 of 1997 is partially regulated and some provisions on the Incentive to Medium and Small Livestock Production are issued."
Decree 1187 de 1999	Whereby the Stabilization Fund for the promotion of exports of meat, milk and their derivatives is organized.
Law 1561 of 2012	Whereby a special verbal process is established to grant property titles to the material possessor of urban and rural real estate of small economic entity, to remedy the false tradition and other provisions are enacted.
Law 1607 of 2012	Whereby tax regulations are issued, and other provisions are enacted.
Law 1944 of 2018	Whereby Law 599 of 2000 is amended and the crimes of cattle rustling and aggravated cattle rustling are created.
Resolution 140 of 2022	By which the Specific Regulation on Animal Traceability for Bovine and Buffalo Species is adopted.

[27] Sierra Cardona, M. C. (2023). [Universidad de los Andes]. https://repositorio.uniandes.edu.co/bitstream/handle/1992/68733/Retos%20de%20implementaci%c3%b3n%20del%20programa%20Ganader%c3%ada%20Colombiana%20Sostenible_Perspectivas%20de%20los%20implementadores%20del%20proyecto%20%282%29.pdf?sequence=3&isAllowed=y

[28] ContextoGanadero. (2023). Así han evolucionado las políticas públicas para la ganadería en Colombia. https://www.contextoganadero.com/politica/asi-han-evolucionado-las-politicas-publicas-para-la-ganaderia-en-colombia

Resolution 000126 of 2022	By which the guidelines of the Sustainable Cattle Raising Policy - GBS 2022-2050 are adopted and other provisions are issued.

In order to cover secondary vegetation and fragmented forests, it must be taken into account that they are part of the country's forest cover, which is why the national background related to the country's forestry sector dates back to Law 10 of 1912, which replaced the fiscal code, establishing, among other things, that forests are part of the nation's assets, prohibiting clearing (felling) in the headwaters of rivers, and allocating portions of forests, called "national forest", to be exploited only as forests.[29].

Based on this law, different forest management mechanisms for forest use are addressed, framing the rules of exploitation, the discrimination of areas as forest reserves, the protection of water sources, stabilization of topographic terrain, and the use of forest resources in economically viable terms with high-value species that contribute to the domestic uses made by the communities, and Table 40 compiles the national forest regulations.

Table 40. Forestry sector regulations in Colombia.

Regulations	Description
Decree 2278 of 1953[30]	Regulates the management of forest resources and establishes the forest strip around water bodies as a protective forest zone, forest reserves and the obligation to maintain 10% forest cover in rural properties larger than fifty hectares.
Law 2 of 1959[31]	Whereby norms on national forestry economy and conservation of renewable natural resources are issued.
Decree 2811 of 1974[32]	Whereby the National Code of Renewable Natural Resources and the Environment is enacted.
Decree 1449 of 1977[33]	It regulates the protection and conservation of forests in the protective strips of water sources within a hundred meters around and thirty meters from the riverbed from the maximum tide line, in addition to the obligation to maintain at least 10% of forest cover in properties of more than 50 hectares and 20% in uncultivated land (Arts. 4 and 5).

[29] MinAmbiente. (2020). Lineamientos y guía para la ordenación forestal en Colombia. Ministerio de Ambiente y Desarrollo Sostenible. http://ttps://www.minambiente.gov.co/wp-content/uploads/2022/03/Lineamientos-y-guia-para-la-ordenacion-forestal-en-Colombia.pdf
[30] Decree 2278 of 1953 DECRETO 2278 DE 1953 (suin-juriscol.gov.co)
[31] Law 2 of 1959 ley-2-1959.pdf (minambiente.gov.co)
[32] Decree 2811 of 1974 DECRETO 2811 DEL 18 DE DICIEMBRE DE 1974.doc (minambiente.gov.co)
[33] Decree 1449 of 1977 Decreto 1449 de 1977 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description
Political Constitution of Colombia [34]	The Political Constitution of 1991, the maximum normative compendium within the set of national laws. Articles 2, 8, 38, 38, 79, 80 and 95 specify the duty of each member of society to protect the cultural and natural wealth of the nation and to ensure the conservation of a healthy environment.
Law 99 of 1993[35]	Whereby the Ministry of the Environment and the National Environmental System (SINA) are created.
Decree 1791 of 1996	Regulates sustainable forest management: This decree establishes the technical standards and procedures for the management and sustainable use of forests and forest soils.
CONPES No. 2834 of 1996[36]	Approving the "Forestry Policy", which seeks to achieve the sustainable use of forests, in order to conserve them, consolidate the incorporation of the forestry sector in the national economy and contribute to the improvement of the quality of life of the population.
Law 388 of 1997[37]	Regulates the land use planning processes of the municipalities in accordance with the ecological and social function of property.
Resolution 0584 of 2002	Regulates sustainable forest management in natural forests and commercial forest plantations.
Resolution 1145 of 2003	Establishing the technical regulations for timber harvesting: This resolution establishes the technical and environmental criteria for timber harvesting in Colombia, including the maximum harvesting volume per hectare.
Resolution 1725 of 2005	Establishing the technical regulations for non-timber forest harvesting: This resolution establishes the technical and environmental criteria for non-timber forest harvesting in Colombia, including the maximum volume of harvesting per hectare.
Decree 3600 of 2007[38]	Establishes the determinants of rural land management.
CONPES No. 3582 of 2009[39]	It considers biodiversity as a strategic area and recognizes the need to advance in the knowledge and sustainable use of biodiversity.
Decree 2372 of 2010[40]	Regulates the National System of Protected Areas as a determinant of territorial planning.

[34] Asamblea Constituyente. Constitución Política de La República de Colombia. Colombia; 1991. http://www.secretariasenado.gov.co/senado/basedoc/constitucion_politica_1991.html.
[35] Presidency of the Republic of Colombia. Law 99 of 1993. Colombia; 1993. http://www.secretariasenado.gov.co/senado/basedoc/ley_0099_1993.html.
[36] CONPES No. 2834 de 1996 política de bosques 2834 (dnp.gov.co)
[37] Law 388 of 1997 Ley 388 de 1997 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[38] Decree 3600 de 2007 Decreto 3600 de 2007 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[39] CONPES 3582 of 2009 (Microsoft Word - 3582 Ciencia y Tecnolog\355a.doc) (dnp.gov.co)
[40] Decree 3272 of 2010 Decreto 2372 de 2010 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description
Ley 1454 of 2011[41]	Also known as the Organic Law of Territorial Planning, it establishes administrative coordination mechanisms between regional territorial entities.
CONPES No. 3700 of 2011[42]	Institutional strategy for the articulation of climate change policies and actions in Colombia
Decree 1076 of 2015[43]	Whereby this version incorporates the amendments made to the Sole Regulatory Decree of the Environment and Sustainable Development Sector.
Resolution 1075 of 2015	Establishes the requirements for the registration of forest harvesters and the preparation of forest management plans.
Resolution 0466 of 2016	Establishes the procedures for the authorization of forest harvesting for non-timber purposes.
Decree 1655 of 2017[44]	Whereby the organization and operation of the National Forest Information System, the National Forest Inventory and the Forest and Carbon Monitoring System, which are part of the Colombian Environmental Information System, are established, and other provisions are enacted.
Resolution 1447 of 2018[45]	Regulates the Monitoring, Reporting and Verification System of mitigation actions in the national order, the GHG Emissions Reduction and Removal Accounting System, the operation of the National Registry of Greenhouse Gas Emissions Reduction (RENARE). This resolution was published in July 2018 and the platform in September 2020.
Resolution 0048 of 2018	Regulating the felling of trees in Colombia: This resolution establishes the norms for the felling and harvesting of trees in the national territory and establishes the requirements and procedures for obtaining permits and authorizations for this activity.
Law 1931 of 2018[46]	Whereby guidelines are established for the management of climate change". It creates the National Climate Change Information System, whose purpose is to provide transparent and consistent data and information over time for decision-making related to climate change management. In turn, it seeks to reduce the country's vulnerability to the effects of CC and promote the transition to a competitive, sustainable economy and Low Carbon Development (LCD)

[41] Law 1454 of 2011 Ley 1454 de 2011 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[42] CONPES 3700 of 2011 Documento (dnp.gov.co)
[43] Decree 1076 of 2015 Decreto 1076 de 2015 Sector Ambiente y Desarrollo Sostenible - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[44] Decree 1655 of 2017 decreto-1655-de-2017.pdf (minambiente.gov.co)
[45] Resolution 1447 of 2018 15.-Resolucion-1447-de-2018.pdf (minambiente.gov.co)
[46] Law 1931 de 2018 Ley 1931 de 2018 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description
Resolution 1273 de 2019	Regulates the harvesting of non-timber timber species in natural forests.
Resolution 831 de 2020[47]	Whereby Resolution 1447 of 2018 is amended and other determinations are made.
Law 2294 of 2023. PND 2022-2026[48]	Article 230°, Modify article 175 of Law 1753 of 2015. "Any person, natural or legal, public, private or mixed, that intends to opt for payments for results, or similar compensations, including international transfers, or that intends to demonstrate results in the framework of compliance with the national climate change goals established under the United Nations Framework Convention on Climate Change -CMNUCC-, as a consequence of mitigation initiatives that generate reduction of emissions and removal of greenhouse gases -GHG- in the country, must be previously registered in the RENARE, in accordance with the regulations issued for such purpose by the Ministry of Environment and Sustainable Development": The project is currently registered in RENARE and the portal is expected to be re-enabled in order to continue updating the platform. The project also complies with the second paragraph of the regulations regarding compliance with social and environmental safeguards.

Finally, the parties to the United Nations Framework Convention on Climate Change (UNFCCC) developed in 2005 the approach known as "Reducing Emissions from Deforestation and Forest Degradation in Developing Countries" or REDD, which later evolved into REDD+, within the framework of the Bali Action Plan at the 13th Conference of the Parties in 2007.

Among the UNFCCC decisions relevant to REDD+ that provide implementation guidelines for developing countries are those described in Table 41, which are binding on countries that adopt this program.

[47] Resolution 831 of 2020 Resolución 0831 de 2020 - Ministerio de Ambiente y Desarrollo Sostenible (minambiente.gov.co)
[48] Law 2294 of 2023 Ley 2294 de 2023 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Table 41. Regulations for REDD+ projects.[49,50,51]

Regulation	Description
4/CP.15 11/CP.19	Conference of the Parties held in Copenhagen in 2009, several principles and methodological guidelines were defined to reduce emissions from deforestation and forest degradation, as well as the management of carbon sinks in each country and the implementation of a National Forest Monitoring System.
1/CP.16 15/CP.19	A milestone was set in terms of defining the REDD+ pillars required for developing countries, these are: 1. The establishment of a National Forest Reference Emission Level and/or National Forest Reference Level. 2. A robust and transparent National Forest Monitoring System. 3. A National Strategy or Action Plan (15/CP.19). 4. An information system on how safeguards are addressed and respected. In addition, the States adopted the so-called "Cancun Agreements", which comprise five initiative: · Reducing emissions from deforestation and forest degradation. · Reducing emissions from forest degradation. · Conservation of forest carbon stocks. · Sustainable forest management. · Increasing forest carbon stocks.
12/CP.17 12/CP.19	Safeguards Information System (SIS), summary to be submitted every two years on a voluntary basis.

[49] The REDD+ initiative and the UNFCCC
[50] Climate Change, National communication http://www.cambioclimatico.gov.co/comunicacion-nacional-bur-2015
[51] Conference of the parties https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

Regulation	Description
Warsaw Framework for REDD +. COP 19.	Includes a decision on improving the coordination of the support provided for the implementation of activities, including institutional mechanisms. A first REDD+ decision was also adopted on aspects related to financing for results-based measures.
Kyoto Protocol 1997	International treaty adopted in 2012. This protocol commits industrialized countries to stabilize greenhouse gas emissions.

3.4.1.6 Step 2. Barrier analysis

The development of the additionality analysis is performed through a barrier analysis to determine whether the Project activities face barriers that:

a. Prevents or limits the implementation of this type of project activity; and,
b. They do not preclude implementation of at least one of the probable land alternatives.

3.4.1.7 Sub-step 2a. Identify the barriers that would prevent the project implementation.

The analysis was carried out through the evaluation of investment, institutional, social, technological, land tenure, market, transportation and storage barriers. In order to demonstrate that there are limitations to the development of REDD+ activities, without participation in the carbon market, as observed in (See PROYECTO REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE/07_PDD/TOOLS/Adicionalidad_REDD_MINER_V2.xlsx).

3.4.1.8 Demonstrate that the identified barriers would not prevent the implementation of at least one of the identified land use alternatives (except the project activity)

For the region where the project is being developed, twelve (12) barriers were found for the pasture activity for livestock, which are mainly generated by the limited supply of credit for technological improvement and the growth of production and population, the absence of roads and low electricity coverage and the shortcomings in land titling. However, it is found that these barriers do not prevent the implementation of the activity because it manages to overcome four (4) of these barriers through the investment of financial entities that directly and constantly support the sector, such as FINAGRO, with the execution of the National Development Plan 2022-2026, which has as priorities the transformation in terms of regional convergence, This involves national investment lines for the intervention and strengthening of the country's regional road infrastructure (DPN,

2023) and with the support of the Compañía de Fomento Empresarial y Mercados Agroindustriales COFEMA, which supplies carcass meat in Florencia and some other municipalities in Caquetá and Huila (Torrijos, 2022).

Within the analysis of barriers, a less favorable panorama is found for secondary vegetation and fragmented forests, due to the fact that a degradation of cover is observed, mainly originated by the selective logging of commercially important timber species, concluding that this activity has sixteen (16) barriers, derived from land possession and land grabbing, to then negotiate tenure to third parties and distort land prices (Gobernación del Caquetá, 2019), the expansion of pastures, crops and the increase of mining-energy infrastructure in the areas of greatest intervention, are putting pressure on forest relicts, among other problems encountered and described in the attached information (See PROYECTO REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE/07_PDD/TOOLS/Adicionalidad_REDD_MI-NER_V2.xlsx). Additionally, of the total number of barriers, only two (2) could be overcome through access to incentives for conservation, led by the Banco Agrario in the "Green Credits" program, which seeks to improve the income of small producers and promote the culture of conservation and sustainable use of the forest (Visión Amazonía, 2023, Visión Amazonía & Minambiente, 2023) and with the applicability of current regulations.

Table 42. Analysis of barriers overcome for the most likely land uses.

Summary of barrier analysis				
N°	**Activity**	**No. barriers**	**No. of barriers overcome**	**Total barriers**
1	REDD+ project implementation	14	10	4
2	Pastures (Livestock)	12	4	8
3	Secondary vegetation and fragmented forests	16	2	14

Finally, it is possible to identify that the baseline scenario corresponds to land use for livestock development, since it overcomes a greater number of barriers compared to secondary vegetation and fragmented forests, being one of the most important foundations of the departmental economy and resulting in a strong support for the development of this activity (See Table 42).

3.4.1.9 Impact of Project registration

It is concluded that the implementation of the REDD+ MARENA ICHENA -NAG+MA ENOYE RAFUE Project is the land use activity that overcomes the greatest number of barriers compared to cattle ranching and secondary vegetation focused on selective logging of commercially important species. Exceeding ten (10) barriers out of the total found in the analysis (See PROYECTO REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE/07_PDD/TOOLS/Adicionalidad_REDD_MI-NER_V2.xlsx) thanks to its commitment and environmental, social and financial management, within the framework of its implementation and the execution of REDD+ activities defined for the two proponent reservations of the initiative. In addition, it contributes to develop strategies that both in the short and long term strengthen and contribute to overcome harmful consequences for the environment and the surroundings, such as greenhouse gases (GHG) and the increase in erosion and soil degradation, complying with the characteristics of an agreement between the parties that focuses on environmental protection, social commitment and the collective well-being.

3.5 Causes and agents of deforestation/degradation

3.5.1 Context

3.5.1.1 Territorial

Territory for the Uitoto or "Murui-Muina" people, inhabitants and owners of the indigenous reserves of Huitorá and Coropoya, is fundamental to keep tradition alive; it is what allows the materialization and dynamization of their cultural principles and knowledge. Without it, they would not be able to provide themselves with their sacred plants, which are a direct link with the spiritual plane, from which they receive guidance on how to live and orient their community processes. Territorial care behaviors are maintained thanks to the word of power, the grandparents' narratives about the law of origin and about the spiritual owners of the forest in the water, land and air, their prohibitions and the consequences of breaking the rules in each zone; for example, exceeding the limits of resource extraction. In this way, instructions on the use of the land and natural resources are dictated from the mambeadero, and it is the cacique or the wise

grandparents who ask permission from the spiritual owners of the different places to farm, fish, or make a tomb for the chagras.

These behaviors, in turn, are regulated by the communities' own regulations; their internal rules emphasize the duties of control and surveillance, care and protection of the different areas of the reserves, as well as the penalties for evading these duties and committing offenses such as excessive hunting, contamination of rivers, lakes and streams, fishing or hunting in prohibited places and disrespect for sacred sites, among others.

The territory for these communities is divided into different types, and each has a designated use:

- **Mountain**: is the object of conversation, collection of medicine, fruits and seeds. Timber is also extracted from permitted areas and with the respective permission.
- **Cananguchales (moriche palm swamp)**: A space that provides fruit for food and animals, it is a hunting area.
- **Rastrojos (stubble)**: The harvesting of fruits such as grapes, chontaduro, caimo, among others, is carried out.
- **Vegas:** These are ideal areas for planting depending on the level of flooding. Where there is less flooding, banana crops, corn, etc. are planted**.**
- **Salados (salt lick)**: water troughs for animals, many are considered sacred sites and hunting there requires a series of permissions and specific care.
- **Chagras**: Place of sowing of each family, from where the main food of the diet of the communities and the basis of their diet, cassava, is extracted.
- **Lagoons**: Fishing areas where fish such as cachirri, carabasu, piranha, among others, are abundant.
- **Rivers, streams and creeks**: It is also a fishing and water supply area.

Huitora Territorial Management Plan (2014).

The good management of natural resources and of the territory in general depends, therefore, on the survival of their traditional subsistence and environmental care practices. However, on different occasions over time, the presence of other actors such as

settlers and illegal armed groups in the territory has put the ecosystem balance at risk, causing damage and affecting it. Among these activities that communities have identified as drivers of deforestation are logging for cattle ranching, illegal logging for timber extraction, fumigation of illicit crops, and exploration of the territory for hydrocarbons (Huitorá, 2014). Additionally, they mention that in many cases deforestation is associated with compensation projects for hydrocarbon activities focused on cattle ranching (Huitorá, 2014).

Consequently, the communities involved in the project consider that their care of the territory also depends on strategies to reach agreements with other actors that maintain inadequate uses of the territory. To this end, they have defined in their territorial management plan a zoning plan divided into: conservation zones: areas for environmental protection and sustainable use of resources. *Production zone* or production plains: areas used for banana and corn cultivation. *Hunting zone* such as salt licks, mountains, streams, where hunting activities are carried out for consumption. *Timber exploitation zone*: areas for sustainable timber extraction. And in the case of Huitorá, one more is added, the *reforestation zone*: 6 hectares within the reserve that are the object of a reforestation project with fruit and timber trees.

The way of relating to nature through the sustainable management of resources has turned these communities into enemies for these actors with interests in their lands. The struggle to protect the land and the environment is increasingly dangerous around the world, and especially in the Amazon (Zapata, 2020), the focus of interest of extractive industries. The weakening of the tradition of indigenous peoples, through violence, has been an objective of these groups in order to establish themselves in the areas of the Amazon (Zapata, 2020).

Because the territory, as part of the cosmogony of the Uitoto people, is not simply a delimited portion of land, the consequences that deforestation has brought and still brings, are not only perceived from the visible and evident. There is a latent possibility that these communities may lose communication with other forms of life that inhabit the territory, that take care of it, that are part of the cultural fabric and social life.

Communication with nature is based on reciprocal exchange relations aimed at preserving the conditions necessary for the reproduction of life. Throughout the country, indigenous communities perform healing practices, pilgrimages to sacred sites, offerings at sacred sites: multiple rituals, as in this case the ceremony of the traditional dances, which, without agreeing with each other, contribute to the great network that protects life and balance.

These rituals and practices of communication and exchange with nature on a material and spiritual level have been interrupted in most cases by war or the presence of economic actors that appropriate areas of the territory, limit the mobility of the communities, paralyze their ethno-educational and health processes, interrupt the use of ecological calendars, and change the cultural and material offerings of the host communities, etc. As a consequence, communities end up stripped of the responsibility for the care of their land and the power to exercise it (Ingold, 2012, p. 35.). Due to this and the armed conflict, the Uitoto or "Murui-Muina" people are among the 34 peoples at risk of extinction included in Auto 004 of 2009, which ordered the creation of Safeguard Plans for the restitution of rights and the overcoming of the ECI (unconstitutional state of affairs, ECI by its spanish acronym)

By ordinance No. 03 of November 12, 1985, the municipality of Solano was established, located in the southeast of the department of Caquetá, with an area of 42,486Km2, representing about 48% of the department's territory and a population density of 0.3 inhabitants/km.[52].

Most of the territory is part of the Amazon Forest Reserve Zone (Law 2) and the Serranía de Chiribiquete National Park, according to the municipality's EOT. The rural area is made up of seven population centers: Araracuara, Peñas Blancas, Mononguete, La Maná, Coemaní, Danubio, Campoalegre and Puerto Tejada, seventy-seven villages, twenty indigenous reservations and two military air bases[53].

As for the indigenous reservations, they are a legal and socio-political institution of special character, formed by one or more indigenous communities, which, with a collective property title, enjoy the guarantees of private property, own their territory and are governed for its management[54], are constituted according to the procedure established in Decree 2164 of 1995 and in accordance with articles 63 and 329 of the Political Constitution of 1991, the municipality of Solano has the largest extension of indigenous reserves with 605,261.37 hectares involving 117 properties [55].

[52]Plan de Desarrollo 2020-2023 Plan de Desarrollo "Por Un Solano Más Humano, Productivo, Sostenible Y En Paz". 2020 - 2023. - Alcaldía Municipal de Solano - Caquetá (solano-caqueta.gov.co)
[53]Instrumento de ordenación territorial (Documento Técnico de Soporte) Municipio de Solano 1-DTS_DIAGNOSTICO_Solano_.pdf (minambiente.gov.co)
[54] Decree 2164 of 1995, aricle 21 Decreto 2164 de 1995 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[55]Plan de Desarrollo Departamental – PDD 2020 - 2023 "Pacto Social por el Desarrollo de Nuestra Región" pdd-caqueta.pdf (sedcaqueta.gov.co)

The head town is located on the banks of the Caquetá River and is 154km away by river via the Orteguaza and Caquetá Rivers from Puerto Arango[56], Solano is an important port for commercialization and communication with the departments of Putumayo and Amazonas, and a large part of the Amazon Basin[57].

In the municipality there are 11 soil units that make up geomorphological landscapes of Lomerío, Alluvial Valley and Massif, with a warm and humid climate. These soil units are moderately deep and deep, well drained, with medium to fine textures; high to very high aluminum saturation, very strongly acid reaction, low natural fertility and depends on the incorporation of organic matter through vegetation biomass as is characteristic of Amazonian soils[54].

The capacity of the soils of the municipality is based on the general study of soils of the department of Caquetá, scale 1:100,000, prepared in 2013 by the Geographic Institute Agustín Codazzi (IGAC), for the municipality lands of class IV to VII were identified, with a predominance of class VII (58% of the territory) which corresponds to the capacity of the land for ecological and soil restoration, forest production protector - producer, it is recommended to avoid agricultural activities and perform control of thinnings.[54].

Table 43. Capacity and land use.

Class	Extension ha	%	Use
IV	30.000,58	1	Areas of main interest for being the most fertile land in the municipality, they should be considered for optimal use and be declared as areas for agricultural and livestock production and exploitation under Dec. 3600/2007[58]
V	462.553,01	11	Due to their fertility conditions and suitability for food production, they must be used for agricultural, livestock, forestry or natural resource exploitation purposes in accordance with Decree 3600/2007.
VI	1.196.269,84	28	Where part of the productive activity is developed, although this class has limitations due to humidity, slope and fertility. Therefore, the best use of these lands is the agroforestry activity, of equal importance

[56] Plan de Desarrollo 2020-2023 Plan de Desarrollo "Por Un Solano Más Humano, Productivo, Sostenible Y En Paz". 2020 - 2023. - Alcaldía Municipal de Solano - Caquetá (solano-caqueta.gov.co)
[57] Instrumento de ordenación territorial (Documento Técnico de Soporte) Municipio de Solano 1-DTS_DIAGNOSTICO_Solano_.pdf (minambiente.gov.co)
[58] Decree 3600 of 2007 Decreto 3600 de 2007 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

			should encourage activities related to the conservation and restoration of soils, as well as the use of standing forest. Towards the south of the municipality, where there are masses of natural forest, it is important to coordinate conservation and promote its study and knowledge, since it is part of the protected areas of NNP Chiribiquete.
VII	2.275.117,22	54	The vocation of these lands is oriented towards protective - productive forest use. However, a considerable area of the municipality is affected by the agricultural frontier

3.5.1.2 Sociocultural

There are approximately 148 people living in the community of Huitora, 80 men and 68 women. (DANE.2021).

Community	Men	Women
Huitora	80	68

The kinship relationships that have occurred in the community, allow us to see how families of different ethnicities have been formed: Murui, Ocaina, Inganos and whites. Predominating in great majority the Uitoto people or "Murui-Muina", being the prevailing culture in the territory of the reservation with the following clans;

Each one represents a family by means of a plant or an animal.

- Jificueni Clan
- Zuruai (Danta) Clan
- Ñekireni (Kumare) Clan
- Emoki Clan

- Zikidaɨ (Guadua) Clan
- Kanienɨ (Pindo) Kuyecudo Clan, Kanienɨ Clan
- Ɨmeraɨye Clan, Ɨmeraɨye (Boruga) Clan Farirama Ɨmeraɨye Clan Kanienɨ Clan
- Nonuyaɨ (Achote) Clan, Nonuyaɨ Clan Zuruaɨ Clan Nonuyaɨ - Clan Jificuen. Clan

In the community of Coropoya, there are 89 people living in the community, 20 adult women, 25 men, 20 boys and 24 girls. (DANE, 2021).

Community	Men	Women
Coropoya	45	44

Currently in the reservation we find the Caimo, Canangucho, Culebra and Tabaco clans. The native language is preserved with the dialects of Mɬka and Nipode. (Coropoya, 2014).

In general, as this is a territory with greater indigenous occupation, its sociocultural development is based on subsistence systems based on itinerant agriculture, hunting, fishing and the gathering of forest products.[59].Itinerant agriculture is established in areas of 1 to 2 hectares, known as chagras, and consists of the following technological steps: The hunting is practiced in different places and times of the year, in the high variety of potential hunting areas existing in the region, a species is never exploited since only the animals necessary for consumption are hunted; the same happens with fishing, which is practiced with a very high variety of techniques and bait, fishing only the species that meet the appropriate conditions.[60]

As for the collection of forest products, it is done by harvesting plants according to the needs of each community and the environmental supply (spatial and temporal), the

[59] Plan de Desarrollo Municipal 2012-2015 "CON LA COMUNIDAD Y PARA LA COMUNIDAD, EL PROGRESO SIGUE SU MARCHA". (esap.edu.co)
[60] Integral life plan for the Uitoto people of Caquetá.

intensity of harvesting is controlled by iya+ma who is in charge of maintaining the balance between the community and nature.[58]

In addition, the indigenous peoples of Solano have made significant progress in the management of the reserves through Management Plans, designed by the communities with their indigenous organizations, and articulated with the Life Plans that are derived from the cosmovision of the peoples and their knowledge of the forest[61].

Among the territorial management plans of the indigenous reservations is the Coropoya Indigenous Reservation, which initiated the development of the plan in 2011, which allows them to take care of the territory, as stated by Casique Yuber, Grandmother Enelia, and promoter Edisa Buendia[62]:

"Territorial management is the way of ordering that our ancestors applied, to defend and safeguard nature, and the healthy custom of our people with their beliefs. It is important for us because the new generations will always preserve and will know day by day the communication between man and nature and by writing it down we make a statement to the world, letting them know how we have survived through time".

On the other hand, the peasant communities that inhabit the territory have undertaken important organizational processes in agrarian and environmental matters, with the creation of environmental committees in each of the villages, and several of them have regulations on the conservation of portions of the forest at the farm level[63]

This arises thanks to the Environmental Agenda of the municipality of Solano and the design and implementation of the Development Programs with a Territorial Approach – PDET (by its acronym in Spanish) - arising from the Peace Agreement, which have allowed the participation of the communities in agrarian policies demanding access to land and the formalization of property rights, as well as the clarification of land ownership and territorial boundaries[64]

[61] Actualización del Plan de Acción para Reducir a Cero la Deforestación y Adaptación al Cambio Climático del Municipio de Solano, Caquetá
[62] Territorial management plan for the Coropoya indigenous reservation
[63] Municipal Development Plan 2012-2015 "CON LA COMUNIDAD Y PARA LA COMUNIDAD, EL PROGRESO SIGUE SU MARCHA". (esap.edu.co)
[64] Plan de Desarrollo Municipal 2012-2015 "CON LA COMUNIDAD Y PARA LA COMUNIDAD, EL PROGRESO SIGUE SU MARCHA". (esap.edu.co)

3.5.1.3 Economic

The indigenous reservations of Huitora and Coropoya have as a means of subsistence the traditional cultivation of the *chagra*, a complex system of cultivation, based on rotation and ecological restoration, which allows the communities to maintain a diversity of their own food, such as cassava, plantain, corn, sugar cane, yam, umari, chili, pineapple, coca, and tobacco, among others. A variety of tubers, fruit trees and other food and medicinal products, which allow the inhabitants of the territory to have an adequate diet for the context, complemented with other traditional practices such as fishing and hunting.

"The great variety of fauna is represented in the importance of this practice in our community over time. Our grandparents taught us that in the past animals were hunted but varied, one day they hunted a *guara*, another a *boruga*, another a *cerrillo*, etc. Besides, there were few people, the settlers were far away, so there were no shotguns and that is why not many were killed." (Plan de Manejo Huitora 2014)

These cultural practices provide the communities, more than a means of subsistence, with a source of sovereignty and autonomy to inhabit the territory as native Indians, based on their traditional practices; however, as a subsistence economy, they do not represent a major source of income. The main products of the *chagra* hunting and fishing are for self-consumption; the surplus of some products, such as cassava transformed *into fariña, chili, mambe or ambil*, are sold in nearby municipalities such as Tagua or Puerto Leguizamo, as well as the surplus of hunting and fishing. This practice is considered a scavenging economy, in which they obtain minimal economic resources to supply themselves with basic products such as soap, salt, oil, batteries and gasoline, among others.

Some individuals of the communities have undertaken productive projects such as the elaboration of their own handicrafts and the production of chili peppers for trade, which represent an economic income, which is not enough to cover all their needs, considering the demands of the interculturality they face today.

These communities have had settlers enter their territory to extract and commercialize timber due to the quantity and variety of timber trees they have, a practice that weakens the conservation of the territory and its traditional management. Illicit crops also offer an opportunity to generate economic income due to the lack of opportunities to generate economic resources.

Consequently, the economy of the territory of these two indigenous reserves is driven by social, cultural and environmental projects, managed by NGOs and the State itself, which

are intermittent and do not represent economic stability for the population. Therefore, the communities have expressed their interest and willingness to strengthen the local economy by strengthening their own capacities to produce food, medicinal and handicraft products, practices that make possible the cultural strengthening and conservation of the territory, through this project.

In the municipality, the exploitation of products such as bananas, cassava, sugar cane, corn, cattle and fish production of *bocachico* and *cachama* are part of the resources with which the inhabitants manage their economy[65].

It should be noted that most of the territory is covered by undisturbed rainforests, in addition to the area that corresponds to the Chiribiquete National Park, which has ecotourism and research potential[20].

Within the framework of the analysis of the characterization and cultural use of fauna and flora for the eight reservations of the Net Zero Deforestation (NZD) project, the following is highlighted for the Coropoya reservation[66]:

"The economy of the indigenous locality is based on agricultural work, from which they obtain the sustenance they need to survive and maintain their families with enthusiasm and progress. The most productive crops that are rarely marketed are cassava (essential for daily sustenance), plantains, corn, grapes, guama, and caímos, among others. Poultry and livestock are also grown in small quantities. In these agricultural activities the most commercial, but with little space is cattle, poultry and corn and minimal part of the fruits. The families commercialize these products to sustain themselves from the needs that are not covered by the products of the region, such as clothing and certain basic foodstuffs in the region. The families and young people support these activities, but they also usually go out to work on farms in neighboring villages to cover their economic needs. The organization of the community relies on the disbursement that comes from transfers (resources that come from the state), with these resources the basic needs of the indigenous inhabitants are covered.[64]

Cassava is the basis of food and is processed for consumption, it occupies a space of great importance in the daily life of the family from which cassava, fariña, chomendo, juare and caguana, which is made from its starch, are obtained, in addition to being consumed sewn

[65] Instrumento de ordenación territorial (Documento Técnico de Soporte) Municipio de Solano 1-DTS_DIAGNOSTICO_Solano_.pdf (minambiente.gov.co)
[66]Characterization and cultural use of fauna and flora for the eight resguardos of the NZD project. PAooJJTV.pdf (usaid.gov)

and roasted. The daily diet is based on cassava, fish broth and chili. This is shared equally among the members of the household. Also, enough with the objective of conserving it. It is common that when one of the inhabitants does enough hunting, he/she offers a piece to everyone in the community, that is to say, he/she shares. When economic times are good, the family buys commercial products to vary the food, this seems pleasant, but what can be said is that a meal without meat, fish or cassava derivatives is not a meal for a Uitoto Coropoyuno." [64]

In addition, according to information from CORPOAMAZONIA, between 2002-2007, 19,635.3 m3 of raw timber of commercial species known locally as cottonwood, *chapo, perillo, tamarind, caimo*, and ivory were harvested. Mining activity is limited to the use of dragged material and alluvial mining, the latter of which is illegal in most cases[67].

3.5.1.4 Historical

The current location of the indigenous reservations in the upper Caquetá River dates back to the beginning of the 20th century. In the case of Coropoya, the first families arrived approximately between 1920 and 1940, and in Huitorá during the 1940s. The first settlers came from the middle Amazonian zone near the territories of La Chorrera and El Encanto (HUITORA, 2014). The migration process occurred during the *rubber, balata and quina* era, due to the violence exerted by rubber tappers and the Casa Arana, which, although by that time no longer existed, continued to have an influence over these ancestral territories. The conflict between Colombia and Peru was another cause of this displacement, the indigenous people were forced to work in rubber extraction or to be soldiers, so the families decided to leave the territory and embark on a journey through the jungle where many died or had to return for lack of food. (HUITORA, 2014).

In the case of Coropoya, the first family to arrive was that of Mr. Angulo Busbano and Leticia, his wife, who settled on the banks of the Coropoya Creek and built their traditional house of wood and palm leaves (Coropoya, 2014). Five years later, Mr. Julio Castro and Carmen Torrifo arrived with their children, and during the following years other families, parents and grandparents of the current inhabitants continued to arrive. The surnames of Spanish origin were imposed during the evangelization process of the Capuchin Tertiary congregation (Coropoya, 2014), however, although the objective was to replace the clan names, these are still preserved. According to their narratives, it was the families of the Cɨneni clan, the Jificueni clan and the Uiyueni clan who were the founders of the community. Despite the fact that these communities largely preserve their culture and

[67] Corpoamazonia Municipio de Solano (corpoamazonia.gov.co)

tradition; the territory and its dynamics have been significantly affected by the acculturation and colonization processes that have taken place in the region, framed in a regional and national development model, based on State policies.

"The occupation and development that has taken place in the Amazon during the XX and XXI century, responds to a complexity of policies, social and economic situations that the country has faced and that have had repercussions on the state of the ecosystems. Deforestation as one of the main impacts, responds mainly to the opening of the agricultural frontier, which in turn has been partly a response to government policies, whose search to increase agricultural production in the country and fight against poverty, has supported production models, such as extensive cattle ranching based on agricultural policies that at the beginning did not recognize the environmental and social reality of the Amazonian territory" (Eliana Garzon 2016)

The Colombian state recognized Caquetá as a Special Commissariat in 1912. In 1950, it was promoted to the category of Intendancy and finally recognized as a department in 1982[68]. The municipality of Solano was founded by General José Dolores Solano in 1936 after receiving the legacy of families such as the Romano, Quintana and Echeverri, who already occupied the periphery. Its designation as a police inspection took place in 1975 and ten years later it was established as a municipality[69] by ordinance No. 03 of November 12, 1985.

The colonization of the department was mainly due to the *quina* and rubber bonanza at the end of the 19th century and beginning of the 20th century, which led to the dispersion of the indigenous population. The indigenous communities living in Solano are divided into the Uitoto, Koreguaje, and to a lesser extent the Andoke, Inga and Nasa ethnic groups.

These indigenous communities are associated with local indigenous peoples' organizations and are affiliates of the National Indigenous Organization of Colombia, ONIC[70] at the national level and the Organization of Indigenous Peoples of the Colombian Amazon, OPIAC.[71].

In the case of the Korejuajes people, according to the life plan of the people (CRIOM organization) "*the group of the Koreguaje people of the area came from Brazil and went up the Caquetá river, they arrived at their first settlement which is known as Santa Maria -*

[68]Ethnic and educational characterization of the department of Caquetá Microsoft Word - anexo_caqueta.doc (colombiaaprende.edu.co)
[69]Caquetá Government SOLANO - Gobernación del Caquetá (caqueta.gov.co)
[70] ONIC - Inicio
[71] OPIAC – Organización Nacional de los Pueblos Indígenas de la Amazonía Colombiana

Chijaicha (in Putumayo: There they arrived with the Cacique - curaca Miguel Piranga. For this ethnic group this is a sacred site). Then they began a nomadic route and moved to the municipality of Solano then Tres Esquinas, followed by Jerumano, Mekasaraba (today San Luis), Ericha, Puikuti where the Mama Bwe school is today, El Tigre, Rio Pescado, Rio Bodoquero, Chosaaro. When they reach this point they return to Santa Maria without settling in any of the other sites mentioned for more than 5 years, this journey was made over 50 or 60 years, they settled for short periods that allowed them to plant chagra and leave it for when they returned to pass through this site."[72]

For the characterization of the Uitoto people, according to the life plan of the Huitoto people of Caquetá (ASCAINCA organization) the inhabitants of this area are of "jungle culture, cassava and ambil…". Amazonian village located in the middle zone of the Caquetá and Putumayo rivers, from the Caraparaná and Igaraparana banks in the department of Amazonas. Within the cosmovision of this people it is specified that their toponymic spaces are in the middle zone of the Amazon, near the towns of La Chorrera and El Encanto. Of this they give the example of "the Komuyafo" or cave from where the first men were coming out, the lake of agaronuio that defined the name of the respective clans and dialects"[73]

The Andoque village "traditionally occupied a large territory extending from the Monochoa stream, up the Araracuara river, to the Quinche stream, both tributaries of the Caquetá river. *They were divided into relatively autonomous lineages comprising more than 10,000 people; each lineage lived in a maloka, the epicenter of the group's social, spatial and ceremonial life. Ethnohistoric evidence speaks of extensive exchange networks between groups in the region that inhabited different environments"*[74].For the Inga village "*They are descendants of the Incas and arrived in the region as military outposts in the process of expansion of the empire. They belong to the Quechua linguistic family, who with the desire to expand their territory arrived in the Sibundoy Valley and Mocoa around 1942 and the second most important settlement was Puerto Limón, located on the banks of the Caquetá River, from where the communities or settlements that we have today in the Department of Caquetá have migrated"*[75]

[72]Caracterización y uso cultural de fauna y flora para los ocho resguardos del proyecto NZD PAooJJTV.pdf (usaid.gov)
[73] Caracterización étnica y educativa del departamento del Caquetá Microsoft Word - anexo_caqueta.doc (colombiaaprende.edu.co)
[74] ONIC - Pueblos
[75]Plan de Desarrollo Municipal 2012-2015 "CON LA COMUNIDAD Y PARA LA COMUNIDAD, EL PROGRESO SIGUE SU MARCHA". (esap.edu.co)

And finally, the Nasa village "They are concentrated mainly in the Tierradentro region, between the departments of Huila and Cauca. Some have settled in the south of Tolima, in the department of Valle, and others migrated to Caquetá and Putumayo"[76]

3.5.2 *Key stakeholders, interests and motivations*

The following table presents the actors, motivations, actions and impacts (direct and indirect) that generate deforestation and degradation in the project area:

Table 44. Relationships between actors, motivations and impacts of deforestation.

N°	Actors	Motivation	Causes	Actions	Direct or indirect
1	**Government entities**	Socials	State neglect	Due to the neglect of governmental entities, activities that fuel deforestation are strongly developed in the area to obtain a minimum livelihood.	Indirect
2	**Illegal groups**	Economic/Social	State neglect	Illicit crops - pollution of water sources	Direct
3	**Cattlemen**	Economic	Livestock demand	Water contamination due to livestock activities - Soil erosion	Direct
4	**Mining entrepreneurs/illegal mines**	Economic	Hydrocarbon extraction	Facilitates urban conglomeration in forest areas and generates harmful environmental impacts for the ecosystem and the population.	Direct
5	**Peasants**	Socials	Lack of sewerage	Poor solid waste management	Indirect

[76] Gobernación del Caquetá SOLANO - Gobernación del Caquetá (caqueta.gov.co)

6	**Farmers/ Agents of passage**	Economic	River transportation	Passage through rivers for the transport of goods or people often leads to water contamination with gasoline.	Indirect
7	**Indigenous**	Social/Cultural	Cultural tradition/ Agriculture	Burning of chagra for food cultivation	Direct
8	**Peasants**	Socials	Settlement and peasant colonization/ Urbanization processes	Expansion of the agricultural frontier - contamination of rivers (Caquetá, Orotuyo, Caguán)	Direct
9	**Indigenous**	Socials	Lacking: Access to potable water, basic sanitation, energy and solid waste management.	Urban habitat patterns leading to the colonization of water sources	Indirect
10	**Governments**	Economic	Titling of vacant land	Expansion of the agricultural frontier for the productivity of wastelands, especially for agricultural land use.	Direct
11	**Peasants**	Social/ Economic	Felling of forests	Illegal timber commercialization to generate private income.	Direct
12	**Indigenous**	Social/Cultural	Timber harvesting and extraction	Generate a use of the wood found in the forests to supply collective needs within the resguardo.	Direct

3.5.3 *Relationships and synergies*

The multiple causes of deforestation in the territory directly and indirectly affect the development of indigenous communities and the well-being of ecosystems. The following is an explanation of the socio-environmental relationships presented in Table 44:

1. Deforestation has become one of the most complex socio-environmental problems of the territories, especially those that, thanks to their geographical conditions, facilitate various activities, mostly of an economic nature, thus seeking a number of strategies to justify it. It should not be ignored that the actors, causes, impacts and actions vary depending on the motivations, however, the greatest impacts are received by the indigenous communities, as shown in the following table:

Table 45. Forest and loss in areas of indigenous reserves.

INDIGENOUS RESERVATION	FOREST LOSS (HA)
Aduche	31.99
Aguas Negras	211.67
Coropoya	52.08
El Guayabal	231.91
El Porvenir Kananguchal	0.00
El Quince	70.58
El Triunfo	3.13
Jericó-Consaya	166.40
La Esperanza	4.98
La Teófila	4.88
Mesai	13.78
Monochoa	89.77
Niñeras	152.09
Paez Del Libano	13.07
Puerto Naranjo, Peñas Rojas, Cuerazo Y El Diamante	46.52
Puerto Zábalo Y Los Monos	173.99
Witora O Huitora	58.19
San Miguel	7.39
Total	**1,332.41**

Source: (Visión Amazonia, 2020)

2. Due to state neglect and the centralization of authorities, the lack of state coverage leads to the development of illegal activities, focused on illicit crops, which cause the deforestation of the territory, and in turn, a change in the social, cultural and economic dynamics of the population. Since the only source of work and authority

is concentrated in the illegal groups, the community is forced to take part in this situation in order to survive.[77]

This crop, when part of the illicit dynamics, contributes to colonization processes, since coca leaf can be cultivated on extensions of land that may belong to the families living on the land, harvested and marketed in the same environment. In the same sense, the monetary value that this product has in the market can even cover the costs of transportation and production, making it an element of great advantage (at a commercial level) over other agricultural products that involve greater expenses than profits. [78]

Consequently, illicit coca cultivation is the backbone of deforestation in the Amazon due to its relentless demand and the pillar of income it represents for the colonist communities present in the area, since, thanks to this, they can access basic programs that contribute to human development, such as education, health, among others.

3. Cattle ranching has many conflictive implications not only in the environmental field (which, by the way, is one of the most damaged), but also in the social aspect, due to the fact that it is a directly proportional relationship. "In the first and fourth quarters of 2018, the alerts were concentrated in the Caño Verde, El Trébol, Puente Boyacá, Santiago de la Selva and Rosal villages. According to IDEAM, this nucleus is dominated by the establishment of pastures for the appropriation of the territory and for extensive cattle ranching. Soil conditions and limited accessibility make agricultural production difficult, so the agents prioritize livestock production".[79]

   The impact it has on the natural resources of the areas where it is developed is voracious, and leads to the contamination of water sources, soil and air, this determines that the nearby population centers are deeply affected, and in turn, it is necessary to take into account that this business benefits only economically the

[77] (Alcaldía Municipal de Solano, s.f)
[78] (Alcaldía Municipal de Solano, s.f)
[79] (Alcaldía Municipal de Solano, s.f)

cattle rancher, which leaves the fateful consequences to the communities and the profits to the owners of the cattle. [80]

According to the above, the great demand for land involved in developing this activity involves the transformation of the landscape, resulting in another socio-environmental problem, which generates the displacement of communities, the change of land use in strategic areas, resulting in social eviction, an imminent threat to environmental protection areas and irreversible effects on water, soil and air. [81]

4. The extractivist process of non-renewable resources has a high degree of impact on ecosystems and therefore on the populations that inhabit them. Although the number of hectares for its development does not involve as many hectares as other types of activities, the rudimentary methods used for illegal mining generate serious and irreversible damage to ecosystems. In addition, the transformation of forest areas for the transportation of minerals and urban settlements due to the dynamics that are established in mining areas.

It should be noted that mining is an activity that in itself generates all the harmful impacts already mentioned, and to make the picture clearer, there are testimonies that leave figures to rethink the permits and the control involved: *"In June 2021 several indigenous communities saw five boats illegally mining in the Caquetá River. Satellite images showed up to 19 boats in the same month on the Puré River, one of its tributaries."*[82]

[80] (UNODC, 2010)
[81] (Alcaldía Municipal de Solano, s.f)
[82] (Sánchez, C, 2021)

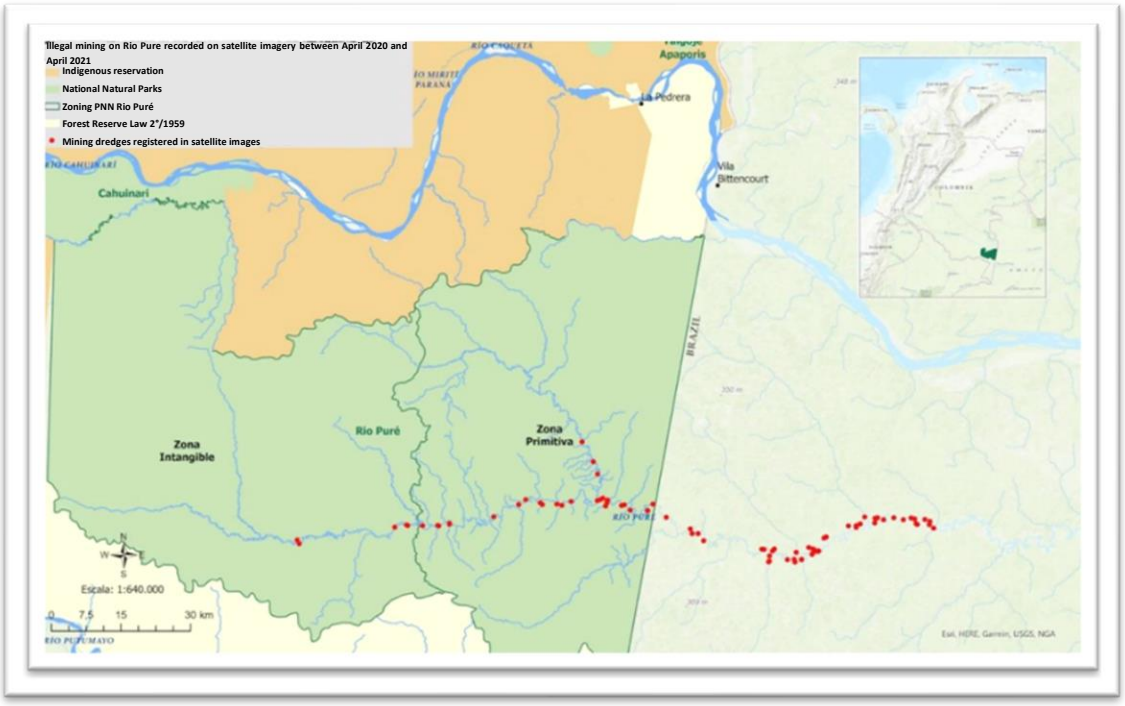


Illustration 31. Illegal mining dredges recorded along the Puré River. Colombia and Brazil. Source: MAXAR. (2021).

Similarly, the impact on human health causes irreparable damage *"In 2019 a study showed the impact of mercury on the health of indigenous people in the middle Caquetá river basin. Illegal mining does not stop and there is great fear that indigenous people in isolation are facing unknown diseases and becoming increasingly confined as they flee contact with the West."*[83]

"According to the Instituto Nacional de Salud (INS), **a person exposed to mercury should have no more than 15 micrograms per liter of the metal in the blood.** The problem is that, at least in the middle Caquetá River basin, the limits have already been exceeded. And not by a little.

In September 2018, a sampling carried out in the 12 communities, which are part of the Puerto Zábalo - Los Monos reservation found that its inhabitants registered up to 100 micrograms of mercury per liter of blood. **Four times the maximum allowed.** The study, which was conducted by the Caquetá Health Secretariat, National Natural Parks and the

[83] (Sánchez, C, 2021)

Ministry of Justice, among others, is one of four, and the most recent, that have been conducted in the region to understand the effects of mercury".[84]

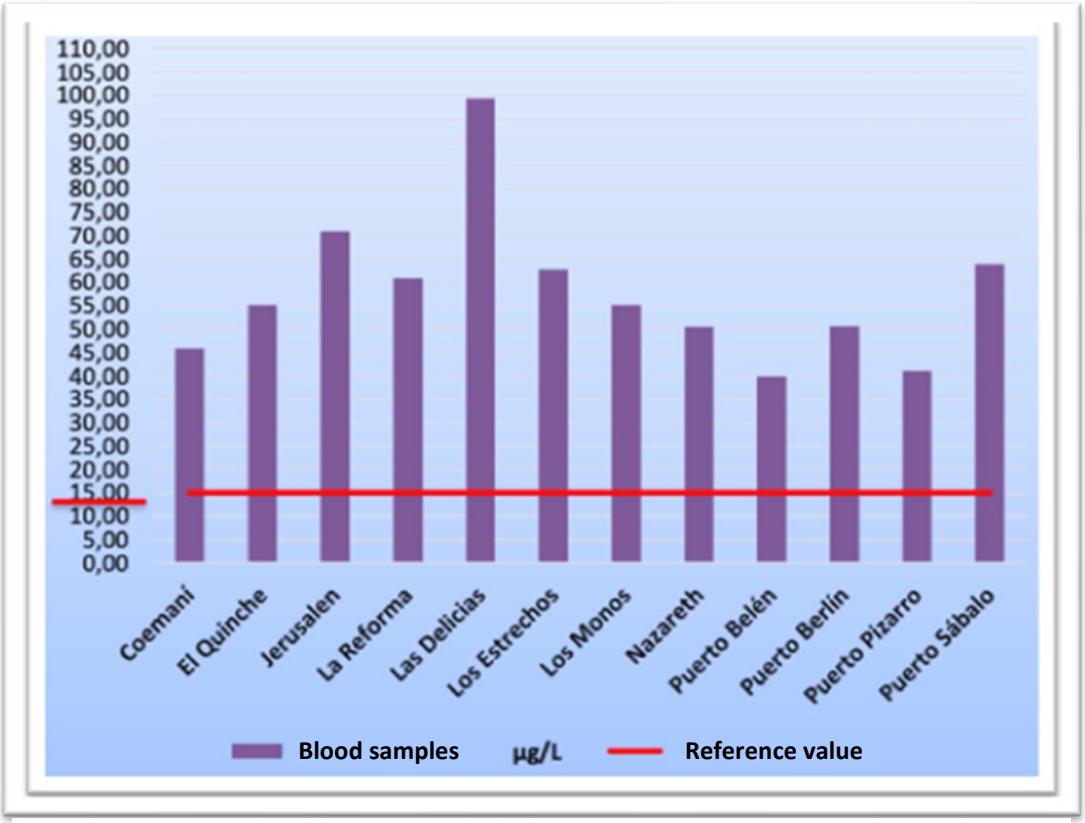


Illustration 32. Blood mercury concentration levels in 12 indigenous communities in the middle Caquetá river basin (µg/L).

Source: (Sánchez, C, 2021).

5. The inadequate management of solid waste by the communities living on the banks of the Caquetá River, such as the towns of Mononguete, Campo Alegre, Las Mercedes, Peñas Blancas and Puerto Tejada, leads to a public health problem, since this is the main water source for human consumption. [85]

   This is due to the poor implementation of public sewage systems, in addition to the lack of drinking water and basic public services for human development"The conservation of the forest cover of the indigenous reservations in the central sector of Solano is very important for this sector; less so in the Coropoya reservation

[84] (Sánchez, C, 2021)
[85] (Alcaldía Municipal de Solano, s.f)

whose deforestation dynamics is associated with the colonization of the Caquetá River from the western sector of Solano. The other two reservations in the area, Huitora and Aguas Negras, have forest cover in more than 90% of the territory under the collective ownership of the indigenous villages" [86].

Table 46. Deforestation and conserved forests by indigenous reservation in the central sector of Solano.

Reservation	Area (Has)	Deforestation 2002 - 2012	Proportion of reservation area	Deforestation 2012 - 2020	Proportion of reservation area	Preserved forest 2020	Proportion of reservation area
Aguas Negras	18.424,4	200,0	1,1	482,6	2,6	16.576,3	90,0
Coropoya	3.922,9	173,0	4,4	126,4	3,2	2.696,6	68,7
Huitorá	67.220,0	127,0	0,2	64,2	0,1	62.735,1	93,3

Source: (Solano Municipal Mayor's Office)

6. River transport is also an actor that indirectly generates an impact on deforestation techniques in which the territory is involved. The spillage of gasoline from commercial cargo generates irreparable damage to water sources; water contamination also damages the ecosystem and has harmful effects on the communities that use it as a source of human consumption. [87]

7. The indigenous tradition involves a number of important rituals and symbolisms for their cosmovision, from which fundamental milestones for the survival of their culture are derived. The burning of chagra, which involves the demolition of the mountain during the month of November and the subsequent incineration during December, is one of the most important events for the community. However, in turn, it implies deforestation and forest degradation dynamics.[88]

[86] (Alcaldía Municipal de Solano, s.f)
[87] (Alcaldía Municipal de Solano, s.f)
[88] (Comunidad del resguardo indígena Coropoya, 2014)

Illustration 33. Coropoya Ecological Calendar.

Source: (Community of the Coropoya indigenous reservation, 2014).

8. The urban expansion that has been developing in the municipality of Solano is really overwhelming, involving colonization and deforestation of the rainforest. Likewise, mitigation campaigns to minimize the impact of these dynamics are based on the planning of urban centers, seeking sustainable development. que permita el acceso a los servicios básicos de bienestar (salud, educación, trabajo, that allows access to basic welfare services (health, education, work, etc.).

Additionally, from there, a civic culture awareness should be created to help reduce net deforestation to 0. However, this is not only present in the peasant population. [89]

9. This also involves the indigenous reservations, since "Indigenous communities carry out a densification process different from the urban centers of non-indigenous population, which is framed in their own schemes of political and socio-cultural organization, but also present significant environmental problems that are similar to those existing in urban centers of non-indigenous population, especially regarding access to drinking water, basic sanitation, energy and solid waste management." [90]
10. The titling of uncultivated lands has become an issue that puts the use of the land, and with it, the delimitation of the agricultural frontier, in serious conflict. When the national government cedes the wastelands so that they can be cleared of their natural cover and used for productivity, especially agricultural productivity, it not only establishes that these lands will only reach the hands of people who have the capital to put them into production, but it also establishes that these lands will only be used by people who have the capital to put them into production., but also establishes the detriments that make possible the deforestation of environmentally protected areas, and the invasion of nearby areas where indigenous reserves are located. The above, develops a socio-environmental conflict in which the greatest impacts will be assumed by the indigenous communities and the ecosystems, while the advantages will be for those agents that manage to produce and commercialize the products that grow there. [91]

The limits of the agricultural frontier, especially in the west of the municipality, become quite conflictive for the relationship between the peasantry and the indigenous groups, because the latter are left in the middle of the agricultural colonization, which involves breaking the rural expansion strategy and conceives the agricultural frontier as a function of peasant needs, thus ignoring the forest protection areas and the dividing lines of the indigenous reserves. [92]

In conclusion, "The smaller reservations are surrounded by peasant colonization zones and are located in the middle of the rural settlement; however, on average 57.3% of the area of the reservations is covered by conserved forests, more than double that of the peasant nuclei. In addition, there is a correlation between the smaller size of the indigenous reserves, the smaller proportion of forest cover and the greater deforestation.

[89] (Alcaldía Municipal de Solano, s.f)
[90] (Alcaldía Municipal de Solano, s.f)
[91] (Jimenez, J, 2020)
[92] (Alcaldía Municipal de Solano, s.f)

In indigenous territories, 17.4% of their area was deforested between 2002 and 2020 on average." [93]

Table 47. Deforestation and conserved forests by indigenous reservation in the western sector of Solano.

Reservation	Area (Has)	Deforestation 2002 - 2012	Proportion of reservation area	Deforestation 2012 - 2020	Proportion of reservation area	Preserved forest 2020	Proportion of reservation area
Coropoya	3.922,9	173,0	4,4	126,4	3,2	2.696,6	68,7
El Guayabal	607,4	15,5	2,5	344,0	56,6	240,5	39,6
El Triunfo	194,2	11,9	6,1	0,0	0,0	81,9	42,2
Jericó Consaya	8.450,5	107,0	1,3	125,3	1,5	7.489,3	88,6
La Esperanza	114,5	7,0	6,1	15,9	13,9	32,2	28,1
La Teófila	1.677,0	71,8	4,3	18,1	1,1	1.505,8	89,8
Niñeras	3.394,5	123,3	3,6	46,4	1,4	2.509,6	73,9
Paez del Líbano	447,1	59,9	13,4	0,0	0,0	334,7	74,8
Puerto Naranjo	2.220,5	206,1	9,3	19,2	0,9	977,8	44,0
San Miguel	173,1	76,6	44,3	0,0	0,0	25,3	14,6
El Porvenir Kananguchal	530,7	23,5	4,4	14,2	2,7	349,8	65,9

Source: (Mayor's Office of Solano, n.d.)

11. The collection and extraction of timber by the indigenous reserves is part of the uses given to the forests. The indigenous communities do it with the intention of being able to meet their own needs[94], while external agents seek economic remuneration through the illegal commercialization of timber". Natural forests constitute the main source of energy for rural communities; therefore, logging for firewood supply generates high and constant pressure on forest ecosystems, increasing their fragility and contributing to the degradation of the resource base (Palmberg, 1981).
12. However, logging carried out by outside communities (peasants, or as they call themselves: neighbors), is carried out in an excessive and uncontrolled manner, thus generating two similar dynamics, but with a completely different purpose.

[93] (Comunidad del resguardo indígena Coropoya, 2014)
[94] (Comunidad del resguardo indígena Coropoya, 2014)

3.6 Uncertainty management

For uncertainty management, taking a conservative attitude, the guidelines of section 13.1 Uncertainty management of the methodological document BCR0002 version 3.1 were taken, where it is specified that uncertainty management is determined by the accuracy of the maps used to estimate the activity data values and the application in the emission factors.

For activity data that have information of external origin produced by the forest and carbon monitoring system (SMByC) and this being the official information source reference to evaluate thematic accuracy according to IGAC resolution 471 of 2020[95] , the standard that establishes the technical specifications that must have the products of the official cartography in Colombia, this is considered as 95% or more accurate, therefore these products or forest cover maps are CONFORM.

The emission factors are also based on the official values published in the NREF Colombia version 8, version 18-08-2020. The carbon contents for the Andes biome or reference region are taken from this document. The values for adjustment for national conditions are taken from this same document, acting conservatively, the values of the lower interval are taken as an additional adjustment for national circumstances[96].

In summary, the uncertainty levels, evaluated by reservoir, requested by the BCR0002 methodology, version 3.1 are fulfilled by the project. The uncertainty values for activity data and emission factors are listed below.

Table 48. Uncertainty management for activity data and emission factors.

Bioma	Activity data	AGB carbon factor	Carbon factor BGB	Carbon in soil
Andes	9%	6%	5,6%	16%[97]

[95] Added and modified by IGAC resolution 529 of 2020, 5.3 Bases de datos vectoriales, d. Exactitud temática.

96 PROPUESTA DE NIVEL DE REFERENCIA DE LAS EMISIONES FORESTALES POR DEFORESTACIÓN EN COLOMBIA PARA PAGO POR RESULTADOS DE REDD+ BAJO LA CMNUCC (18.a-08-2020.a ed.). (2020). INSTITUTO DE HIDROLOGÍA, METEOROLOGÍA Y ESTUDIOS AMBIENTALES - IDEAM. https://redd.unfccc.int/media/18-08-2020_nref_colombia_v8.pdf pg. 40.

[97] "The project holder may use data from scientific studies that have a data uncertainty of less than 20%." BCR 002 v3.1, footnote 23, p. 28. According to footnote 23 of BCR0002, meets the minimum threshold.

Source: Modified from PROPOSED REFERENCE LEVEL OF FOREST EMISSIONS FROM DEFORESTATION IN COLOMBIA FOR REDD+ RESULTS PAYMENT UNDER UNFCCC (18.a-08-2020.a ed.). (2020). INSTITUTE OF HYDROLOGY, METEOROLOGY AND ENVIRONMENTAL STUDIES - IDEAM.

3.7 Leakage and non-permanence

According to section 14.4 "Project Permanence Monitoring" of the BCR002 methodology. Version 4.0, the project proponent must evaluate the risks related to the implementation of the activities taking into account the different dimensions described in the following sections. It is important to highlight that during each of the project certification periods a monitoring of each of the identified risks corresponding to the project and the different mitigation measures that are being developed to prevent them from occurring in the project will be carried out.

Strategies for the permanence of activities and avoidance of displacement of population to other areas to reduce leakage. s

In the context of the REDD+ project, specific strategies and mechanisms will be implemented to prevent the relocation of the population involved in deforestation activities, thus avoiding the displacement of practices that generate deforestation and degradation to other areas, either inside or outside the project perimeter. These mechanisms go beyond the traditional spaces such as the mambeadero and community assemblies, representing will include:

Community Participation: Encouraging the active participation of the community in the planning and implementation of the REDD+ project allows their needs, perspectives and practices to be considered. All of the activities proposed in each of the four pillars were prioritized and defined in the general assembly of the reservation. This is the highest decision-making body and is made up of all members of the community, ensuring that the proper implementation of these activities responds to the expectations and needs of the entire population, as they are the ones who are going to develop them. This factor significantly reduces the probability of community displacement. THE FOUR PILLARS

Indicators B 2.1, B2.2 , B3.1, C- 3.2, C-3.4, D-3.1, D-4.1, E-1.1, E-1.3, E-3.2, E-5.1, E-2.3, E-4.1, F-1.1, G-9.2, H-5.1, I-3.1

Sustainable Economic Diversification: The activities proposed in the productive projects program aims to develop programs that promote sustainable economic

alternatives for community members, boosting the local economy so that they can find income opportunities within the same territory without resorting to deforestation activities. These activities include sustainable agricultural initiatives and projects that make sustainable use of forest resources and other products produced in the territory, enabling cultural strengthening and environmental conservation, in optimal conditions for the entire population, which significantly reduces the probability of community displacement. PILLARS PRODUCTIVE PROJECTS

Indicators : B-3.1, D-4.1, D-2.3, D-1.3, D-4.3 D-1.1, D-1.2, D-3.1, D-4.1, G-10.2, H-5.2, H-12.1, H-8.2 , H-6.2

Education and Training: Education and Training: Implementing external training programs that highlight the importance of forest conservation, environmentally friendly agricultural techniques and sustainable management of natural resources, provide the community with the necessary skills and knowledge, which, articulated with the traditional practices that they carry out on a daily basis, allows them to optimize the use of the resources they have in the territory, without generating a negative impact on the culture and conservation of the territory. Strengthening the community's own education processes allows them to direct the different processes they face, from the traditional bases, guaranteeing the cultural, material and spiritual survival of the communities, reducing the probability that the inhabitants will migrate from their territory. GOVERNANCE, MONITORING AND SOCIAL INVESTMENT.

Indicators: C-2.1, C-2.2, C-2.3, C-2.4, G-5.1, G-5.2, G-5.3

Positive Economic Incentives: In the implementation stage, inclusion mechanisms have been established for the people of the communities, who are the ones who carry out the different activities that arise from the different projects formulated in the shelves. This makes it possible for the economic remuneration for the development of the project to go to the same people who formulated the project, thus fully complying with the objectives established in its formulation.

These incentives represent employment opportunities in the territory, from the social, cultural and environmental context they inhabit, reducing the likelihood that the inhabitants will migrate from the territory in search of economic opportunities.

Indicators: B-3.1, C- 3.2, E-2.2, E-5.1, I.1.1, G-32.2, G-12.1

Participatory Monitoring and Surveillance: as part of the monitoring project, the first activity to be carried out is the formation of a monitoring team made up of community residents, who will receive financial recognition for their work.; In this way, the monitoring project will seek to include people who were once involved in deforestation, so that they will now be in charge of walking through the territory, preparing biodiversity plots, and all those activities related to this issue. In this way we will prevent this population from having to leave the territory to continue developing these types of practices in other areas. Likewise, implementing participatory monitoring systems that involve the community in the supervision of activities within the project will not only strengthen the sense of responsibility, but will also allow us to quickly identify and address any attempt to displace unsustainable practices.

Indicators: I-1.2, I.1.1, E-5.2, E-1.1, E-1.3, E-3.1, I-1.2,

Traditional management: Within the traditional system of knowledge, fundamental principles are rooted that advocate harmonious coexistence with nature. These precepts, transmitted from generation to generation, promote respect for and preservation of the territory, leading to a balanced interdependence between humans and the surrounding biodiversity. Activities aimed at strengthening forms of environmental management based on these principles, especially through the pillars of governance and monitoring, not only seek to preserve the ecosystem, but also to transform entrenched perspectives that have led to harmful practices such as deforestation. By promoting the adoption of sustainable practices and educating about the long-term benefits of harmony with nature, we seek to disengage communities from harmful activities, thus building a more sustainable and resilient future.

The combination of these mechanisms seeks to ensure that the actions implemented in the framework of the REDD+ project do not generate the need for relocation of the population., promoting instead the harmonious coexistence between forest conservation and the well-being of the local community.

Indicator: B-1.1, B-1.2 , B-4.2, B-3.1, B-3.2, E-4.1

3.7.1 Risks of participation of local communities

I Involvement of local communities and stakeholders: The activities implemented are proposed and developed by the community, respecting traditional knowledge and guaranteeing compliance through implementation activities.

3.7.2 Social risks

Conflict between stakeholders in the region: The project has a social team in the field who act as mediators of dialogue and consensus-building processes between the community and institutions.

Public order problems: The project seeks to strengthen the social fabric through ancestral territorial governance as a mitigation measure.

On the other hand, land tenure risks, non-appropriation of project activities and governance deficits have the following characteristics:

- **Land tenure:** The project proponents are the owners of the project area and therefore hold the land use rights. The indigenous reserves have all the documents demonstrating legal land tenure over the land on which the project activities will be carried out.
- **Participation of local communities and stakeholders:** Implemented activities are proposed and developed by the community respecting traditional knowledge and ensuring compliance through implementation activities.
- **Non-appropriation of project activities:** The project proponents are the owners of the area; therefore, ownership of the activities is guaranteed, giving them the possibility to be the proponents in the formulation of projects and to be involved in them, obtaining socioeconomic benefits.
- **Governance deficit:** The project develops its activities in alignment with local, regional and national governance figures such as SINAP. The project is positively articulated with the different planning instruments in the territory, specifically taking regional and local land-use planning as a guideline.

3.7.3 Natural and anthropic risks

The project will identify and delimit the risks associated with the development of activities during each monitoring period, taking into account the environmental conditions of the area.

3.7.4 Financial risks

The project holder has the necessary cash flow available, based on the projected sale of emission reductions, to guarantee the development of project activities. Also, the prices of the Verified Carbon Credits are monitored to maintain a constant presence in the market and ensure the permanence of the project with the sale of the emission reductions it certifies.

3.8 Mitigation results

In accordance with the guidelines established in the BCR0002 Version 4.0 methodology, the equations and parameters used to estimate and measure mitigation results are as follows:

GHG emission reductions from REDD+ activities

Activity data

Deforestation

Annual historical deforestation in the reference region

The estimate of annual historical deforestation in the reference region is estimated by applying the equation:

Equation 1. Annual historical deforestation in the reference region.

$$CSB_{año} = \left(\frac{1}{t_2 - t_1}\right) x\ (A_1 - A_2)$$

Where:

$CSB_{año}$ = Annual change in the area covered by forest in the reference region; ha

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

A_1= Area of forest in the reference region, at the initial time; ha

A_2= Area of forest in the reference region, at the final point in time; ha

The CSB corresponds to the historical average deforestation of the project area and is the value used to represent the expected forest loss in the baseline scenario.

Projected annual deforestation in the REDD+ project scenario

It is calculated with the following equation:

Equation 2. Annual projected deforestation in the scenario with project.

$$CSB_{proy,año} = CSB_{lb,año} x\ (1 - \%DD)$$

Where:

$CSB_{año}$ = Annual change in area covered by forest under the project scenario; ha

$CSB_{lb,año}$= Annual change in the area covered by forest in the without-project scenario; ha

%DD= Projected decrease in deforestation due to implementation of REDD+ activities

Annual historical deforestation in the leakage area

The annual historical deforestation in the leakage area is calculated using the following equation:

Equation 3. Annual historical deforestation in the leakage area.

$$CSB_{año} = \left(\frac{1}{t_2 - t_1}\right) x\ (A_{1,f} - A_{2,f})$$

Where:

$CSB_{año}$ = Annual change in area covered by forest in the leakage area; ha

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

$A_{1,f}$= Area of forest in the leakage area, at the beginning of the reference period; ha

$A_{2,f}$= Area of forest in the leakage area, at the beginning of the reference period; ha

Projected annual deforestation in the leakage area in the with-project scenario.

Estimated using the following equation:

Annual projected deforestation in the leakage area in the with-project scenario Equation 4.

$$CSB_{REDD+proy,faño} = CSB_{f,lb} x\ (1 - \%Ef)$$

Where:

$CSB_{REDD+proy,faño}$ = Annual change in the area covered by forest in the leakage area, in the scenario with project; ha

$CSB_{f,lb}$= Annual change in area covered by forest in the leakage area in the without project scenario; ha

%Ef= Percentage increase in emissions in the leakage area due to the implementation of REDD+ activities. The use of a default value of 10% is accepted by the BCR0002 methodology.

Degradation

Annual historical degradation in the baseline project area

The estimation of annual historical degradation in the project area in the baseline is done using the following equation:

Equation 5. Annual historical primary degradation in the project area.

$$DFP_{lb,año} = \left(\frac{1}{t_2 - t_1}\right) x\ (A_{núcleo,lb} - A_{núcleo-par,lb})$$

Where:

$DFP_{lb,año}$ = Annual historical primary degradation in baseline; ha

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

$A_{núcleo,lb}$ = Area of the reference region in core class year of the start of the reference period; ha

$A_{núcleo-par,lb}$ = Area of the reference region that goes from core to patch in the year of the end of the reference period; ha

And,

Equation 6. Annual Secondary Degradation in the Project Area

$$DFS_{lb,año} = \left(\frac{1}{t_2 - t_1}\right) x \, (A_{perforado,lb} - A_{perf-par,lb})$$

Where:

$DFS_{lb,año}$ = Annual historical secondary degradation in base line; ha

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

$A_{perforado,lb}$ = Area of the reference region in perforated class year of the beginning of the reference period; ha

$A_{perf-par,lb}$ = Area of the reference region that changes from drilled to patch in the year of the end of the reference period; ha

Annual historical degradation in leakage area in baseline scenario

This is done by using the following equations:

Equation 7. Historical primary degradation in the area of leakage

$$DFP_{lb,año} = \left(\frac{1}{t_2 - t_1}\right) x \, (A_{núcleo,lb,f} - A_{núcleo-par,lb,f})$$

Where:

$DFP_{lb,año}$ = Annual historical primary degradation in the leakage area; ha

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

$A_{núcleo,lb,f}$ = Leakage area in core class year of start of reporting period; ha

$A_{núcleo-par,lb,f}$ = Leakage area from core to patch in the year of the end of the reporting period; ha

And,

Equation 8. Historical secondary degradation in the area of leakage

$$DFS_{lb,año} = \left(\frac{1}{t_2 - t_1}\right) x \, (A_{perforado,lb,f} - A_{perf-par,lb,f})$$

Where:

$DFS_{lb,año}$ = Annual historic secondary degradation in the leakage area; ha

t_2 = Year end of reporting period; year

t_1= Año inicial del periodo de referencia; año

$A_{perforado,lb,f}$ = Leakage area in perforated class year of beginning of reporting period; ha

$A_{perf-par,lb,f}$ = Area of leakage from drilling to patch in the year of the end of the reporting period; ha

Projected annual degradation in the project area in the scenario with REDD+ project

It is estimated by the use of the following equation:

Equation 1. Annual primary degradation in the project area in the scenario with Project

$$DFP_{REDD+proy,año} = DFP_{lb} x \, (1 - \%DFP)$$

Where:

$DFP_{REDD+proy,faño}$ = Annual primary degradation of the project area in the scenario with project; ha

DFP_{lb}= Annual historical primary degradation in the without-project scenario; ha

%DFP= Projected decrease in deforestation due to implementation of REDD+ activities.

And,

Equation 2. Annual secondary degradation the scenario with project

$$DFS_{REDD+proy,año} = DFS_{lb} x\ (1 - \%DFS)$$

Where:

$DFS_{REDD+proy,faño}$ = Secondary annual degradation in the scenario with project; ha

DFS_{lb}= Annual historical secondary degradation in the without-project scenario; ha

%DFS= Projection of the decrease in degradation due to the implementation of REDD+ activities.

Projected annual degradation in the leakage area in the scenario with REDD+ project

It is estimated by the use of the following equation:

Equation 3. Annual primary degradation in the leakage area in the scenario with project

$$DFP_{f,año} = DFP_{f} x\ (1 - \%Ef)$$

Where:

$DFP_{f,año}$ = Annual primary degradation in the leakage area in the scenario with project; ha

DFP_{f}= Annual historical primary degradation in the leakage area in the without-project scenario; ha

%Ef= Percentage increase in emissions in the leakage area due to the implementation of REDD+ activities

And,

Equation 4. Annual secondary degradation in the leakage area in the scenario with project

$$DFS_{f,año} = DFS_{f} x\ (1 - \%Ef)$$

Where:

$DFP_{f,año}$ = Annual secondary degradation in the leakage area in the scenario with project; ha

DFP_{f}= Degradación secundaria histórica anual en el área de fugas en el escenario sin proyecto; ha

%Ef= Percentage increase in emissions in the leakage area due to the implementation of REDD+ activities. The use of a default value of 10% is accepted in the BCR0002 methodology.

Quantification of the emission factor.

Deforestation

The following carbon pools are used to define deforestation emission factors: aboveground biomass, belowground biomass, dead wood, litter and soil organic carbon.

Carbon emission factor in total biomass

The estimation of the carbon emission factor in the total biomass is made from the following equation

Equation 5. Carbon dioxide equivalent contained in the total biomass

$$CBFeq = BT \times FC \times \frac{44}{12}$$

Where:

$CBFeq$	Carbon dioxide equivalent contained in the total biomass; $tCO_2e\ ha^{-1}$
BT	Total biomass
FC	Carbon fraction of dry matter (0,47)

Soil carbon emission factor

To estimate the soil carbon emission factor, a gross emission is assumed where the soil carbon content (COS) is emitted after the deforestation event, for 20 years in equal proportions, according to Equation 14.

Equation 6. Carbon dioxide equivalent contained in soils.

$$COSeq = \frac{COS}{20} \times \frac{44}{12}$$

Where:

$COSeq$	Carbon dioxide equivalent contained in soils; tCO_{2e} ha^{-1}
COS	Soil carbon content; tC ha^{-1}

Total carbon emission factor

The total carbon emission factor is calculated according to the following equation

Equation 7. Total equivalent carbon dioxide.

$$CTeq = CBTeq + COSeq$$

Where:

$CTeq$	Total equivalent carbon dioxide; tCO_{2e} ha^{-1}
$CBFeq$	Carbon dioxide equivalent contained in the total biomass; tCO_2e ha^{-1}
$COSeq$	Carbon dioxide equivalent contained in soils; tCO_{2e} ha^{-1}

Degradation

To calculate the total biomass, aboveground and belowground biomass are added together, stratifying the forest area by ecological zone, to determine the total biomass by fragmentation class transition.

Equation 8. Difference total transitional biomass.

$$DBTi = DBA \times (1 + R)$$

Where:

$DBTi$	Difference total transition biomass i; t ha^{-1}
DBA	Mean difference in aboveground biomass transition i (tC ha^{-1})
R	Belowground to aboveground biomass ratio; $(ton\ d.\ m.)^{-1}$

i	Type of degradation; 1-primary degradation, 2- secondary degradation

For total biomass content is the product of total biomass and its carbon fraction, as shown in Equation 17.

Equation 9. Difference carbon content in total biomass.

$$DCBTi = DBTi \times FC$$

Where:

$DCBTi$	Difference carbon content in total biomass; tC ha^{-1}
$DBTi$	Difference total biomass; t ha^{-1}
FC	Carbon fraction; 0,47
i	Type of degradation; 1-primary degradation, 2- secondary degradation

The carbon dioxide equivalent contained in the DBT is the product between the DCBT and the molecular ratio constant between carbon (C) and carbon dioxide (CO_2), according to the following equation.

Equation 10. Carbon dioxide equivalent contained in the DBT.

$$DBT_{co2eq} = DCBT \times \frac{44}{12}$$

Where:

$CTeq$	Total carbon dioxide equivalent; tCO_{2e} ha^{-1}
$CBFeq$	Carbon dioxide equivalent contained in total biomass; tCO_2e ha^{-1}
$COSeq$	Carbon dioxide equivalent contained in soils; tCO_{2e} ha^{-1}

3.8.1 Eligible areas within GHG project boundaries (AFOLU sector projects).

Starting from the boundaries of the indigenous reservations, taken from the National Land Agency (ANT, 2023), the eligible areas correspond to forest areas present in 2018, which were already present in 2005, following the definition of forest for Colombia according to IDEAM "Land occupied mainly by trees that may contain shrubs, palms, *guaduas*, grasses and lianas, in which tree cover predominates with a minimum canopy density of 30%, a minimum canopy height (in situ) of 5 meters at the time of identification, and a minimum area of 1.0 ha"[98], and correspond to 157,321.83 hectares, as reported in the geographic

[98] Ministerio de Ambiente y Desarrollo Sostenible – MINAMBIENTE. Instituto de Hidrología, Meteorología y Estudios Ambientales – IDEAM. PROPOSAL FOR A REFERENCE LEVEL OF FOREST EMISSIONS FROM DEFORESTATION IN COLOMBIA FOR REDD+ PAYMENT FOR RESULTS UNDER THE UNFCCC. Bogotá, 2020.

information layers (consult GeoDataBase in drive 08_SIG/REDD+MINER_LB_2005_2017.gdb). In order to determine the eligible areas, a multi-temporal analysis was carried out with the forest maps of 2005 and 2017, using Geographic Information Systems software, which allowed identifying the areas with forest cover 10 years ago or more in the limits of the project area, these are the eligible areas of stable forest, while, those that have gone from "forest" to "non-forest" category (deforested areas), that have gone from "non-forest" to "forest" (regenerated areas) and those that are preserved under the "non-forest" category, are considered as ineligible. Finally, the areas without additionality due to overlap with the La Paya National Park, which are 131.76 hectares, were discarded.

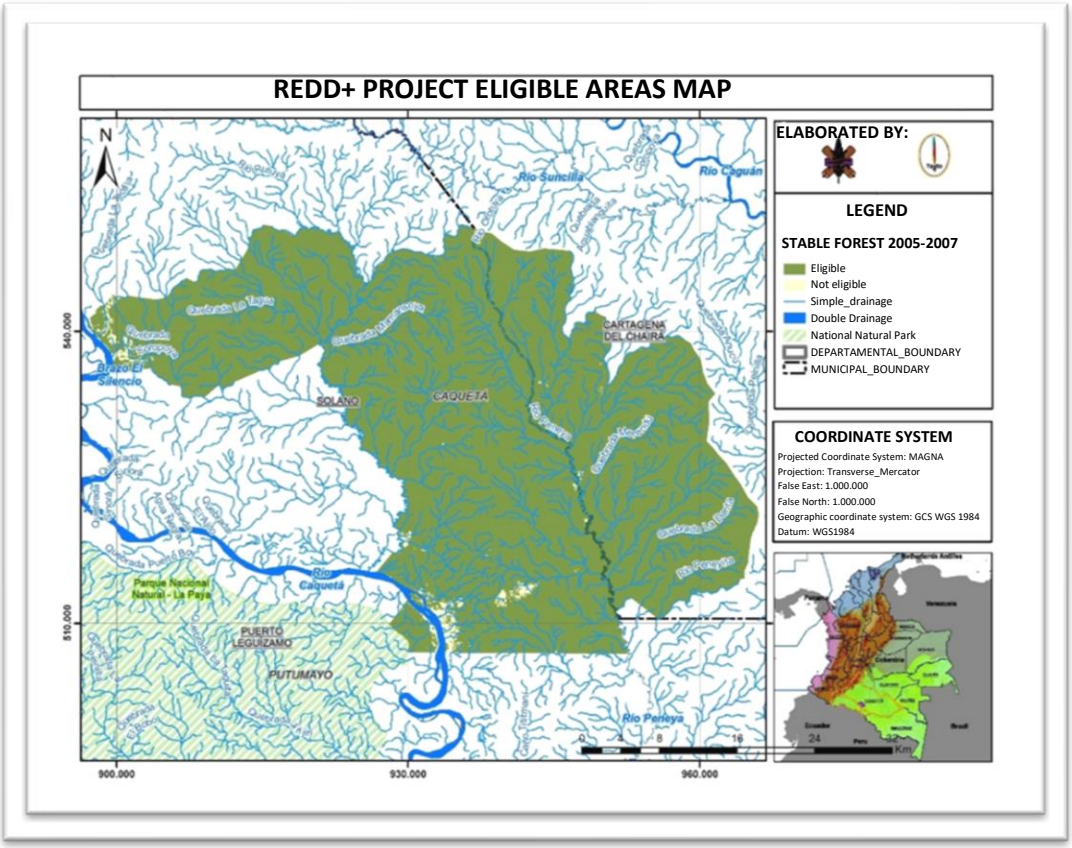


Illustration 34. Project eligible areas map as of January 01, 2018.

Table 49. Non-eligible and eligible area for deforestation monitoring of the current project area.

Category	Area (ha)	Percentage (%)
Eligible	157.321,83	98,35
No Eligible	2.635,40	1,65
Total	**159.957,23**	**100**

As stated in the BCR002 methodology version 4.0, forest degradation is indicated by a negative trend in the state of the land, caused by direct or indirect human-induced processes, such as animal grazing, fuelwood or timber extraction, or other similar activities. Degradation is expressed as the long-term reduction or loss of at least one of the following: biological productivity, ecological integrity, or human values. This definition applies to both forest and non-forest land. Forest degradation is the degradation of forest land that remains as such. In contrast, deforestation refers to the conversion of forest to non-forest land, which involves a loss of tree cover and a change in land use[99]. In addition to this definition, the application of this methodology will take into account the characterization of forest degradation defined by the IPCC: A direct, human-induced, long-term loss (persisting for X years or more) of at least Y% of forest carbon stocks and forest values from time T and which does not qualify as deforestation[100].

Applying the BCR002 version 4.0 methodology, degradation is monitored in remaining forest areas classified as core, drilled, and patch, which are identified through spatial fragmentation analysis using geographic information systems and are as follows:

Table 50. Eligible area for forest degradation monitoring of the current project area.

Class	Area (ha)
Core	155.062,73
Patch	112,81
Perforated	0

3.8.2 Stratification (AFOLU sector projects).

It is a REDD+ activities project, therefore, it does not apply.GHG emission reductions/removals in the baseline scenario.

[99] Definition SRCCL. https://www.ipcc.ch/site/assets/uploads/sites/4/2019/11/01_Chapter-4.pdf

[100] Definitions and methodological options for inventories of emissions from direct human-induced forest degradation and devegetation of other vegetation types (IPCC, 2003)

3.8.3 The baseline scenario presents the following GHG emissions.

The baseline scenario presents the following GHG emissions.

Emissions from unplanned deforestation in the baseline scenario are 23,088,797 tCO2e, with an annual average of 1,154,440 tCO2e per year in the first 20 years; and 43,907,237 tCO2e, with an annual average of 1,097,681 tCO2e for the total of 40 years:

Table 51. Emissions from deforestation under the baseline scenario for 20 and 40 years.

Year		Historical deforestation	Forest area	Total biomass	Soils	Annual emission
Of project (t)	Calendar	CSBlb	AP t-1	Stratum 1	Stratum 2	EAlbt
		ha	ha	tCO2eq	tCO2eq	tCO2eq
1	2,018	2,465.10	157,321.83	1,338,180.00	33,444.00	**1,371,624**
2	2,019	2,592.50	154,856.73	1,407,338.00	35,172.00	**1,442,510**
3	2,020	2,704.93	152,264.23	1,468,372.00	36,697.00	**1,505,069**
4	2,021	2,799.03	149,559.30	1,519,454.00	37,974.00	**1,557,428**
5	2,022	2,872.55	146,760.27	1,559,365.00	38,971.00	**1,598,336**
6	2,023	1,870.76	143,887.72	1,015,542.00	25,380.00	**1,040,922**
7	2,024	1,870.76	142,016.96	1,015,542.00	25,380.00	**1,040,922**
8	2,025	1,870.76	143,887.72	1,015,542.00	25,380.00	**1,040,922**
9	2,026	1,870.76	142,016.96	1,015,542.00	25,380.00	**1,040,922**
10	2,027	1,870.76	140,146.20	1,015,542.00	25,380.00	**1,040,922**
11	2,028	1,870.76	138,275.44	1,015,542.00	25,380.00	**1,040,922**
12	2,029	1,870.76	136,404.68	1,015,542.00	25,380.00	**1,040,922**
13	2,030	1,870.76	134,533.92	1,015,542.00	25,380.00	**1,040,922**
14	2,031	1,870.76	132,663.17	1,015,542.00	25,380.00	**1,040,922**
15	2,032	1,870.76	130,792.41	1,015,542.00	25,380.00	**1,040,922**
16	2,033	1,870.76	128,921.65	1,015,542.00	25,380.00	**1,040,922**
17	2,034	1,870.76	127,050.89	1,015,542.00	25,380.00	**1,040,922**
18	2,035	1,870.76	125,180.13	1,015,542.00	25,380.00	**1,040,922**
19	2,036	1,870.76	123,309.37	1,015,542.00	25,380.00	**1,040,922**
20	2,037	1,870.76	121,438.61	1,015,542.00	25,380.00	**1,040,922**
Total 20 years		41.495.50	-	25,525,839	562,958	23,088,797
Annual 20 years		2.074,77	-	1,126,292	28,148	1,154,440

Year		Historical deforestation	Forest area	Total biomass	Soils	Annual emission
Of project (t)	Calendar	CSBlb	AP t-1	Stratum 1	Stratum 2	EAlbt
		ha	ha	tCO2eq	tCO2eq	tCO2eq
21	2,038	1,870.76	115,826.33	1,015,542.00	25,380.00	1,040,922
22	2,039	1,870.76	113,955.57	1,015,542.00	25,380.00	1,040,922
23	2,040	1,870.76	112,084.81	1,015,542.00	25,380.00	1,040,922
24	2,041	1,870.76	110,214.05	1,015,542.00	25,380.00	1,040,922
25	2,042	1,870.76	108,343.29	1,015,542.00	25,380.00	1,040,922
26	2,043	1,870.76	106,472.53	1,015,542.00	25,380.00	1,040,922
27	2,044	1,870.76	104,601.78	1,015,542.00	25,380.00	1,040,922
28	2,045	1,870.76	102,731.02	1,015,542.00	25,380.00	1,040,922
29	2,046	1,870.76	100,860.26	1,015,542.00	25,380.00	1,040,922
30	2,047	1,870.76	98,989.50	1,015,542.00	25,380.00	1,040,922
31	2,048	1,870.76	97,118.74	1,015,542.00	25,380.00	1,040,922
32	2,049	1,870.76	95,247.98	1,015,542.00	25,380.00	1,040,922
33	2,050	1,870.76	93,377.22	1,015,542.00	25,380.00	1,040,922
34	2,051	1,870.76	91,506.46	1,015,542.00	25,380.00	1,040,922
35	2,052	1,870.76	89,635.70	1,015,542.00	25,380.00	1,040,922
36	2,053	1,870.76	87,764.94	1,015,542.00	25,380.00	1,040,922
37	2,054	1,870.76	85,894.18	1,015,542.00	25,380.00	1,040,922
38	2,055	1,870.76	84,023.42	1,015,542.00	25,380.00	1,040,922
39	2,056	1,870.76	82,152.66	1,015,542.00	25,380.00	1,040,922
40	2,057	1,870.76	80,281.90	1,015,542.00	25,380.00	1,040,922
Total 40 years		78,910.69	-	42,836,679	1,070,558	43,907,237
Annual 40 years		1,972,77	-	1,070,917	26,764	1,097,681

Emissions from forest degradation in the baseline scenario are 2,078,553 tCO2e, with an annual average of 103,928 tCO2e per year in the first 20 years; and 4,157,106 tCO2e, with an annual average of 103,928 tCO2e for the total of 40 years:

Table 52. Emissions from degradation in the baseline scenario for 20 and 40 years.

Year		Historical primary degradation in the project area	Historical secondary degradation in the project area	Total biomass Primary Deg	Total biomass Secondary Deg	Annual emission
Of project (t)	Calendar	DFPlb,year	DFSlb,year	Core - Patch	Perforated - Patch	EAlbt
		ha	ha	tCO2eq	tCO2eq	tCO2eq
1	2,018	6,897.08	12.22	103,883	44.92	103,928
2	2,019	6,897.08	12.22	103,883	44.92	103,928
3	2,020	6,897.08	12.22	103,883	44.92	103,928
4	2,021	6,897.08	12.22	103,883	44.92	103,928
5	2,022	6,897.08	12.22	103,883	44.92	103,928
6	2,023	6,897.08	12.22	103,883	44.92	103,928
7	2,024	6,897.08	12.22	103,883	44.92	103,928
8	2,025	6,897.08	12.22	103,883	44.92	103,928
9	2,026	6,897.08	12.22	103,883	44.92	103,928
10	2,027	6,897.08	12.22	103,883	44.92	103,928
11	2,028	6,897.08	12.22	103,883	44.92	103,928
12	2,029	6,897.08	12.22	103,883	44.92	103,928
13	2,030	6,897.08	12.22	103,883	44.92	103,928
14	2,031	6,897.08	12.22	103,883	44.92	103,928
15	2,032	6,897.08	12.22	103,883	44.92	103,928
16	2,033	6,897.08	12.22	103,883	44.92	103,928
17	2,034	6,897.08	12.22	103,883	44.92	103,928
18	2,035	6,897.08	12.22	103,883	44.92	103,928
19	2,036	6,897.08	12.22	103,883	44.92	103,928
20	2,037	6,897.08	12.22	103,883	44.92	103,928
Total 20 years		137,942.6	244.3	2,077,654,0	898.4	2,078,553
Annual 20 years		6,897.1	12.2	103,883,0	44.9	103,928

Year		Historical primary degradation in the project area	Historical secondary degradation in the project area	Total biomass Primary Deg	Total biomass Secondary Deg	Annual emission
Of project (t)	Calendar	DFPlb,year	DFSlb,year	Core - Patch	Perforated - Patch	EAlbt
		ha	ha	tCO2eq	tCO2eq	tCO2eq
21	2,038	6,897.08	12.22	103,883	44.92	103,928
22	2,039	6,897.08	12.22	103,883	44.92	103,928
23	2,040	6,897.08	12.22	103,883	44.92	103,928
24	2,041	6,897.08	12.22	103,883	44.92	103,928
25	2,042	6,897.08	12.22	103,883	44.92	103,928
26	2,043	6,897.08	12.22	103,883	44.92	103,928
27	2,044	6,897.08	12.22	103,883	44.92	103,928
28	2,045	6,897.08	12.22	103,883	44.92	103,928
29	2,046	6,897.08	12.22	103,883	44.92	103,928
30	2,047	6,897.08	12.22	103,883	44.92	103,928
31	2,048	6,897.08	12.22	103,883	44.92	103,928
32	2,049	6,897.08	12.22	103,883	44.92	103,928
33	2,050	6,897.08	12.22	103,883	44.92	103,928
34	2,051	6,897.08	12.22	103,883	44.92	103,928
35	2,052	6,897.08	12.22	103,883	44.92	103,928
36	2,053	6,897.08	12.22	103,883	44.92	103,928
37	2,054	6,897.08	12.22	103,883	44.92	103,928
38	2,055	6,897.08	12.22	103,883	44.92	103,928
39	2,056	6,897.08	12.22	103,883	44.92	103,928
40	2,057	6,897.08	12.22	103,883	44.92	103,928
Total 40 years		275,883.2	488.6	4,155,309	1,797	4,157,106
Annual 40 years		6,897.1	12.2	103,882,7	44.9	103,928

3.8.4 GHG emission reductions/removals in the with-project scenario

In the scenario with project the following GHG emissions are presented.

Emission reductions from unplanned deforestation in the scenario with project (*Exante*) are 22,008,511 tCO2e, with an average of 1,100,426 tCO2e per year in the first 20 years; and 41,860,211 tCO2e, with an annual average of 1,046,505 tCO2e for the total of 40 years, that is, a reduction in emissions of 95% with respect to the baseline scenario:

Table 53. Emissions from deforestation in the scenario with Project for 20 and 40 years.

Year		Annual issuance Baseline	Project area		Leakage belt		Emission reductions in the scenario with project
			Projected annual deforestation	Annual issuance	Projected annual deforestation	Annual issuance	
Of project (t)	Calendar	EAlbt	CSBlb	$EA_{lb,t}$	$CSB_{im,f}$	$EA_{,ft}$	
		tCO2eq	ha	tCO_2eq	ha	tCO_2eq	tCO_2eq
1	2,018	1,371,624	123.25	68,600	73.43	40,867	**1,306,748**
2	2,019	1,442,510	129.62	72,145	73.43	40,867	**1,374,089**
3	2,020	1,505,069	135.25	75,274	73.43	40,867	**1,433,519**
4	2,021	1,557,428	139.95	77,893	73.43	40,867	**1,483,259**
5	2,022	1,598,336	143.63	79,939	73.43	40,867	**1,522,121**
6	2,023	1,040,922	93.54	52,061	73.43	40,867	**992,585**
7	2,024	1,040,922	93.54	52,061	73.43	40,867	**992,585**
8	2,025	1,040,922	93.54	52,061	73.43	40,867	**992,585**
9	2,026	1,040,922	93.54	52,061	73.43	40,867	**992,585**
10	2,027	1,040,922	93.54	52,061	73.43	40,867	**992,585**
11	2,028	1,040,922	93.54	52,061	73.43	40,867	**992,585**
12	2,029	1,040,922	93.54	52,061	73.43	40,867	**992,585**
13	2,030	1,040,922	93.54	52,061	73.43	40,867	**992,585**
14	2,031	1,040,922	93.54	52,061	73.43	40,867	**992,585**
15	2,032	1,040,922	93.54	52,061	73.43	40,867	**992,585**
16	2,033	1,040,922	93.54	52,061	73.43	40,867	**992,585**
17	2,034	1,040,922	93.54	52,061	73.43	40,867	**992,585**
18	2,035	1,040,922	93.54	52,061	73.43	40,867	**992,585**
19	2,036	1,040,922	93.54	52,061	73.43	40,867	**992,585**
20	2,037	1,040,922	93.54	52,061	73.43	40,867	**992,585**
Total 20 years		**24,961,774**	**2,207.03**	**1,228,368**	**1,468.5**	**817,340.0**	**23,406,734**
Annual 20 years		**1,198,089**	**110.35**	**61,418**	**73.4**	**40,867.0**	**1,170,337**

Year		Annual issuance Baseline	Project area		Leakage belt		Emission reductions in the scenario with project
			Projected annual deforestation	Annual issuance	Projected annual deforestation	Annual issuance	
Of project (t)	Calendar	EAlbt	CSBlb	$EA_{lb,t}$	$CSB_{im,f}$	$EA_{,ft}$	
		tCO2eq	ha	tCO_2eq	ha	tCO_2eq	tCO_2eq
21	2,038	1,040,922	93.54	52,061	73.43	40,867	992,585
22	2,039	1,040,922	93.54	52,061	73.43	40,867	992,585
23	2,040	1,040,922	93.54	52,061	73.43	40,867	992,585
24	2,041	1,040,922	93.54	52,061	73.43	40,867	992,585
25	2,042	1,040,922	93.54	52,061	73.43	40,867	992,585
26	2,043	1,040,922	93.54	52,061	73.43	40,867	992,585
27	2,044	1,040,922	93.54	52,061	73.43	40,867	992,585
28	2,045	1,040,922	93.54	52,061	73.43	40,867	992,585
29	2,046	1,040,922	93.54	52,061	73.43	40,867	992,585
30	2,047	1,040,922	93.54	52,061	73.43	40,867	992,585
31	2,048	1,040,922	93.54	52,061	73.43	40,867	992,585
32	2,049	1,040,922	93.54	52,061	73.43	40,867	992,585
33	2,050	1,040,922	93.54	52,061	73.43	40,867	992,585
34	2,051	1,040,922	93.54	52,061	73.43	40,867	992,585
35	2,052	1,040,922	93.54	52,061	73.43	40,867	992,585
36	2,053	1,040,922	93.54	52,061	73.43	40,867	992,585
37	2,054	1,040,922	93.54	52,061	73.43	40,867	992,585
38	2,055	1,040,922	93.54	52,061	73.43	40,867	992,585
39	2,056	1,040,922	93.54	52,061	73.43	40,867	992,585
40	2,057	1,040,922	93.54	52,061	73.43	40,867	992,585
Total 40 years		43,907,237	3,945.53	2,195,986	2,937.1	1,634,680.0	41,860,211
Annual 40 years		1,097,681	98.64	54,900	73.4	40,867.0	1,046,505

Emission reductions due to forest degradation in the scenario with project (*Exante*) are 1,451,197 tCO2e, with an average of 72,560 tCO2e per year in the first 20 years; and 2,902,395 tCO2e, with an annual average of 72,560 tCO2e for the total of 40 years, that is, a reduction in emissions of 70% compared to the baseline scenario:

Table 54. Emissions from degradation in the scenario with Project for 20 and 40 years.

Year		Annual issuance Baseline	Project area					Leakage belt					EX ANTE REDUCTIONS	
			Projected annual primary degradation in the project area in the scenario with REDD+ project	Projected annual Secondary Degradation in the project area in the REDD+ project scenario	Total biomass	Total biomass	Annual issuance	Projected annual Primary Degradation in the leakage area in the scenario with REDD+ project	Projected annual secondary degradation in the leakage area in the scenario with REDD+ project	Total biomass	Total biomass	Annual issuance	Ex-ante net emission reductions Primary and Secondary Degradation	
Of project (t)	Calendar	EAlbt	DFPREDD+year proj	DFSREDD+ year proj	Core - Patch	Perforated - Patch	EAREDD+ year proj	DFPf,year	DFSf,year	Core - Patch	Perforated - Patch	EA,ft	$RE_{DEG,REDD+proy}$	RE_m
		tCO2eq	ha	ha	tCO_2eq	tCO_2eq	tCO_2eq	ha	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq
1	2,018	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	72,560
2	2,019	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	145,120
3	2,020	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	217,680
4	2,021	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	290,239
5	2,022	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	362,799
6	2,023	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	435,359
7	2,024	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	507,919
8	2,025	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	580,479
9	2,026	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	653,039
10	2,027	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	725,599
11	2,028	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	798,159
12	2,029	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	870,718
13	2,030	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	943,278
14	2,031	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,015,838
15	2,032	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,088,398
16	2,033	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,160,958

Year		Annual issuance Baseline	Project area					Leakage belt					EX ANTE REDUCTIONS	
			Projected annual primary degradation in the project area in the scenario with REDD+ project	Projected annual Secondary Degradation in the project area in the REDD+ project scenario	Total biomass	Total biomass	Annual issuance	Projected annual Primary Degradation in the leakage area in the scenario with REDD+ project	Projected annual secondary degradation in the leakage area in the scenario with REDD+ project	Total biomass	Total biomass	Annual issuance	Ex-ante net emission reductions Primary and Secondary Degradation	
Of project (t)	Calendar	EAlbt	DFPREDD+year proj	DFSREDD+ year proj	Core - Patch	Perforated - Patch	EAREDD+ year proj	DFPf,year	DFSf,year	Core - Patch	Perforated - Patch	EA,ft	$RE_{DEG,REDD+proy}$	RE_m
		tCO2eq	ha	ha	tCO_2eq	tCO_2eq	tCO_2eq	ha	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq
17	2,034	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,233,518
18	2,035	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,306,078
19	2,036	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,378,637
20	2,037	103,928	689.71	1.22	10,388.27	4.49	10.393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,451,197
Total 20 years		2,078,553	13,794.16	24.43	207,765.44	89.84	207,855	27,852	0	419,500	0	419,500	1,451,197	-
Annual 20 years		103,928	689.71	1.22	10,388.27	4.49	10,393	1,393	0	20,975	0	20,975	72,560	-

Year		Annual issuance Baseline	Project area					Leakage belt					EX ANTE REDUCTIONS	
			Projected annual primary degradation in the project area in the scenario with REDD+ project	Projected annual Secondary Degradation in the project area in the REDD+ project scenario	Total biomass	Total biomass	Annual issuance	Projected annual Primary Degradation in the leakage area in the scenario with REDD+ project	Projected annual secondary degradation in the leakage area in the scenario with REDD+ project	Total biomass	Total biomass	Annual issuance	Ex-ante net emission reductions Primary and Secondary Degradation	
Of project (t)	Calendar	EAlbt	DFPREDD+year proj	DFSREDD+ year proj	Core - Patch	Perforated - Patch	EAREDD+ year proj	DFPf,year	DFSf,year	Core - Patch	Perforated - Patch	EA,ft	$RE_{DEG,REDD+proy}$	RE_m
		tCO_2eq	ha	ha	tCO_2eq	tCO_2eq	tCO_2eq	ha	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq
21	2,038	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,523,757
22	2,039	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,596,317
23	2,040	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,668,877
24	2,041	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,741,437
25	2,042	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,813,997
26	2,043	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,886,557
27	2,044	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	1,959,116
28	2,045	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,031,676
29	2,046	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,104,236
30	2,047	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,176,796
31	2,048	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,249,356
32	2,049	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,321,916
33	2,050	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,394,476
34	2,051	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,467,035
35	2,052	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,539,595
36	2,053	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,612,155
37	2,054	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,684,715

Year		Annual issuance Baseline	Project area					Leakage belt					EX ANTE REDUCTIONS	
			Projected annual primary degradation in the project area in the scenario with REDD+ project	Projected annual Secondary Degradation in the project area in the REDD+ project scenario	Total biomass	Total biomass	Annual issuance	Projected annual Primary Degradation in the leakage area in the scenario with REDD+ project	Projected annual secondary degradation in the leakage area in the scenario with REDD+ project	Total biomass	Total biomass	Annual issuance	Ex-ante net emission reductions Primary and Secondary Degradation	
Of project (t)	Calendar	EAlbt	DFPREDD+year proj	DFSREDD+ year proj	Core - Patch	Perforated - Patch	EAREDD+ year proj	DFPf,year	DFSf,year	Core - Patch	Perforated - Patch	EA,ft	$RE_{DEG,REDD+proy}$	RE_m
		tCO2eq	ha	ha	tCO_2eq	tCO_2eq	tCO_2eq	ha	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq
38	2,055	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,757,275
39	2,056	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,829,835
40	2,057	103,928	689.71	1.22	10,388.27	4.49	10,393	1,392.59	0.00	20,975.01	0.00	20,975.01	72,560	2,902,395
Total 40 years		4,157,106	27,588	49	415,531	180.00	415,711	55,704	-	839,000	-	839,000	2,902,395	
Annual 20 years		103,928	690	1	10,388	4.49	10,393	1,393	-	20,975	-	20,975	72,560	

Total, reductions of GHG emissions for deforestation and degradation for the quantification period (40 years):

1,119,065 tCO2e/year

47,762,605 tCO2e for a 40-year accreditation period

4 Compliance with applicable legislation

In compliance with applicable legislation, the REDD+ Marena Ichena - Nag+ma Enoje Rafue Project contemplated the approach of regulations within the international regulatory framework, national regulatory framework, regional regulatory framework and national regulatory framework, presence of indigenous and/or black communities.

The parties to the United Nations Framework Convention on Climate Change (UNFCCC) developed the approach known as "Reducing Emissions from Deforestation and Forest Degradation in Developing Countries" or REDD in 2005, which later evolved into REDD+ under the Bali Action Plan at the 13th Conference of the Parties in 2007.

Among the UNFCCC decisions relevant to REDD+ that provide implementation guidelines for developing countries are those described in Table 55, which are binding on countries adopting this program.

Table 55. International Regulatory Framework. [101]

Regulations	Description	Project compliance
4/CP.15 11/CP.19	Conference of the Parties held in Copenhagen in 2009, defined several principles and methodological guidelines to reduce emissions from deforestation and forest degradation, as well as the management of carbon sinks in each country and the implementation of a National Forest Monitoring System.	The project complies with these regulations as it guarantees the management of the forest as a carbon sink.
1/CP.16 15/CP.19	A milestone was set in terms of defining the REDD+ pillars required for developing countries, these are: 1. The establishment of a National Forest Reference Emission Level and/or National Forest Reference Level. 2. A robust and transparent National Forest Monitoring System. 3. A National Strategy or Action Plan (15/CP.19). 4. An information system on how safeguards are addressed and respected. In addition, the States adopted the so-called "Cancun Agreements", which comprise five initiatives: · Reducing emissions from deforestation and forest degradation. · Reducing emissions resulting from forest degradation.	The project complies with these regulations since it participates in the initiatives established in the REDD+ pillars.

[101] The REDD+ initiative and the UNFCCC

Regulations	Description	Project compliance
	· Conservation of forest carbon stocks. · Sustainable forest management. · Increasing forest carbon stocks.	
12/CP.17 12/CP.19	Safeguards Information System (SIS), summary to be submitted every two years on a voluntary basis.	Complies with regulations since the project seeks to contribute to sustainable development, preservation of culture, and reduction of deforestation and degradation of Amazonian forests in ancestral territories. As well as slowing and mitigating climate change through the reduction of unplanned forest degradation and deforestation, and the recovery of already degraded areas.
Warsaw Framework for REDD+. COP 19.	Includes a decision on improving the coordination of support provided for the implementation of activities, including institutional mechanisms. A first REDD+ decision was also adopted on aspects related to financing for results-based measures.	
Kyoto Protocol 1997	International treaty adopted in 2012. This protocol commits industrialized countries to stabilize greenhouse gas emissions.	
Paris Agreement 2015	Negotiations were closed on methodological issues and REDD+ guidelines on safeguards, alternative policy approaches, such as mitigation and forest adaptation in sustainable forest management, and non-emissions benefits, as ratified in Article 5 of the agreement.	

Although the UNFCCC is the center of all international negotiations on REDD+, the social and environmental issues related to respect for the rights of indigenous peoples, protection of biological diversity, regulation of benefit sharing and dispute resolution mechanisms are supported by a series of international legal instruments with national legal obligations.) through Law 21 of 1991, the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) through Law 17 of 1981.

A collaborative initiative of the United Nations is the UN-REDD program that supports country-led REDD+ processes, focusing on providing capacity building support for specific technical needs for certain areas of work such as Measurement, Reporting and Verification (MRV) methods, stakeholder engagement and fair benefit sharing at the national level. Other multilateral initiatives include the World Bank's Forest Carbon Partnership Facility (FCPF) and the World Bank's Forest Investment Program (FIP).

The REDD+ safeguards outline a global framework of social, environmental and governance principles under which REDD+ activities and measures should be implemented, these can be defined as the “rules of the game” and their approach is

determined by each country in terms of the compatibility of their policies, laws and regulations[102,103].

In the case of Colombia, since 2013, the process of interpretation of the safeguards has been advancing, so working spaces have been developed with indigenous, black and peasant communities, as well as with other stakeholders to advance and discuss how they can be addressed, respecting the social and environmental safeguards when implementing REDD+ in Colombia[12,13].

The project is being developed in compliance with Colombian laws applicable to the forestry sector and the implementation of forest mitigation projects. Its activities are executed in accordance with the REDD+ actions defined by the United Nations Framework Convention on Climate Change (UNFCCC) in paragraph 70 of Decision 1/CP.16, under which Colombia has submitted three National Communications (in 2001, 2010 and 2015).)[104]. The country has also recently signed the Paris Agreement (Paris 2015, COP21) [105].

4.1 National Regulatory Framework

The national regulations applicable to this emissions reduction initiative are limited to laws, decrees, resolutions and other national and sectoral regulations related to forests, climate change, natural resource management and conservation, special protection areas and biodiversity associated with private property, as well as national forestry programs and international agreements on these issues, as shown in Table 56.

The project conducted an assessment of the applicable regulations and will monitor compliance with them periodically as development progresses.

[102] Social and environmental safeguards for REDD+ in Colombia
[103] Regulatory framework safeguards
[104] Climate Change, National communication http://www.cambioclimatico.gov.co/comunicacion-nacional-bur-2015
[105]Conference of the parties https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

Table 56. National Regulatory Framework.

Regulations	Description	Project compliance
Decree 2278 of 1953[106]	Regulates the management of forest resources and establishes the forest strip around water bodies as a protective forest zone, forest reserves and the obligation to maintain 10% forest cover in rural properties larger than fifty hectares.	Complies with regulations since the project seeks to contribute to sustainable development, preservation of culture, and reduction of deforestation and degradation of Amazonian forests in ancestral territories. As well as contributing to the conservation and monitoring of biodiversity including the High Conservation Values present in the area of the Indigenous Reservations.
Law 2 of 1959[107]	Whereby norms on the forestry economy of the Nation and conservation of renewable natural resources are issued.	
Decree 2811 of 1974[108]	Whereby the National Code of Renewable Natural Resources and the Environment is enacted.	
Decree 1449 of 1977[109]	Regulates the protection and conservation of forests in the protective strips of water sources within a hundred meters around and thirty meters from the riverbed from the maximum tide line, in addition to the obligation to maintain at least 10% of forest cover in properties of more than 50 hectares and 20% in uncultivated land (Arts. 4 and 5).	
Political Constitution of Colombia [110]	The Political Constitution of 1991, the maximum normative compendium within the set of national laws. Articles 2, 8, 38, 38, 79, 80 and 95 specify the duty of each member of society to protect the	Complies with regulations since the project seeks to contribute to sustainable development, preservation of culture, and reduction of deforestation and

[106] Decree 2278 of 1953 DECRETO 2278 DE 1953 (suin-juriscol.gov.co)
[107] Law 2 of 1959 ley-2-1959.pdf (minambiente.gov.co)
[108] Decree 2811 of 1974 DECRETO 2811 DEL 18 DE DICIEMBRE DE 1974.doc (minambiente.gov.co)
[109] Decree 1449 of 1977 Decreto 1449 de 1977 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[110] Constituent Assembly. Political Constitution of the Republic of Colombia. Colombia; 1991. http://www.secretariasenado.gov.co/senado/basedoc/constitucion_politica_1991.html.

Regulations	Description	Project compliance
	cultural and natural wealth of the nation and to ensure the conservation of a healthy environment.	degradation of Amazonian forests in ancestral territories.
Law 99 of 1993[111]	By which the Ministry of the Environment and the National Environmental System (SINA) were created.	Complies.
CONPES No. 2834 of 1996[112]	Whereby the "Forest Policy" is approved, which seeks to achieve the sustainable use of forests, in order to conserve them, consolidate the incorporation of the forestry sector in the national economy and contribute to the improvement of the quality of life of the population.	Complies with regulations since the project seeks to contribute to the preservation and degradation of Amazonian forests in ancestral territories. As well as contributing to improve the living conditions of the communities living in the Indigenous Reservations.
Law 388 of 1997[113]	Regulates the land use planning processes of the municipalities in accordance with the ecological and social function of property.	It complies with the regulations, as the project seeks to contribute to sustainable development and reduce deforestation in the Amazonian forests in the ancestral territories of the Huitora and Coropoya Indigenous Reservations in the departments of Caquetá and Putumayo.

[111] Presidency of the Republic of Colombia. Law 99 of 1993. Colombia; 1993. http://www.secretariasenado.gov.co/senado/basedoc/ley_0099_1993.html.
[112] CONPES No. 2834 of 1996 forest policy 2834 (dnp.gov.co)
[113] Law 388 of 1997 Ley 388 de 1997 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description	Project compliance
Law 357 of 1997[114]	An international treaty outside the United Nations System, which enshrines the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all wetlands within their territories.	Complies: Based on a review of the bibliography and the RAMSAR Sites layer at a scale of 1:100,000 updated in 2020, it was found that no wetland complexes recognized under the treaty are located within the project area.
National Plan to Combat Desertification (2005)[115]	As part of its commitments acquired with the ratification of the Convention, Colombia formulated the National Action Plan to Combat Desertification (Plan de Acción Nacional de Lucha contra la Desertificación -PAN). The plan establishes guidelines to stop soil degradation and its consequences in the environmental, social and economic dimensions.	Complies with regulations since the project seeks to reduce deforestation and degradation of Amazonian forests in ancestral territories. With the development of production systems compatible with the conservation of nature, ancestral knowledge and community welfare, ensuring food security for the communities living in the Indigenous Reservations.
Decree 3600 of 2007[116]	Establishes the determinants of rural land management.	The project complies with regulations because it is being executed in the ancestral territories of the Huitora and Coropoya indigenous reserves in the departments of Caquetá and Putumayo. Respecting the administrative limits of the territory, as well as the organization of the reservation around bodies of water and climatically vulnerable areas.

[114] RAMSAR Convención sobre los Humedales | Misión Permanente de Colombia (mision.gov.co)
[115] Plan de Acción Nacional de Lucha contra la Desertificación -PAN col175818.pdf (fao.org)
[116] Decree 3600 of 2007 Decreto 3600 de 2007 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description	Project compliance
CONPES No. 3582 of 2009[117]	It considers biodiversity as a strategic area and recognizes the need to advance in the knowledge and sustainable use of biodiversity.	Complies with regulations as the project seeks to reduce unplanned forest degradation and deforestation, and the recovery of already degraded areas. And contribute to the conservation and monitoring of biodiversity including the High Conservation Values present in the area of the Indigenous Reservations.
Decree 2372 of 2010[118]	Regulates the National System of Protected Areas as a determinant of territorial planning	Complies with regulations, since the review of secondary information, as well as the use of geographic information showed that there are no protected areas in the project area.
Law 1454 of 2011[119]	Also known as the Organic Law of Territorial Planning, it establishes administrative coordination mechanisms between regional territorial entities.	The project complies with regulations because it is being executed in the ancestral territories of the Huitora and Coropoya indigenous reservations in the departments of Caquetá and Putumayo. Respecting the administrative limits of the territory, as well as the organization of the reservation around bodies of water and climatically vulnerable areas.

[117] CONPES 3582 of 2009 (Microsoft Word - 3582 Ciencia y Tecnolog\355a.doc) (dnp.gov.co)
[118] Decree 3272 of 2010 Decreto 2372 de 2010 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[119] Law 1454 of 2011 Ley 1454 de 2011 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description	Project compliance
CONPES No. 3700 of 2011[120]	Institutional strategy for the articulation of climate change policies and actions in Colombia	Complies with regulations since the project seeks to slow down and mitigate climate change by reducing unplanned forest degradation and deforestation and recovering already degraded areas.
National Policy for the Integral Management of Biodiversity and its Ecosystem Services 2012.[121]	Aimed at maintaining and improving the resilience of socio-ecological systems at national, regional, local and transboundary scales, considering scenarios of change and through joint, coordinated and concerted action by the State, the productive sector and civil society.	Complies with regulations because the project seeks to contribute to the conservation and monitoring of biodiversity, including the High Conservation Values present in the indigenous reservation area.
Decree 1076 of 2015[122]	By means of which this version incorporates the amendments made to the Sole Regulatory Decree of the Environment and Sustainable Development Sector.	Complies
Decree 1655 of 2017[123]	Whereby the organization and operation of the National Forest Information System, the National Forest Inventory and the Forest and Carbon Monitoring System, which are part of the Colombian Environmental Information System, are established and other provisions are issued.	It complies with the regulations since the project must take into account the progress made in the *Environmental Management Plans of the Reservations*, in order to define actions to maintain the care of the forest and comply with the specific parameters of the REDD+ project.

[120] CONPES 3700 of 2011 Documento (dnp.gov.co)
[121] PNGIBSE Política Nacional para la Gestión integral de la Biodiversidad y sus Servicios Ecosistémicos - Ministerio de Ambiente y Desarrollo Sostenible (minambiente.gov.co)
[122] Decree 1076 of 2015 Decreto 1076 de 2015 Sector Ambiente y Desarrollo Sostenible - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[123] Decree 1655 of 2017 decreto-1655-de-2017.pdf (minambiente.gov.co)

Regulations	Description	Project compliance
Forests Territories of Life: Comprehensive Strategy for Deforestation Control and Forest Management 2017.[124]	A cross-sectoral policy instrument that seeks to reduce deforestation and forest degradation, promoting and establishing forest management in the Colombian territory, under a comprehensive sustainable rural development approach, which contributes to the good living of local communities, contributes to local development and increases ecosystem resilience by promoting climate change adaptation and mitigation. This strategy is the result of the REDD+ readiness process in Colombia that has been underway since 2010 and constitutes the country's National REDD+ Strategy (ENREDD+), within the framework of the United Nations Framework Convention on Climate Change (UNFCCC).	Complies with regulations since the project seeks to contribute to sustainable development, preservation of culture, and reduction of deforestation and degradation of Amazonian forests in ancestral territories.
Resolution 1447 of 2018[125]	Regulates the System for Monitoring, Reporting and Verification of mitigation actions at the national level, the GHG Emissions Reduction and Removal Accounting System, and the operation of the National Registry of Greenhouse Gas Emissions Reduction (RENARE). This resolution was published in July 2018 and the platform in September 2020.	Complies with regulations since the project seeks to reduce deforestation and degradation of Amazonian forests in ancestral territories. As well as contemplating the progress made in the Environmental Management Plans of the Reservations, in order to define actions to maintain the care of the forest and comply with the specific parameters of the REDD+ project.
Law 1931 of 2018[126]	Whereby guidelines are established for the management of climate change". Creates the National Climate Change Information System, whose purpose is to provide transparent and consistent data and information over time for	It complies with the regulations since the project seeks to contribute to sustainable development, preservation of culture, and reduction of

[124] RIS_III_sept2017-agos2018_2Colombia_ultima_version.pdf (minambiente.gov.co)
[125] Resolución 1447 de 2018 15.-Resolucion-1447-de-2018.pdf (minambiente.gov.co)
[126] Ley 1931 de 2018 Ley 1931 de 2018 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description	Project compliance
	decision-making related to climate change management. In turn, it seeks to reduce the country's vulnerability to the effects of climate change and promote the transition to a competitive, sustainable economy and Low Carbon Development (LCD).	deforestation and degradation of Amazonian forests in ancestral territories.
Resolution 831 of 2020[127]	Whereby Resolution 1447 of 2018 is amended and other determinations are made.	Complies, since the project proposes greenhouse gas mitigation initiatives.
Colombia's Nationally Determined Contribution (NDC) 2020[128]	It represents an opportunity to close the international gap in greenhouse gas emissions and represents a greater regional commitment to reduce emissions. It also presents substantive technical and procedural improvements that reduce uncertainty about the level of emissions for 2030, and strengthens the components of adaptation to climate change, reflecting the improvements in public policies for adaptation promoted by the countries in recent years	Complies with regulations since the project seeks to contribute to sustainable development, preservation of culture, and reduction of deforestation and degradation of Amazonian forests in ancestral territories.
Law 2294 of 2023. PND 2022-2026[129]	Article 230°, Modify article 175 of Law 1753 of 2015. "Any person, natural or legal, public, private or mixed, that intends to opt for payments for results, or similar compensations, including international transfers, or that intends to demonstrate results in the framework of compliance with the national climate change goals established under the United Nations Framework Convention on Climate Change -CMNUCC-, as a consequence of mitigation initiatives that generate reduction of emissions and removal of greenhouse gases -GHG- in the country, must be previously registered in the RENARE, in accordance with the regulations	Complies. The project currently has all the documentation and requirements to register on the RENARE platform; however, it is under maintenance by the environmental authority that administers it, the Ministry of Environment and Sustainable Development. When the platform is reactivated, the project will be registered. Likewise, the company complies with the regulations

[127] Resolución 831 de 2020 Resolución 0831 de 2020 - Ministerio de Ambiente y Desarrollo Sostenible (minambiente.gov.co)
[128] NDC Documentos Oficiales Contribuciones Nacionalmente Determinadas - Ministerio de Ambiente y Desarrollo Sostenible (minambiente.gov.co)
[129] Ley 2294 de 2023 Ley 2294 de 2023 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations	Description	Project compliance
	issued by the Ministry of Environment and Sustainable Development for such purpose":	in the second paragraph regarding compliance with social and environmental safeguards.
Law 2294 of 2023. PND 2022-2026	Article 230°, Paragraph 2. "Holders of greenhouse gas mitigation initiatives must comply with environmental, social and economic regulations, and, for the case of greenhouse gas mitigation initiatives in the Agriculture, Forestry and Other Land Use (AFOLU) sector, comply with the social and environmental safeguards defined by the United Nations Framework Convention on Climate Change (UNFCCC) and adopted by the country through its National Interpretation of Social and Environmental Safeguards, including free and informed prior consultation, if applicable, when the project involves areas with the presence of indigenous, black, Afro-Colombian, Raizal and Palenquero communities, and other tools, conditions, criteria and requirements defined within the framework of the National Safeguards System. All mitigation initiatives within its Monitoring, Reporting and Verification system must monitor, report and verify the implementation of environmental, social and economic regulations, and if applicable, the implementation of social and environmental safeguards, during all phases, which will be subject to conformity assessment. The national government will regulate the matter":	Complies. The Huitora and Coropoya indigenous reserves are the owners, proponents and responsible for the development of the Project within their territorial limits. As project owners, the indigenous reservations assume responsibility for implementing the project according to the standards established in the REDD+ project framework, as defined by their traditional uses and customs. In order to comply with the requirements of this national legislation, a request for prior consultation[130], in this case self-consultation, has been made to the Ministry of the Interior, which as of July 31, 2024, has not provided a response. To see the annexes, go to the section REDD+ Safeguards, social and cultural safeguards, paragraph C6.

[130] See 06_SALVAGUARDAS ODS COBENEFICIOS Y CATEGORIA ORQUIDEA / SALVAGUARDAS / PROCEDENCIA_CP

4.2 Regional Regulatory Framework

The mitigation project is positively articulated with the different planning instruments in the territory. Specifically, taking as a guideline the Municipal Development Plan 2020 - 2023 "For a more Human, Productive, Sustainable and Peaceful Solano".

4.3 Presence of indigenous and/or black communities.

In addition, the regulatory framework that protects the indigenous communities present in the project area is contemplated, complying with the provisions described in Table 57 through respect for culture, ancestral knowledge, ethnic diversity and the strengthening of the territory.

Table 57. National Regulatory Framework, presence of indigenous and/or black communities.

Regulations [131]	Description	Project compliance
Resolution 0022 of 1981[132]	By which an Indigenous reservation is constituted for the benefit of the Huitora Indigenous Reservation, which is inhabited by an area of vacant land, located in the jurisdiction of the Corregimiento de Puerto Solano, Intendencia del Caquetá.	Compliance, since the project guarantees the existence of the land tenure of the Huitora indigenous reservation.
Political Constitution of Colombia [133]	The State recognizes and protects the ethnic and cultural diversity of the Colombian Nation and this is emphasized in articles 8, 10, 13, 63, 68, 246, 286, 287, 329	Compliance, as the project seeks to strengthen forest governance and mechanisms to revitalize ancestral knowledge and cultural practices

[131] Instrumento de ordenación territorial (Documento Técnico de Soporte) Municipio de Solano 1-DTS_DIAGNOSTICO_Solano_.pdf (minambiente.gov.co)
[132] Resolución 0022 de 1981 Resolucion 0022 del 3 de febrero de 1981 R.I. WITORA O HUITORA (CREACION).pdf (siatac.co)
[133] Asamblea Constituyente. Constitución Política de La República de Colombia. Colombia; 1991. http://www.secretariasenado.gov.co/senado/basedoc/constitucion_politica_1991.html.

Regulations [131]	Description	Project compliance
Law 21 of 1991[134]	Whereby Colombia ratified Convention 169 of the International Labor Organization (ILO), concerning Indigenous and Tribal Peoples in Independent Countries. The law establishes standards regarding ownership of their lands, the natural resources of their territories, the preservation of their traditional knowledge, self-determination and prior consultation. In September 2007, Convention 169 was reinforced by the United Nations Declaration on the Rights of Indigenous Villages (ILO 2014).	Cumplimiento, ya que el proyecto busca la preservación del bosque amazónico, así como la cultura los territorios ancestrales de las comunidades de los Resguardos Indígenas de Huitora y Coropoya, en los departamentos de Caquetá y Putumayo As well as strengthening forest governance and mechanisms to revitalize ancestral knowledge and cultural practices.
Law 152 of 1994[135]	The Organic Law of the Development Plan establishes the forms, means and instruments, including the indigenous territorial entities.	
Law 115 of 1994[136]	Education is a process of permanent, personal, cultural and social formation, providing educational attention according to the culture, language, traditions and local customs.	Complies with regulations by strengthening forest governance and mechanisms to revitalize ancestral knowledge and cultural practices.
Decree 2164 of 1995[137]	It regulates the endowment and titling of land to indigenous communities for the constitution, restructuring, expansion and reorganization of Indigenous Reservations in the national territory.	Compliance, since the project guarantees land tenure in the ancestral territories of the communities of the Huitora and Coropoya Indigenous Reservations in the departments of Caquetá and Putumayo.
Decree 1397 of 1996[138]	From the Ministry of the Interior, Creates the National Commission on Indigenous Territories and the Permanent Roundtable for Consultation with indigenous peoples and organizations.	

[134] Ley 21 de 1991 Ley 21 de 1991 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[135] Law 152 of 1994 Ley 152 de 1994 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[136] Law 115 of 1994 Ley_115_1994.doc (mineducacion.gov.co)
[137] Decree 2164 of 1995 Decreto 2164 de 1995 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[138] Decree 1397 of 1996 Decreto 1397 de 1996 - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations [131]	Description	Project compliance
Law 1381 of 2010[139]	Regulates the recognition, promotion, protection, use, preservation and strengthening of the languages of Colombia's ethnic groups.	Compliance, as the project seeks to strengthen forest governance and mechanisms to revitalize ancestral knowledge and cultural practices.
Decree 1953 of 2014[140]	Ministry of Justice, creates the special regime in order to put into operation the Indigenous Territories with respect to the administration of their own systems.	Compliance, since the project is registered in the name of the indigenous peoples, which has a significant impact since it generates the need to prepare the governance conditions in the reserves in order to maintain the project in the long term.
Decree 2333 of 2014[141]	"Whereby mechanisms are established for the effective protection and legal security of lands and territories occupied or ancestrally and/or traditionally possessed by indigenous villages".	Compliance, since the project guarantees land tenure in the ancestral territories of the communities of the Huitora and Coropoya Indigenous Reservations in the departments of Caquetá and Putumayo.
Decree 1076 of 2015[142]	The Sole Regulation of the Environment and Sustainable Development Sector, contemplates among other aspects related to prior consultation, the overlapping of resguardos with the National Natural Park system, ethnic participation in the basin councils and the national environmental council.	Compliance with regulations, since the project is registered in the name of the indigenous villages, and the activities to be carried out in the projects are executed on the basis of the community's decision.
Decree 1071 of 2015[143]	Sole Regulation of the Agricultural, Fishing and Rural Development Administrative Sector, article 2.14.20.4.2, establishes that the national government has the authority to delimit and demarcate the territories of indigenous villages	Compliance, since the project guarantees land tenure in the ancestral territories of the communities of the Huitora and Coropoya Indigenous Reservations

[139] Law 1381 of 2010 Ley 1381 de 2010 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[140] Decree 1953 of 2014 Decreto 1953 de 2014 - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[141] Decree 2333 of 2014 DECRETO 2333 DE 2014 - Proteccion de tierras.pdf (andi.com.co)
[142] Decree 1076 of 2015 Decreto 1076 de 2015 Sector Ambiente y Desarrollo Sostenible - Gestor Normativo - Función Pública (funcionpublica.gov.co)
[143] Decree 1076 of 2015 Decreto 1071 de 2015 Sector Administrativo Agropecuario, Pesquero y de Desarrollo Rural - Gestor Normativo - Función Pública (funcionpublica.gov.co)

Regulations [131]	Description	Project compliance
	in isolation, in order to give special treatment to the right to possession of ancestral and/or traditional territory.	in the departments of Caquetá and Putumayo.
Agreement 240 of 2022[144]	Whereby the boundaries are updated and the Huitorá Indigenous reservation of the Murui Muina (Uitoto) people is expanded for the first time with a piece of vacant land of ancestral possession located in the municipalities of Solano and Cartagena del Chairá, department of Caquetá.	Compliance, since the project guarantees the existence of the land tenure of the Huitora indigenous reservation of the Murui Muina (Uitoto) people.

5 Carbon ownership and rights

5.1 Project Owner.

The Huitora and Coropoya indigenous reservations are the owners, proponents and responsible for the development of the Project within their territorial limits. As project owners, the indigenous reserves assume responsibility for implementing the project according to the standards established in the REDD+ project framework. In order to comply with the requirements of the national legislation in force, a request for prior consultation has been made to the Ministry of the Interior, which as of July 31, 2024 has not provided a response; for the annexes go to the REDD+ Safeguards section, social and cultural safeguards, paragraph C6.

All activities are framed within the framework of cultural strengthening and territorial conservation. The prioritization of activities and projects corresponding to each of the four pillars was carried out in a general assembly, as the highest decision-making body in the communities. For the formulation, implementation and development of the projects, each reservation formed a REDD+ Committee with the following positions: general coordinator, financial coordinator, technical secretary, PQRS (Petitions, Complaints, Grievances and Requests), governance state coordinator, productive projects state coordinator, social investment state coordinator, and monitoring state coordinator, and a

[144] Acuerdo 240 de 2022 ACUERDO-240-ampliacion-resguardo-indigena-Huitora.pdf (ant.gov.co)

functions manual was drawn up specifying the rights, duties and functions of the respective positions, which must be fully complied with by each of its members. The functions of the different community sectors are also defined in the general framework of the REDD+ project are also defined, which allow the implementation of the projects to be structured in an adequate manner, which allow to structure the implementation of the projects in an adequate way.

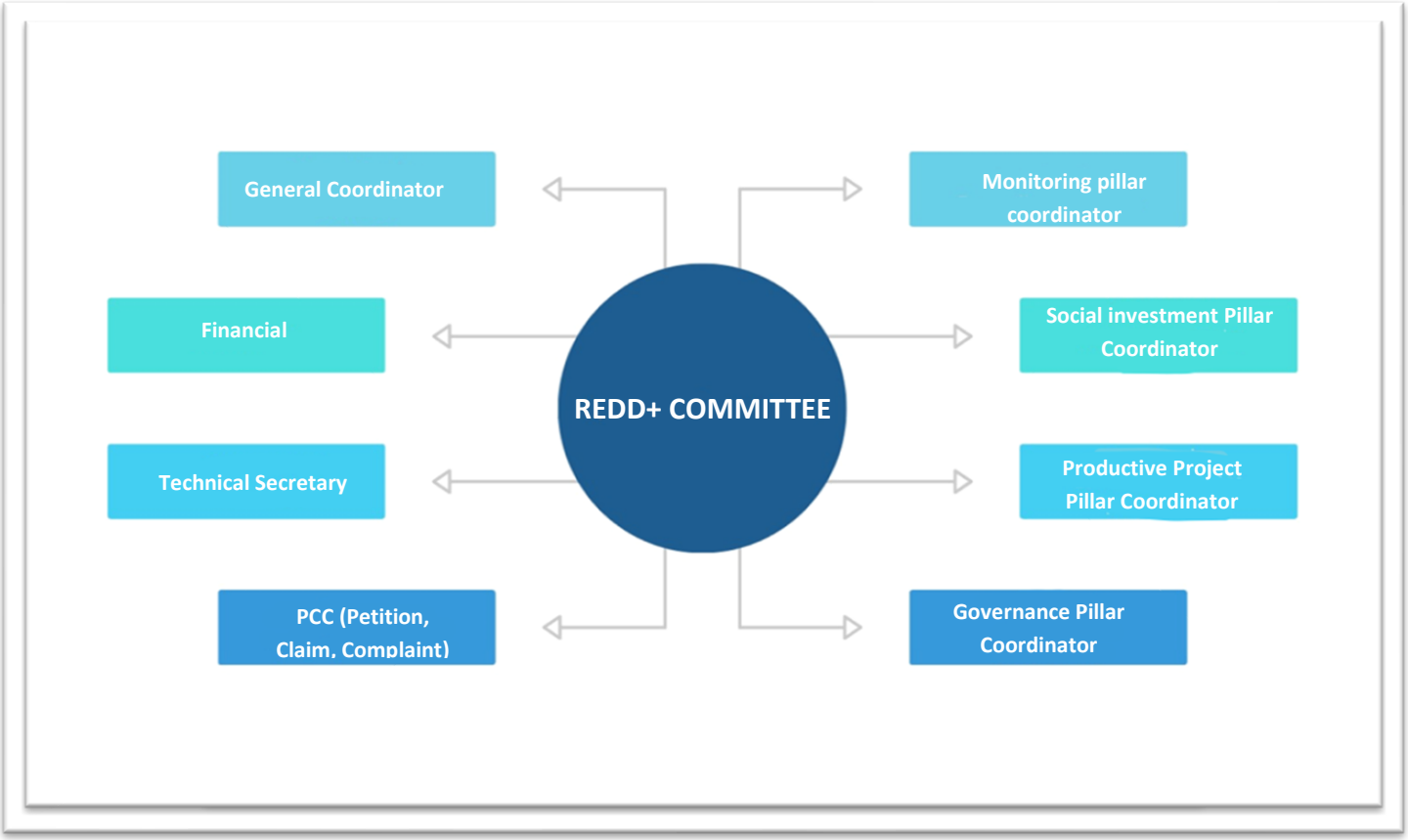


Illustration 35. REDD+ committee structure.

By implementing a REDD+ initiative in their territories, the communities of Huitora and Coropoya assume responsibility for implementing the activities as established in this document. The grassroots community structure must be maintained, so that decisions regarding the projects to be developed are defined in a general assembly, respecting the autonomous decision-making mechanisms, the traditional authorities, and the political-administrative authority. The REDD+ committee will not assume authoritarian functions, but rather will assume functions delegated by the general assembly. In addition, collective

and community work must be framed within the framework of strengthening cultural practices that enable the conservation of the territory's natural resources.

Proponent Indigenous Reservation Huitora:

Individual or organization	**Huitora indigenous reservation**
Contact person	Octavio Muñoz Garay
Job position	REDD Huitora Committee Coordinator
Address	Huitora Indigenous Reservation, Solano, Caquetá
Phone number	321 2129105
E-mail	proyectoreddhuitora@gmail.com

Proponent Indigenous Reservation Coropoya:

Individual or organization	**Indigenous Reservation Coropoya**
Contact person	Jorge Clavijo Guaquetá
Job position	Coropoya REDD+ Committee Coordinator
Address	Coropoya Indigenous Reservation, Solano, Caquetá

Phone number	318 7991482
E-mail	proyectoreddcoropoya1@gmail.com

5.2 Other Project Participants

For this REDD+ project, the partner companies of the indigenous reserves of Huitora and Coropoya, Yauto SAS and Manguares SAS are in charge of the formulation, enrollment, registration, validation and certification process of the project. The responsibilities they assume, as allies of the project proponents and owners, are mainly to respect the autonomy of the communities in decision-making and their own governance structures. Initially in the formulation process, it is the communities that prioritize the needs and activities to be carried out according to the general requirements of the REDD+ program. As companions, the companies carry out technical studies that reflect the tons of carbon stored in the territory and provide the necessary tools for the communities to formulate their project. During the implementation process, the necessary technical support will be provided for the proper execution of the activities outlined in this document.

Individual or organization	**YAUTO**
Contact person	Alicia Micolta Cabrera
Job position	Manager and Legal Representative
Address	Urbanizacion Rincon de San Pedro Guayamaral
Phone number	(+57) 316 831 23 67
Email	yautosas@gmail.com

Individual or organization	**MAGUARES ZOMAC SAS**
Contact person	Carlos Abondano
Job position	GHG Project Manager
Address	Calle 66 #27-26 Bogotá
Phone number	6017424108
Email	carbonoamazonas@gmail.com

Direct Project Stakeholders

Coropoya Reservation	**Huitorá Reservation**
Community	Community
Yauto: Technical support	Yauto: Technical support
Manguares: Technical support.	Manguares: Technical support.

Indirect Project Stakeholders

LOCALS	REGIONAL
Mayor's Office Municipality of Solano	Government Department of Caquetá
Mayor's Office Municipality of Cartagena del Chairá	Government Department of Putumayo.
Mayor's Office Municipality of Puerto Leguizamo.	CORPOAMAZONIA
ASCAINCA	
Coordination of Indigenous Affairs Municipality of Solano.	
Parque Nacional Natural La Paya	

The indirect actors of the project are the public institutions present in the territory, which maintain a direct relationship with the communities. Municipal and departmental development plans include cultural and environmental conservation objectives, similar to those proposed in this project, under the concept of integral development of local communities. The Regional Autonomous Corporation and the National Natural Parks have undertaken initiatives to value the traditional knowledge of the indigenous communities with respect to the conservation of the territory and its natural resources, so they have joint activities to meet the objectives proposed by these institutions. Therefore, as indirect stakeholders of the project, they were given an informative socialization of the project, in order to join efforts to mitigate deforestation and forest degradation, generating better living conditions for the communities.

The stakeholders that participated in the activities carried out during the retroactivity period, working closely with the communities in various areas, such as ICFB (Colombian Institute of Family Welfare), TNC (The Nature Conservancy), ACT (Amazon Conservation Team), Universidad de Los Andes, GEF (Global Environmental Found), are consolidated as indirect stakeholders in this formulation phase since the communities are the proponents and those who created and specified the activities of the GHG emission reduction project. Consequently, they are the ones who guide the implementation process, managing their own resources and defining the investments in each phase of the activities.

In this context, their involvement will be conditioned to the decisions that the assembly adopts with respect to each activity, as well as to the criteria of association that the communities establish within the methodology of the same. The indirect nature of their role implies an interdependent relationship, where decision making, and partnership criteria will be decisive for their effective participation in the future of the project.

5.3 Carbon rights agreements

The carbon rights of the **Marena Ichena-Nag+ma Enoye Rafue REDD+ Project** have been agreed upon by means of mandate contracts between the ancestral owners and possessors of the land, i.e. the indigenous reservations, where the conditions for the formulation and implementation of the project are defined. (See Drive 01_ACUERDOS Y CERTIFICADOS). These agreements were carried out in a general assembly with each of the communities and have letters of free, prior and informed consent for the implementation of the REDD+ project. All agreement documents have been signed by the traditional and administrative authorities of the reservations (caciques and governors) in full compliance with national laws and REDD+ safeguards, and are intended to establish the participation and contribution agreements between the communities (the principals) and the companies developing the project (mandataries).

Although the start date of the project is January 1, 2018, linked to the early actions that the communities have historically been carrying out to conserve the forests and the letters of intent that show the communication between the principals and mandataries with the intention of developing the REDD+ project (see Drive 03_START DATE/Letters of Intent), the mandate contracts were signed on March 28, 2023 in community assemblies held in the territory. These contracts define an emission reduction quantification period of 30 years, i.e. January 1, 2018 to December 31, 2047. In these contracts it is agreed that the communities are the project proponents as well as the main implementers, and the

companies are in charge of registration, formulation, technical development and implementation support.

5.4 Land tenure

The land tenure for the Huitora indigenous reservation, is demonstrated under the resolution assigned by the Colombian Institute of Agrarian Reform, where it is constituted with the legal character, for the benefit of these ethnic groups, a globe of vacant land, located in the jurisdiction of the Corregimiento of Puerto Solano with their respective boundaries according to resolution 0022 of 1981 (See Drive 02_TENECIA DE LA TIERRA) and extension agreement 240. Also, the Coropoya indigenous reservation presents the respective Resolution of adjudication of vacant land according to resolution 088 of 1988 issued by INCORA (See Drive 02_TENECIA DE LA TIERRA) and Agreement No. 242 of the National Land Agency (ANT) where the extension is approved, as shown in the following table:

Table 58. Land tenure within the project area.

Indigenous reservation	Resolution	Entity
Huitora	No. 0022 of February 3, 1981	Instituto Colombiano de la Reforma Agraria
Coropoya	N° 088 of 1988	INCORA

5.5 Distribution of benefits among the proponents

Indigenous reservations will receive 65% of the number of certified VCCs during the project under the terms of the contracts. Each reservation will receive the number of VCCs from the conservation of its respective forests, that is, the percentage of participation is determined by the relationship of the forest surface of each indigenous reservation with the total eligible area, as well as the certified VCCs, and thus define how the benefits measured in VCCs will be distributed. This distribution will continue to be verified in each monitoring report, calculating the respective distribution of benefits for each indigenous territory belonging to the grouped project.

The eligible area of the baseline presented in this PD (Project eligible areas map as of January 01, 2018.) is 157,321.83 hectares, and the distribution of benefits is as follows:

Table 59. Ex ante distribution of benefits for shelter.

Reservation Comunidad Huitoto de Coropoya		
Eligible area as of January 1, 2018	27,881.11 ha	17.72%
Reservation Huitora		
Eligible area as of January 1, 2018	129,440.73	82.28%
Total Eligible Area		
Total eligible area as of January 1, 2018	157,321.83 ha	100.00%

6 Adaptation to climate change

REDD+ (Reducing Emissions from Deforestation and Forest Degradation) initiatives play a crucial role in climate change mitigation. By focusing on the conservation and sustainable management of forests, seeking to reduce greenhouse gas emissions associated with deforestation and degradation, it contributes not only to the protection of biodiversity, but also offers, promotes and encourages economic and social benefits for local communities[145].

In this sense, REDD+ projects provide incentives for communities to adopt sustainable forestry practices, generating employment and local development opportunities. In addition, they seek to generate integration to work in an integrated manner with the direct participation of local communities, strengthening forest management and awareness of the importance of conserving ecosystems[146].

As deforestation continues to be a global threat, REDD+ projects become essential tools to address this challenge. Investing in forest preservation not only protects biological diversity, but also contributes to carbon sequestration and promotes sustainable development[147].

In summary, REDD+ projects are key to combating climate change, conserving biodiversity and empowering local communities. Additionally, they are linked to an

[145] MinAmbiente. (2019). Bosques, territorios de vida. Estrategia Integral de Control a la Deforestación y Gestión de los Bosques.
[146] MinAmbiente. (s.f). ¿Qué es REDD+?. Recuperado de: https://www.minambiente.gov.co/mercados-de-carbono/que-es-redd/#:~:text=La%20sigla%20REDD%2B%20
[147] MinAmbiente. (2019). Bosques, territorios de vida. Estrategia Integral de Control a la Deforestación y Gestión de los Bosques.

integral and cooperative approach, showing how the search for a balance between human development and environmental preservation can be achieved through joint work.

REDD+ activities encompass a wide range of actions aimed at reducing greenhouse gas emissions, providing strategies to mitigate deforestation and forest degradation, such as[148]:

Monitoring and review: This activity seeks to implement monitoring systems to assess changes in forest cover, carbon emissions and forest quality. The above involves the use of technologies such as satellite images and field measurements.

Strategic actions for the development of local capacities: These activities seek to build the capacity of local communities to sustainably manage forest resources. For this, training in sustainable forestry practices and the active participation of communities in decision making are essential.

Economic incentives and support: In the financial field it is necessary to establish mechanisms to provide economic incentives for local communities and countries to reduce carbon emissions from deforestation. This can include payments for environmental services and sustainable economic development programs.

Community Participation: The search for social cooperation from the communities in the project development areas allows for a much more effective and reciprocal planning and execution of REDD+ projects, of a social nature. This contributes to guaranteeing social equity and addressing the real needs not only of the people who depend on forest resources, but also of those who live in an area where such activities are carried out, thus generating empowerment in local governance and sovereignty over their own territories.

Forest Restoration: The project aims to implement strategies to restore degraded areas. This encompasses activities such as tree planting, natural regeneration management and biodiversity enhancement. In addition, to establish measures, which go beyond the pure compensation of what is already degraded, but also help the protection and conservation of the natural environment.

Sustainable Management: It is a commitment to the development and establishment of sustainable forestry practices that allow the extraction of forest products without reducing carbon stocks or compromising the long-term health of ecosystems.

[148] MinAmbiente. (2019). Bosques, territorios de vida. Estrategia Integral de Control a la Deforestación y Gestión de los Bosques.

In addition, the REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE project demonstrates that it intends to carry out actions to reduce current and future impacts derived from climate change and climate variability through the development and strengthening of sustainable production systems in order to improve the competitiveness, income and current conditions of the communities belonging to the Project, comprehensive actions that help the efficient use of soil, reduction of GHG emissions from agricultural activities compared to the scenario without the Project and actions directly related to climate change adaptation measures, as shown below:

Sustainable production systems: The contribution is mainly focused on the contribution to the SDGs through the implementation of productive projects with the implementation of activities focused on the improvement of indigenous production, such as: non-timber forest resources, commercialization of fariña and other products, beekeeping, fish farming.

Comprehensive actions that help the efficient use of land: To achieve an increase in competitiveness by decreasing vulnerability to climate change, actions are developed that focus on the conservation of natural covers being the objective of the conception of the acronym REDD+ and from where the activities raised in the Monitoring stanchion are derived, which includes reforestation with native species, updating of the ecological calendar and implementation of the practices that compose it and a variability in sustainable productive projects that define the planting and harvesting seasons for fruit trees and food, and the hunting and fishing seasons, so as not to deplete these resources and coordinate the caring practices with the times of nature. Making use of the ecological calendar is fundamental to apply the resource control rules dictated in the Law of Origin, which is why it is necessary to reach agreements with the neighbors who use the resources of the reservation and its boundaries.

Reduction of GHG emissions from agricultural activities, compared to the scenario without the Project: The implementation of the Project faces an increase in GHG emissions derived mainly from deforestation and forest degradation due to land use change in the territory, as observed in the baseline and additionality selection chapter (Section 3.4), where it is concluded that there is an increase in agricultural activities in the region. For this reason, from the socialization phase, sustainable production activities are established jointly with the community that will be developed throughout the life of the project with the resources that will be obtained from the commercialization of carbon certificates, highlighting that their development is proposed in non-forest areas and of cultural importance for the indigenous reserves that are proponents of the project.

Actions directly related to climate change adaptation measures: To demonstrate compliance with this section, the REDD+ MARENA ICHENA - NAG+MA ENOYE RAFUE project intends to develop activities aimed at preventing erosion, soil compaction and reducing the use of fertilizers, mainly chemical fertilizers. Beginning with the social investment program, through the infrastructure and equipment project aimed at building bridges for internal mobility in the territory and a water system with storage tanks, pumping systems, and a distribution network for each household, carrying out rainwater harvesting cycles. Each family in the community also intends to have a house with basic water, electricity and sewage services (septic tanks) and their respective equipment. In addition, it is intended to seek and use local resources for construction, alternative energy sources, such as solar energy, promote the conscious use of water and implement waste management techniques. By involving the population in the construction of the houses, the project offers employment alternatives that make it possible to alleviate the basic needs of the families, avoiding their participation in activities that may cause deforestation.

On the other hand, there are activities related to solid waste management, through training and sensitization for waste management and its respective treatment. This project seeks to create an adequate waste management system for the reserve, which allows collecting, classifying, transporting and transforming the waste generated, with the objective of adequately managing the resources, avoiding waste, overexploitation, degradation and contamination of the ecosystems, and guaranteeing their availability and quality for present and future generations. This initiative is in line with the internal agreements for the protection of the territory contained in the Environmental Management Plan of the Huitora reservation, which proposes periodic campaigns to promote recycling, the use of fertilizers and, in general, good waste management. The project's areas of intervention will be sociocultural because of the awareness-raising work involved, and a physical area where the necessary infrastructure will be built for the collection, transport and transformation of waste. For the Coropoya indigenous reservation, the construction of a sanitary landfill and garbage management system is established, aiming at the adequate final disposal of solid waste in a predetermined area. The creation of a waste management system that includes the collection, transportation and transformation of waste generated within the territory is proposed, as well as a recycling plan that will allow maximum use to be made of the waste and reduce its negative effect on the environment. The project solves contamination problems in the water sources, eliminates solid waste and decomposing materials correctly, in line with the provisions of the reserve's management plan, which prohibits dumping garbage in rivers and streams, as well as chemical products that can cause irreversible damage. It is

also aligned with internal agreement number 2 on the care of water and its associated biodiversity and number 3 on the care of our forests and their biodiversity.

In conclusion, the activities of the REDD+ MARENA ICHENA - NAG+MA ENOYE project are focused in an integral manner in order to execute projects with social and environmental responsibility, with the aim of addressing dimensions that complement each other, achieving forest conservation and climate change mitigation, so that the successful implementation of these actions contributes significantly to the reduction of emissions and the achievement of REDD+ objectives.

7 Risk management

In accordance with the guidelines established in the BCR0002 Version 4.0 methodology and BCR's Permanence and Risk Management Version 1.1 tool, by means of an evaluation matrix, the possible environmental and social risks for the project were identified, describing them and defining measures and indicators to manage them in a Risk Management Plan (see 07_PDD/TOOLS/EVALUACION_IMPACTOS/Plan_Gestion_Riesgo_MI-NER_v1.pdf).

In accordance with the BCR standard, the project's objective is to manage the risk of reversion in the Marena Ichena - Nag+ma Enoje Rafue REDD+ Project to avoid the occurrence of incidents that could cause negative effects to the environment and the community, especially the direct emission of greenhouse gases. Therefore, the risks related to the execution of the project activities were evaluated in terms of environmental, financial and social dimensions.

From the identification of risks in these dimensions, measures will be designed to address the risks, so that the reduction or elimination of greenhouse gas emissions are maintained during the project's quantification period.

This identification was carried out with secondary information and the support of geographic information. Once the threats were identified, by means of the risk evaluation, the methodology of the tool "*Permanence and Risk Management. Version 1.1*" of BCR, where the following classifications were obtained:

- High risk: Intolerable. Refers to the fact that the risk of reversal associated with the variable may affect more than 10% of the carbon benefits accrued by the project up to the time of verification.
- Medium risk: Represents a reversal risk of releasing between 5% and 10% of the accumulated carbon benefits.
- Low risk: Release of less than 5% of the carbon benefits accrued by the project up to the time of verification.

For risk control measures, the *risk action plan* template found in NTC 5254 on risk management has been used as a guide, and to explain these measures, they are listed in a table with the following: identified threat, description of the threat, probability of occurrence, risk treatment options, actions and/or strategies, measurement and monitoring.

The following is a description of the risks assessed in each dimension: environmental, financial and social:

1. Among the environmental risks, natural risks were evaluated, which are: Fire risk, Wind risk, Pest and disease risk, and Water risk.

For fire risk, the methodology of the Protocol for the development of fire risk zoning maps of vegetation cover - Scale 1:100,000 of the IDEAM was used, and it was identified that the cover with the greatest susceptibility to fires is the high dense forest cover of dry land with a total of 149,596.07 hectares, so the fire risk is classified as medium, since the highest percentage weight is in the medium susceptibility classification.

As for windstorm risks, since there is no back-up mapping, it was necessary to approach the departmental risk management plans of the municipalities that make up the project area. It is considered that this irrigation has a low classification, that is, a release of less than 5% of the carbon benefits accumulated by the project up to the time of this verification, because its impact does not generate greenhouse gas emissions, but through degradation actions the nutrients can be cycled and through exploitation this resource can be transformed into another product with a low greenhouse gas emissions process.

For the pest and disease risk, based on secondary information, it was considered that this does not have a negative impact on the project, since among its ecosystemic functions, the

biological control that the tropical rainforest has to counteract the impact is recognized, so it is assigned a low pest and disease risk rating.

In addition, the flood risk is obtained from the use of cartography, especially from the IDEAM flood map of 2010, from which it is obtained that in the project area twelve (12) coverages affected by the risk of flooding are identified, the most affected coverage is the heterogeneous high dense floodable forest with 2,844.41 hectares, followed by the coverage of high dense forest of dry land with 1,281.73 hectares and the least affected coverage is the grasses with 0.01 hectares. And it is concluded that for this project a medium flood risk assessment is contemplated, with a higher probability of occurrence during heavy rainfall seasons.

2. For financial risk, the financial capacity of the project holder is evaluated, as well as the project establishment and maintenance budget.

The holder's financial capacity risk is based on the existence of economic support to carry out the project proposal. Additionally, the low financial risk is certified due to the capacity of the project proponent. Therefore, it is determined that the risk is within the low classification.

For irrigation in the project establishment and maintenance budget, the guidelines described in the Interpretation of Social and Environmental Safeguards for Colombia and the safeguard are followed. Respect for the traditional knowledge and rights of the communities, a fiduciary negotiation system is agreed upon, guaranteeing compliance with the previously agreed upon agreement and ensuring that the budget obtained from the commercialization of the carbon certificates finally reaches the respective beneficiaries, the communities of the project's proponent reserves; therefore, the risk is classified as low.

3. In addition, social risks are assessed land disputes, encroachment management constraint, political risk and opportunity cost.

In the risk due to land disputes, invasion management restrictions, it was obtained from secondary information that there are a number of facts that have put at risk the sovereignty of the indigenous communities over their territories and as the project is developed in the territory of two communities this can be violated within the territorial dynamics, establishing a medium risk.

For the political risk, it is understood that historically the Amazon responds to a complexity of policies, social and economic situations that the country has faced and that have had repercussions on the state of the ecosystems, which is why this risk is evaluated as high and measures to mitigate this risk are highlighted as a contingency system to strengthen the social fabric of the communities through joint work.

Finally, the opportunity cost risk is evaluated as a medium risk, since different economic activities may be established in the region to provide better monetary results.

7.1 Reversion risk

Reversion risk management actions are mainly the risk bond reserve, which corresponds to 20% of the bonds certified in each period, and the long-term commitments in the implementation of project activities. 10% of this discount is placed in a reserve account specifically designated for this project. The remaining 10% of VCC generated during the verification processes is placed in a general reserve account in the BioCarbon registry.

Verified Carbon Credits placed in the project reserve account can be released and placed on the market in a subsequent verification, if and only if the GHG Project remains under the BCR Standard and active in the BioCarbon registry and there has been no cancellation of such credits due to reversals. This supports the credibility of GHG projects.

7.1.1 Loss event report.

In the event of a loss event, the project is required to submit a report within a period of no more than one year after the event that results in the loss or reduction of the VCCs issued and registered in the registry platform. The loss report must include a conservative estimate of the carbon loss from previously verified emission reductions/removals due to the loss of carbon stocks of the project based on the monitoring report and demonstrating the truthfulness and accuracy in all material aspects.

During the monitoring and verification period, after the loss event, the monitoring report must reflect the loss resulting from the loss event and calculate the net GHG benefit for the monitoring period according to the applied methodology.

The following event has been identified as a threat to the project scope:

- Loss of forest cover due to natural events: the area is located in a territory with low threat from natural fires; However, there is a risk of fires of natural or anthropic

origin, due to the increase in temperatures in the summer seasons and the deforestation and burning process that is carried out for the establishment of pastures or crops.

For the monitoring of forest fires, a forest fire report format is used that allows monitoring this phenomenon, in case it occurs (see 90_ESTIMACIONESCARBONO/Perturbaciones/Formato_Reporte_Incendios_v1.pdf). In the event of a forest fire disturbance detected and confirmed by local interviews, the affected area will be estimated and the tCO2e and other GHG emitted in each certification period will be deducted from the total quantified by the project.

8 Sustainable Development Safeguards (SDGs).

8.1 Sustainable development safeguards (SDSs)

The following is the methodology applied to carry out the socioeconomic and environmental assessment of the project, where the foreseeable impacts on the different components present in the project boundaries are identified, following the provisions of the "Sustainable Development Safeguards (SDSs)" tool, version 1.1 of July 4, 2024, generated by Biocarbon Standard. The main objectives seek to effectively identify environmental and socioeconomic risks and potential negative impacts arising from project activities, preventing them before they occur or mitigating them.

Environmental impact assessment methodology

Leopold matrix [149,150]

Created in 1971 by Dr. Luna Leopold, this is a qualitative cause-effect matrix based on the evaluation of the interactions between the project and the environment, with the actions that cause environmental impact on the horizontal axis; and on the vertical axis the existing environmental conditions that may be affected by these actions.

[149] De la Maza, C. L. (s/f). *8.4 Evaluación de Impactos Ambientales*. Uchile.cl. Retrieved September 29, 2023, from https://repositorio.uchile.cl/bitstream/handle/2250/120397/Evaluacion_de_Impactos_Ambientales.pdf
[150] Dellavedova, A. E. A. M. (s/f). GUÍA METODOLÓGICA PARA LA ELABORACIÓN DE UNA EVALUACIÓN DE IMPACTO AMBIENTAL. Edu.ar. Recuperado el 29 de septiembre de 2023, from https://blogs.ead.unlp.edu.ar/planeamientofau/files/2013/05/Ficha-N%C2%BA-17-Gu%C3%ADa-metodol%C3%B3gica-para-la-elaboraci%C3%B3n-de-una-EIA.pdf

In the impact assessment, each cell (product of the intersection of rows and columns) is divided diagonally, with the magnitude of the impact (M) in the upper part and the intensity or degree of impact incidence (I) in the lower part.

The following steps must be followed for this evaluation:

1. Identification of project actions and the components of the affected environment;
2. Subjective estimate of the magnitude of the impact, on a scale of 1 to 10, with a + sign being a positive impact and a - sign being a negative one, and,
3. Subjective evaluation of importance, on a scale of 1 to 10.

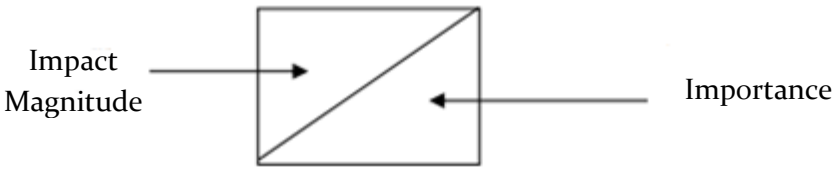


Illustration 36. Impact assessment in each cell.

The following values in Table 60 are used as a reference for the evaluation of each interaction.

Table 60. Assessment of magnitude and Leopold matrix impacts.

MAGNITUDE				Importance		
Intensity	**Impact**	**Rating (positive)**	**Rating (negative)**	**Duration**	**Influence**	**Rating**
Low	Low	1	-1	Temporal	Punctual	1
Low	Average	2	-2	Media	Punctual	2
Low	High	3	-3	Permanent	Punctual	3
Average	Low	4	-4	Temporal	Local	4
Average	Average	5	-5	Average	Local	5
Average	High	6	-6	Permanent	Local	6
High	Low	7	-7	Temporal	Regional	7
High	Average	8	-8	Average	Regional	8
High	High	9	-9	Permanent	Regional	9
Very high	High	10	-10	Permanent	National	10

The Leopold matrix does not specifically name each impact generated by such interaction. In this sense, the Leopold method does not function as a checklist of impacts, but uses a

matrix based on the matrix methodologies that are normally used for the identification of impacts that may occur in the project.

8.2 Environmental Assessment

An impact evaluation matrix was used to determine that the negative environmental impacts are mitigable and that the balance of the impacts of sustainable production projects in environmental terms is positive (see 07_PDD/TOOLS/EVALUACION_IMPACTOS/Matriz_evaluacion_Huitora_v1.xlsx y Matriz_evaluacion_Coropoya_v1.xlsx).

8.3 Disturbance events

The following events have been identified as threats to the scope of the project:

- Fire risk
- Risk of wind or windstorm
- Risk of pests and diseases
- Water risk

All these events are addressed by means of a risk management plan, mentioned in section 7 Risk management. Should any of these events occur during the monitoring periods, their effect on emission reductions will be recorded in the respective monitoring report.

8.4 Socioeconomic evaluation

An impact assessment matrix was used to determine that the negative socioeconomic impacts are mitigable and that the balance of the impacts of sustainable productive projects in socioeconomic terms is positive. (See 07_PDD/TOOLS/EVALUACION_IMPACTOS/Matriz_evaluacion_Huitora_v1.xlsx y Matriz_evaluacion_Coropoya_v1.xlsx).

8.5 Assessment questionnaire

In addition, the questionnaire provided in the "Sustainable Development Safeguards (SDSs)" tool, version 1.1, Annex A, which takes into account the evaluation described above and the particular context of the project, is completed in response to the evaluation

questions presented and justified in the document "SDSs_MI-NER_v1.xlsx[151]". The following aspects were evaluated:

Table 61. Components analyzed in the evaluation.

Component	Subcomponent	
1. Environmental	Land use: Resource Efficiency and Pollution Prevention and Management	
	Water	
	Biodiversity and ecosystems	
	Climate change	
2. Social	Human rights	Labor and working conditions
		Gender equality and women empowerment
		Land acquisition, restrictions on Land use, displacement, and Involuntary Resettlement
		Indigenous peoples and cultural heritage
	Corruption	
	Economic Impact	
3. Governance and compliance		

The responses submitted to these components and subcomponents are evaluated using the following guide:

Table 62. Guide for filling out the questions for each component and subcomponent.

Could the project/initiative activities potentially entail or result in:	Response	Justification	Mitigation and/or preventive actions
Question from Annex A of the tool	Yes, potentially, no or N/A, depending on the answer to the question	The answer is justified according to adequate support.	Measures are established in accordance with the following table (See 07_PDD/TOOLS/EVALUACION_IMPACTOS/SDSs_MI-NER_v1.xlsx)

[151] See 07_PDD/TOOLS/EVALUACION_IMPACTOS/SDSs_MI-NER_v1.xlsx

Table 63. Possible answers to the questions in Annex A.

Response	Meaning	Mitigation and/or preventive actions
"Yes"	The risk or expected impact identified during the assessment is imminent in the project/initiative and context.	The requirements are applicable, and compliance shall be demonstrated. Describe the measures taken to either reduce the severity and likelihood of a risk occurring in the first place or minimize the potential impact. All complementary information and evidence shall be incorporated into the Monitoring & Reporting Plan and subsequent monitoring periods.
"Potentially"	The risk or expected impact may exist at some point in the Project/Initiative and context.	The project/Initiative may justify with evidence why these requirements do not need shall update information on any assessment questions answered "Potentially" for each monitoring report.
"No"	The risk or expected impact is not present in the Project/Initiative	Justification shall be provided to support this conclusion, with evidence provided where required.
"N/A"	The question is not relevant to the project/initiative and its potential impact.	No action is required.

Source: Biocarbon Standard (2024).

9 Participation and consultation with stakeholders

Dissemination strategies:

The socialization of the project with the governors of the departments of Caquetá and Putumayo, with the mayors of the municipalities of Solano, Cartagena del Chairá, and Puerto Leguízamo, with the secretary of indigenous affairs of Solano, with

Corpoamazonia, and with the La Paya National Natural Park, are part of the REDD+ project dissemination strategy in the territory, to the relevant public institutions.

For the different sectors interested in the implementation of the project, it will be published on social networks such as instagram @reddcolombia, showing the formulation process, the established objectives, the implementation process and the expected results. The process carried out by the communities within the framework of their autonomy, to acquire tools and skills foreign to their culture, through training, to be themselves those who develop and implement the project, is an innovative way, with respect to the different projects and programs that have been implemented with public and private institutions with indigenous communities, changing the welfare approach that has historically characterized them. The importance of respecting the autonomy of the communities is constantly mentioned, valuing traditional knowledge in environmental conservation, but it is external agents that implement different initiatives in the territories. Therefore, it is more than relevant to disseminate the project in the comprehensive manner in which it has been developed, in different social networks.

The mechanisms that the mitigation project has defined to ensure that: the contract, the project activities and the PDD and RM documents are known by all members of the communities are the general assemblies, carried out in the respective territories of the communities. It is important to mention that the project activities arise from collective participatory activities with the project communities and that this PDD and the first RM have been socialized, adjusted and approved in general assemblies, as recorded in the minutes of the formulation workshop 4[152]. Accountability will be carried out at the close of the REDD+ committee period, prior to the election of the members of the new committee, in general assemblies of each community.

Socialization meetings were held for all the actors involved and the PDD and RM documents will be available to the general public on the project registration page in the BCR standard.

9.1 Summary of comments received

The project began prior consultation on the standard platform[153] on December 1, 2022 and ended on December 31, 2022, during which time no public comments were received.

[152] See 07_PDD/FORMULACION/TALLER4/Actas_Taller4_Agosto2023.pdf
[153] https://biocarbonregistry.com/es_es/consulta-publica-form/?project=Proyecto%20REDD+%20Huitora&date=01/12/2022/

9.2 Consideration of comments received

Not applicable, no comments received.

10 Sustainable Development Goals (SDG)

The following section is prepared in accordance with the guidelines established in the BCR0002 Version 4.0 methodology and the BCR Sustainable Development Goals Version 1.0 tool.

What objectives do we want to achieve and with what activities?

The Sustainable Development Goals (SDGs) are a global roadmap to address a wide range of challenges facing humanity that seek to eradicate hunger, poverty, inequality, access to clean water and clean energy, gender equality and other challenges in order to achieve a better quality of life for people and the environment under the promotion of sustainability.

The Sustainable Development Goals are an opportunity to comprehensively improve the quality of life of indigenous peoples, respecting their worldview and relationship with the territory. Achieving the SDGs can help reduce the gaps in education, health, housing and income that have historically affected these populations. In turn, the SDGs coincide with the vision of harmonious development in harmony with nature that indigenous peoples have ancestrally promoted. Its approach allows the revaluation of sustainable practices such as agroecology, community forest management and the responsible use of biodiversity.

Achieving the SDGs can strengthen the capacity of indigenous peoples to defend their territories and cultures in the face of threats such as deforestation and climate change. Moreover, building alliances around the SDGs opens up valuable spaces for intercultural dialogue and coordination with other actors to leverage solutions.

In this line, the Huitora and Coropoya Reservations are not exempt from some of the challenges covered by the SDGs; therefore, the projects, activities and initiatives proposed are focused on solving the challenges to meet the following goals[154]:

[154] See 06_SALVAGUARDAS ODS COBENEFICIOS Y CATEGORIA ORQUIDEA/Herramienta-ODS-2023_BCR-CO-338-14-001_v1.xlsx

SDG 1 End poverty:

The region's indigenous communities still face major challenges and limitations in accessing economic resources and meeting their basic needs. Poverty and lack of opportunity remain central problems. Therefore, to achieve this objective, the activity has been proposed to provide economic support to the families living in the reserves to meet basic needs, as well as the employment of community members in educational, cultural and medicinal activities, among others, in order to strengthen the tradition and at the same time give them economic recognition for their work. The company is also developing projects in cabinetmaking, carpentry, dressmaking, tailoring, and the marketing of fariña and other products that require manual labor, with the aim of training and providing bonuses to the people who take part in these activities. Last but not least, we seek to provide scholarships and financial support to students at all stages of their education and future.

Global target: 1.1 By 2030, eradicate extreme poverty for all people everywhere (currently people living on less than US$ 1.25 a day are considered to be in extreme poverty).
Global SDG indicator: 1.1.1 Proportion of the population living below the international poverty line, by sex, age, employment status and geographic location (urban or rural).
Project activity: C2, G5

Global target: 1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources and access to basic services, ownership and control over land and other assets, inheritance, natural resources, appropriate new technologies and financial services, including microfinance.
Global SDG indicator: 1.4.1 1.4.1 Proportion of the population living in households with access to basic services.
Project Activity: C1

Global Target: 1.b Build strong policy frameworks at national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication measures.
Global SDG Indicator: 1.b.1 Pro-poor public social expenditure.
Project Activity: G6

SDG 2 Zero Hunger:

The fight against hunger and malnutrition in the indigenous territories of the Colombian Amazon represents a major challenge, considering the limited resources and the difficulties of access to some foods that many communities still face. Therefore, in order to meet this objective, several activities will be carried out, such as strengthening the chagra as the main food system in the communities, as well as other types of crops by providing the tools and elements required for the proper development of this system. In this line, we seek to work and strengthen the use of seeds from each reservation under the application and implementation of the ecological calendar and the practices that compose it.

Likewise, livestock projects will be developed, such as the raising of wild animals, fish farming, beekeeping, among others, aimed at solving the lack of certain foodstuffs in the region and guaranteeing the food security of the communities.

Global target: 2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equitable access to land, other production resources and inputs and knowledge, financial services, markets and opportunities for value addition and non-farm employment.

Global SDG indicator: 2.3.1 Volume of output per unit of labour by agricultural/pastoral/forestry enterprise size.

Project activity: D1, D2, D3, D4, G10, H1, H2, H6, H7 and H8

SDG 3 Health and well-being:

Improving the health conditions and integral wellbeing of the indigenous population continues to be an imperative in the Amazon region, where limitations in access and quality of care are still evident. Based on the premise that health is a fundamental human right, this project proposes a strategic approach to progressively strengthen the communities' own and intercultural health services and infrastructure. In this line, in order to achieve this objective, the aim is to provide the communities with a health center that has the personnel and the elements required to provide proper care in the event of an emergency or minor care (flu, headaches, among others); likewise, the construction of a specific establishment for the sale of medicines (Drugstore) will be carried out, solving the lack of medicines in the territory.

In the welfare line, the aim is to build and provide a space focused on the care and maintenance of elderly people who require specialized attention, ensuring the welfare and quality of life of grandfathers and grandmothers in the territory. In the same way, the construction of a drinking water and sewage system will be carried out in order to provide peace of mind to the population, aiming at improving the quality of life while preventing the transmission of diseases such as cholera, diarrhea, hepatitis A, among other diseases caused by contaminated water and poor sanitation.

Global target: 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
Global SDG indicator: 3.8.1 Coverage of essential health services
Project activity: C3, F3, G4, G8, G9, G11 and G13

Global target: 3.9 By 2030, substantially reduce the number of deaths and diseases caused by hazardous chemicals and air, water and soil pollution and contamination.
Global SDG indicator: 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and poor hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)
Project activity: G1, G3 and H10

SDG 4: Quality education

Education in indigenous communities is not only a fundamental human right, but also a powerful tool for preserving culture, empowering people and improving the quality of life of communities. In this line, promoting indigenous education is essential to achieve social equity, while promoting and strengthening the conservation of cultural and environmental diversity in the world. Therefore, actions will be taken to improve the educational process of the students through the construction of classrooms equipped with the necessary elements for good cognitive development; student scholarships are a key action for the continuity of studies at different levels, from elementary school, middle school, high school and higher education. The language and culture will be strengthened transversally, aiming at the application of ethno-education at all levels.

Global target: 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.
Global SDG indicator: 4.1.2 Completion rate (primary, lower secondary and upper secondary education)
Project activity: G5

Global target: 4.4 By 2030, substantially increase the number of youth and adults who have necessary skills, including technical and vocational skills, for employment, decent work and entrepreneurship.
Global SDG indicator: 4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of technical knowledge.
Project Activity: G2

Global Target: 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, inter alia, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.
Global SDG indicator: 4.7.1 Extent to which (i) global civic education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed

at all levels in: (a) national education policies, (b) curricula, (c) teacher training and (d) student assessment
Project activity: B1, B2, B3, B5, G8 and I4

Global target: 4.b By 2020, substantially increase globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, to enable their students to enrol in higher education programmes, including vocational training and technical, scientific, engineering and information and communications technology programmes, in developed and other developing countries.
SDG Global Indicator: 4.b.1 Volume of official development assistance allocated to scholarships by sector and by type of study.
Project activity: G5

SDG 5 Gender equality:

Gender equity is a priority that requires concrete actions to review the cultural forms and practices of indigenous peoples. Within this framework, the project proposes initiatives aimed at promoting self-government from a cultural standpoint, where there are greater opportunities for women and equal participation in productive, social and community processes for the entire population. Likewise, various activities will be carried out to improve different health, communication, marketing and product production processes, among others, for the benefit of the population in general; in addition, labor will be hired to support each of the processes, regardless of gender. Likewise, children and young people will benefit from the construction of the various educational classrooms in addition to the economic benefit for students to carry out these activities without any interruption. With regard to economic support for the families of the reservation, the aim is to provide an equal resource for men and women in defense and promotion of gender equality.
Regarding the activity of building and equipping a space focused on the care and maintenance of the elderly, both grandmothers and grandfathers will have the required attention regardless of gender.

The project includes the active participation of indigenous women in cultural practices in the maloca, the chagra and in community activities such as updating the territory's environmental management plan. Women will also be involved in natural resource

monitoring and biodiversity research, contributing their ancestral knowledge. In this line, exclusive spaces will be created for women to market their handicrafts and local products such as fariña. In this way, the project promotes the equal participation of women in cultural, productive and environmental conservation practices.

Global target: 5.a Undertake reforms that provide women with equal rights to economic resources, as well as access to ownership and control over land and other types of property, financial services, inheritance and natural resources, in accordance with national laws.
Global SDG indicator: 5.a.1 (a) Proportion of total agricultural population with ownership rights or secure rights to agricultural land, by sex; and (b) Proportion of women among agricultural land owners, or rights holders, by type of tenure
Project activity: B1, B2, B3, B4 and B5

Global target: 5.b Enhance the use of enabling technology, in particular information and communications technology, to promote women's empowerment.
Global SDG indicator: 5.b.1 Proportion of people using mobile phones, by sex
Project activity: G2

SDG 6 Water and basic sanitation:

Limited access to drinking water and adequate sanitation and hygiene conditions continues to be a reality faced by many indigenous territories in the region, with serious consequences for the health and human dignity of these populations. It is imperative to take practical and sustainable actions to transform this situation, which is why we will carry out activities such as training and awareness campaigns for proper waste management and treatment, as well as the construction of a sanitary landfill for the proper disposal of garbage and solid materials. Likewise, constant monitoring activities will be carried out on the main water sources of the reserves, guaranteeing the well-being and continuity of these bodies of water In addition, the installation of a water treatment system for human consumption will be carried out, guaranteeing good safety and health conditions for the communities in terms of hydration.

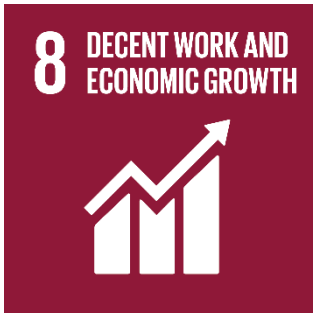
Global target: 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Global SDG indicator: 6.2.1 Proportion of population using: a) safely managed sanitation services and b) handwashing facilities with soap and water.
Project activity: G3 and G13

SDG 7 Affordable and clean energy:

Lack of access to reliable electricity or the use of polluting sources such as diesel are still barriers to the well-being and sustainable development of many indigenous reservations in remote areas. This problem motivates the implementation of transformative and environmentally sustainable projects, which is why we seek to work hand in hand with clean energy systems for the provision of this service in the communities, such as solar panels, among others, for the benefit of nature and the inhabitants of the reserve.

Global target: 7.b By 2030, expand infrastructure and upgrade technologies for modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in line with their respective support programs.
Global SDG indicator: 7.b.1 Installed renewable energy generation capacity in developing countries (expressed in watts per capita)
Project activity: C1



SDG 8 Decent work and economic growth:

Promoting greater opportunities for decent employment and strengthening the local economy represent important challenges in indigenous reservations, where income generation options are often limited. To address these challenges, it is crucial to foster entrepreneurship and job skills training within communities. In addition, public policies should be promoted to encourage investment in these areas and strengthen local production. It is also important to guarantee access to financial and technological services to facilitate sustainable economic development in the reservations; in this way, more opportunities for decent employment can be created and the quality of life of the communities can be improved.

In this line, we seek to develop training activities for Cabildo (council) leaders, REDD+ Committee members and all those who require it to carry out the different activities with their respective economic compensation. Likewise, the construction of council houses and REDD+ office is part of the construction of decent work by having an adequate work area equipped with all the necessary elements for the proper development of governance and the different activities that compose it.
Likewise, the people who are part of the monitoring team, the construction of the farms, the activities of cabinetmaking and carpentry, handicrafts, tailoring, mechanics, bakery and sports store, drugstore, among other activities, will be guaranteed the provision of equipment and all the material required for the proper development of the different jobs, as well as good working conditions, aiming at the creation of state and protected jobs through the creation of new sources of income, job opportunities and the recognition and remuneration for the services rendered.

Global target: 8.1 Maintain per capita economic growth in accordance with national circumstances, and in particular gross domestic product growth of at least 7 per cent per annum in least developed countries.
Global SDG indicator: 8.1.1 Annual growth rate of real GDP per capita
Project activity: G3

Global target: 8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization.
Global SDG indicator: 8.b.1 Existence of an organized and operational national strategy for youth employment, as a stand-alone strategy or as part of a national employment strategy.
Project activity: H9

SDG 9 Industry, innovation and infrastructure:

The absence of a solid social and productive infrastructure in indigenous territories continues to be a significant barrier to improving the quality of life, collective well-being and economic development of these communities. Overcoming these shortcomings through strategic infrastructure projects is key. Some of the areas that need greater attention are education, health and access to basic services such as drinking water and sanitation. In addition, it is necessary to develop projects that promote

sustainable production and economic diversification in these communities. It is vital to invest in social and productive infrastructure to promote the integral development of the indigenous territories; therefore, various interventions will be carried out for the construction of different health posts, housing and community infrastructure such as houses, docks, bridges, sports facilities, aqueduct, electrification, sewerage, playgrounds, community homes and retirement homes; as well as the different spaces for the work of bakery, cabinetmaking and carpentry, tailoring, mechanics, the sports store, among other spaces that need to be built for the proper development of each of the different innovative activities in the region and which in turn open the doors to join new industries such as the commercialization of fariña. Finally, the development of activities focused on the construction or improvement of malocas are essential for cultural and spiritual strengthening and territorial harmony.

Global target: 9.c Significantly increase access to information and communications technology and strive to provide universal and affordable Internet access in least developed countries by 2020.
Global SDG indicator: 9.c.1 Proportion of population covered by a mobile network, by technology
Project activity: G2

SDG 10 Reducing inequalities:

The indigenous peoples of the Amazon region have historically faced multiple conditions of marginalization and inequality in key dimensions such as education, health, access to economic opportunities and the guarantee of their fundamental rights. Overcoming these persistent gaps is imperative to move towards a more inclusive, equitable and just society. This implies not only guaranteeing access to basic services such as education and health, but also encouraging their active participation in decision-making that affects their lives and communities; respecting and recommending their cultural and linguistic rights, while promoting sustainable economic development in their territories. In this line, several activities will be carried out, such as the provision of communication antennas and the construction of internet rooms, with the objective of reducing the digital gap in the territory. Likewise, the economic support to students in all its stages seeks to reduce school and university dropouts that occur due to economic difficulties at the time of accessing an educational service. In this way, we not only seek to contribute through

economic support, but also in the construction of classrooms for access and educational strengthening, respecting the cultural and linguistic rights of the different cultures.

Likewise, the construction of housing aims to strengthen the quality of life through the construction of homes equipped with public utilities, reducing inequality in access to sewage, water and lighting systems; in terms of community infrastructure, the construction of docks and bridges that contribute to connectivity within the reserves, guaranteeing security in terms of mobility, will also be carried out. In this line, we will also carry out the construction of sports recreation spaces for the enjoyment of the community in general, promoting good health practices.

Health services are also one of the most absent in the region, which is why we aim to build spaces that have the necessary medicines and elements for a proper provision of medical services, reducing inequalities when accessing or requesting this benefit.as for transportation, we seek to provide boats and motors to cover the current inequalities in river mobility to leave or enter the territory or move within it, reducing costs, time and aiming to improve the quality of life of the communities.

The activity of economic support to families is also focused on solving basic necessities of home, food, health, among others, providing a benefit focused on solving the main needs of each family, contributing to the reduction of inequalities and income. Finally, with the implementation of tailoring, bakery and sports store activities, among others, we seek to meet the needs of access to the purchase of clothing or repair of this, bread or related products and access to sports equipment for the promotion of physical activities for the benefit of the community in addition to generating stable jobs through the development of each of the activities.

Global target: 10.5 Improve regulation and oversight of global financial institutions and markets and strengthen enforcement of those regulations.
Global SDG indicator: 10.5.1 Financial soundness indicators
Project activity: F4

ODS 11 Sustainable cities and communities:

Indigenous territories require a community development model that integrates environmental sustainability, social well-being and cultural identity. This community development model must be led by the indigenous peoples themselves and have the support and collaboration of the State and other relevant actors. It is essential that the territorial and cultural rights of indigenous communities be respected, and that their active participation in decision-making on the use and management of their natural resources be promoted. In addition, intercultural education must be fostered to strengthen the cultural identity of indigenous peoples and promote dialogue between different cultures. In short, an integral and sustainable community development model in indigenous territories will help ensure a prosperous future for these communities, while protecting the environment and promoting a equitable and inclusive society. To achieve this objective, activities will be carried out to strengthen the chagra as an ancestral method of cultivation to ensure food security of the inhabitants and aim at sustainable communities under the implementation and use of the ecological calendar and the practices that compose it. Along these lines, we will also carry out training and awareness-raising talks on waste management, its treatment and the transformation of some materials for reuse.

The strengthening and updating of the environmental management plan is another activity that aims to achieve sustainable communities by establishing rules for hunting, planting, harvesting and strengthening the culture through the relationship with the territory and its biodiversity, ensuring territorial and social harmony in the reserve.

Likewise, the implementation of basic services will focus on the use of renewable energies and environmentally friendly systems.

Global target: 11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

Global SDG indicator: 11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing.
Project activity: C1, C2, C3, C4, G1 and H11

Global target: 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlements planning and management in all countries.
Global SDG indicator: 11.3.2 Proportion of cities with a regularly and democratically operating structure for direct civil society participation in urban planning and management.
Project Activity: F3, F4

Global Target: 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.
Global SDG Indicator: 11.4.1 Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public and private), type of heritage (cultural and natural) and level of government (national, regional and local/municipal).
Project Activity: F4 and G4

Global Target: 11.6 By 2030, reduce the negative per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.
Global SDG Indicator: 11.6.1 Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by city.
Project Activity: G3

ODS 12 Responsible production and consumption:

The promotion of sustainable production and consumption patterns is fundamental for the survival of the indigenous peoples in harmony with their ancestral territories, which is why we plan to develop activities such as the rescue of ancestral practices of art, fishing, hunting and cultivation in chagras with native seeds; participatory updating of the environmental management plan and the ecological calendar; community monitoring of natural resources, water, fauna and flora; implementation of a communication antenna and systems room; construction of a sanitary landfill and waste management system; electrification, sewerage and aqueduct; productive projects for the processing and marketing of fariña and other local products; beekeeping, fish farming and livestock production initiatives; sustainable use of wood for

carpentry and joinery; agricultural crops; handicraft production; clothing and tailoring; mechanics, bakery, sporting goods store; potable water marketing; grocery and drugstore. These integrated strategies seek a harmonious transformation towards environmental, social and economic sustainability.

Global target: 12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production, with the participation of all countries and under the leadership of developed countries, taking into account the stage of development and capacities of developing countries.

Global SDG indicator: 12.1.1 Number of countries that develop, adopt or implement policy instruments to support the transition to sustainable consumption and production patterns.

Project activity: F3

Global target: 12.8 By 2030, ensure that people everywhere have the relevant information and knowledge for sustainable development and lifestyles in harmony with nature.
Global SDG indicator: 12.8.1 Extent to which (i) global civic education and (ii) education for sustainable development (including climate change education) are incorporated into: (a) national education policies; (b) curricula; c) teacher training and d) student assessment.
Project activity: B3, B4, B5, E1, E2, E3, E4 and F2

ODS 13 Climate action**:**
Indigenous peoples are highly vulnerable to climate change despite their low responsibility for global emissions. This is because many of these peoples depend directly on natural resources for their subsistence, such as agriculture and fishing, which makes them especially sensitive to climate variations. For this reason, the development of activities such as strengthening territorial governance through control and surveillance is proposed; participatory updating of the environmental management plan; reforestation with native

species; community training and awareness-raising on proper waste management; development of a research project to document the biological diversity of the territory; and control and monitoring of the territory by the indigenous authorities. These strategies seek to increase resilience and the capacity to adapt to the local effects of global climate change, protecting the ecosystems and the livelihoods of the communities that have ancestrally preserved these forests.

Global target: 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
Global SDG indicator: 13.1.3 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies.
Project activity: I2

Global target: 13.2 Incorporate climate change-related measures into national policies, strategies and plans.
Global SDG indicator: 13.2.1 Number of countries with nationally determined contributions, long-term strategies and national adaptation plans and strategies and strategies indicated in adaptation communications and national communications.
Project activity: F1

Global target: 13.3 Enhance education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
SDG Global Indicator: 13.3.1 Extent to which i) global citizenship education and ii) education for sustainable development are mainstreamed into a) national education policies, b) curricula, c) teacher training and d) student assessment.
Project Activity: B1, E2, E3, E4, E5, E6, F1, H3 and I1

ODS 15 Life of terrestrial ecosystems:

The conservation of biodiversity and terrestrial ecosystems is a priority for the survival of indigenous peoples and their spiritual relationship with the territory It is important that measures be taken to protect biodiversity and terrestrial ecosystems, not only because of their intrinsic value, but also because they are vital for the well-being of indigenous communities. Environmental

degradation and loss of species can have serious consequences for the health and livelihoods of these communities, as well as for their cultural and spiritual heritage.

In this line, the project proposes activities such as: strengthening territorial governance through control, surveillance and agreements with neighbors; participatory updating of the environmental management plan; joint tours with neighbors for territorial protection; reforestation with native species; validation and implementation of the ecological calendar; development of research project on biodiversity of the territory; control and surveillance by indigenous authorities; community monitoring of natural resources, water sources, flora and fauna which is key to have control and greater vigilance in all areas of the territory avoiding the development of activities that can generate deforestation, degradation or direct affectations to the environment. These integrated strategies seek to protect biodiversity and recover the health of these terrestrial ecosystems that sustain the life and culture of the indigenous communities that have ancestrally conserved them.

Global target: 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.
Global SDG indicator: 15.2.1 Progress on sustainable forest management.
Project activity: F1 and F2

Global target: 15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems.
Global SDG indicator: 15.a.1 (a) Official development assistance targeted for biodiversity conservation and sustainable use and (b) revenue generated and finance mobilized through biodiversity-relevant economic instruments.
Project activity: F3 and F4

ODS 17 Alliances to achieve objectives:

The construction of strategic alliances with other actors is essential to have a greater impact on the achievement of the SDGs at the local level. Within this framework, this project proposes the strengthening of inter-institutional and community alliances to enhance the initiatives of the indigenous territories. In order to meet this objective, various socialization activities and agreements with neighbors will be

developed in order to establish joint guidelines to ensure compliance with the rules and ensure harmony within the territories.

Regarding the construction of housing and community infrastructure, which includes houses, health centers, sports facilities, sewage systems, docks, bridges, among others, specific alliances and contracts are sought with companies specialized in each area to guarantee the effectiveness and durability of each of the works.

For the reforestation exercise with native species, the project seeks to establish alliances with organizations or actors interested in supporting reforestation. Finally, in the area of marketing Fariña and other products, we seek to establish sales agreements with supermarkets and other establishments outside the territory for the sale and promotion of items produced in the field with an added value of sustainability.

Global target: 17.14 Enhance policy coherence for sustainable development.
Global SDG indicator: 17.14.1 Number of countries with mechanisms to enhance policy coherence for sustainable development.
Project activity: B6, B7 D1, F2, E1, E2 and F2

11 Safeguards of REDD+

The UNFCCC REDD+ safeguards reflect binding obligations to human rights, environmental protection and governance, constituting the common global framework of safeguards that must be applied to all REDD+ activities. Decision 1/COP.16 paragraph 69 states that all REDD+ actions must be carried out in accordance with the safeguards of the Convention.

The seven safeguards adopted at COP16 (Cancun, 2010) are a set of general principles, so countries are responsible for interpreting their scope and purpose and implementing them according to their own national context.

Table 64. UNFCCC REDD+ safeguards.

Safeguards	**Text** (CMNUCC, COP16, appendixI)
a)	The complementarity or compatibility of the measures with the objectives of national forestry programs and international conventions and agreements on the subject.
b)	Transparency and effectiveness of national forest governance structures, taking into account national legislation and sovereignty.
c)	Respect for the knowledge and rights of indigenous peoples and members of local communities, taking into consideration relevant international obligations and national circumstances and legislation, and bearing in mind that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples.
d)	The full and effective participation of stakeholders, in particular indigenous peoples and local communities, in the measures referred to in paragraphs 70 and 72 of this decision.
e)	The compatibility of the measures with the conservation of natural forests and biological diversity, ensuring that the measures identified in paragraph 70 of this decision are not used for the conversion of natural forests, but instead serve to incentivize the protection and conservation of these forests and their ecosystem services and to enhance other social and environmental benefits.
f)	The adoption of measures to address the risks of reversion.
g)	The adoption of measures to reduce the displacement of emissions.

According to the guidelines established in the BCR0002 Version 4.0 methodology and BCR's "Tool To Demonstrate Compliance With The REDD+ Safeguards Version 1.1" and "Sustainable Development Safeguards (SDSs) Version 1.1", the REDD+ Safeguards are guidelines that guide the project during its design and implementation to avoid negative impacts on the environment or the communities involved. Their recognition and application guarantees respect among the stakeholders involved and a balance in obtaining and distributing the benefits of the activities, since they are the requirements to be implemented by the project owner and the strategies proposed for their fulfillment.

There are seven safeguards designed since Cancun, on which the national government, headed by the Ministry of Environment and Sustainable Development, built its own scheme for Colombia, taking into account the conditions of the territories and the regulatory framework that exists in the country. The Cancun safeguards are presented below with the elements of national interpretation that have been defined for each one.

Institutional safeguards:

a) **Compliance with national legislation**: This project complies with this requirement since the activities proposed in the project are in line with national programs and

international agreements on forestry. Its development is in accordance with the Colombian legal framework, the constitution, laws and decrees that exist in the country to date in this area. Likewise, with national programs and international agreements in which Colombia participates in climate change management and biodiversity protection.

b) **Transparency and effectiveness of Forest Governance structures**: To ensure the transparency of Forest Governance structures, they must be aligned with national legislation and sovereignty.

1. **Correspondence with national legislation:** this REDD+ initiative has been formulated in accordance with national legislation, which recognizes the communities' right to the territory with its ownership by means of resolutions, and the possibility of managing it according to their uses and habits.

2. **Transparency and access to information:** Compliance with this requirement has been carried out through multiple meetings between the stakeholders involved in the project, in which timely information related to the REDD+ program is socialized. Likewise, as the project holders are indigenous communities, information on program policies, the scope of the project in question, and the commitments assumed between the parties, are not only made known but are discussed and constructed through group conversations in the traditional spaces of the communities so that the information is available to all within their framework of understanding and language and, at the same time, is appropriate and named from the cultural concepts and principles.

3. **Accountability:** Presenting documentation and financial and technical information is an obligation that the parties involved in the project will comply with throughout the implementation phase in order to detail their management and the use of allocated resources, to monitor and evaluate the actions of those responsible for managing them. Periodic accountability meetings, which the project partners commit to attend, will include a review of compliance with the safeguards to measure risks and positive and negative impacts in order to promote benefits.

4. **Recognition of forest governance structures:** In general, the project is based on the recognition of traditional ways of managing the forest and its resources, which is why a forest governance structure has been built within the monitoring

pillar, based on the existing practices of the communities and their own forms of organization. It is expected to continue strengthening the traditional and training in what is required to this forest governance structure, to give adequate follow-up to the implementation and thus meet the objectives of the REDD + program. Likewise, local, regional and national stakeholders that manage and administer the area's forests and their resources have been approached through letters and meetings to validate and socialize the project. The commitment of the project owners and partners is to promote, whenever necessary, dialogue with these stakeholders to align project activities with the objectives of protection and care of the territory.

5. **Capacity strengthening:** In order to guarantee good decision making among project participants, the activities designed within the project, and especially those within the governance pillar, seek to train the project holders on two levels or aspects: On the one hand, they focus on the development of technical, legal, and administrative skills, and on the other, on the recovery of traditional knowledge, which is fundamental since it is from where the empowerment and autonomy of the communities is guaranteed in all aspects of the project as well as compliance in terms of conservation and care of the forest.

Social and cultural:

c) Respect for traditional knowledge and community rights.

6. **Free, prior and informed consent**: Since every action required by the project has a direct impact on the communities, the national provisions on free, prior and informed consent have been applied since the formulation phase, with assemblies and other meetings held to guarantee and demonstrate the full participation of the communities in each decision. In addition to the documents and contracts that certify compliance with this obligation, the people of the community can give testimony of how they have proceeded and their approach to the REDD+ project guidelines, highlighting the actions of transparency and access to information that have been taken by the parties. Also, in order to comply with the consultation on prior consultation, an annex has been filed with the Ministry of the Interior to ensure compliance with Article 232, paragraph 2, of the PND 2022-2026; as of July 31, the Ministry has not responded about the consultation, i.e., self-consultation

given the context of the project where the communities are the proponents and owners of the REDD+ initiative[155].

7. **Respect for traditional knowledge:** As the indigenous communities are the owners of the project, their knowledge system and the ancestral practices that have structured their lives are the main axis around which the activities and work methodology revolve in each of the areas and phases of the project. In order to guarantee this, it is necessary to start from the recognition of the cultural difference between the parties involved in the project, the need for a differential approach in all processes and the centrality of the Life Plans and related documents. Also of the clarity on the priority of the word of the communities and their ways of doing in each and every one of the decision-making processes, as well as the recognition of the rights that indigenous peoples have in the national constitution and other international guidelines. Evidence of the above are the reports of the meetings, the contractual documentation, the content of the project activities, the audiovisual record of the assemblies, and the testimonies of the participants.

8. **Profit sharing:** This requirement was met since the economic, social and environmental benefits of the project were identified from the outset, and subsequently a distribution scheme was agreed upon, in which the rules, mechanisms and commitments of the stakeholders involved were made clear. In addition to the benefits of the project in general and per project, when the activities of the Productive Projects pillar were built, the direct generation of economic resources that will be generated in the future and the procedures and criteria that must be defined for the equitable and communal distribution of these in the medium and long term were discussed.

9. **Territorial Rights:** In principle, the project recognizes and is based on the form of collective land tenure held by the population, as well as the limits and documents that certify their ownership. In addition to the rights that have been conferred to them by the institutions, their own use, the material and spiritual meaning that the territory has within their cosmogony, and the way in which they organize it, are considered when implementing any activity, since it is necessary to strengthen and generate sustainable alternatives for the management of the

[155] See 06_SALVAGUARDAS ODS COBENEFICIOS Y CATEGORIA ORQUIDEA/ SALVAGUARDAS/PROCEDENCIA_CP

territory and resources, based on their own knowledge systems such as the ecological calendar, to avoid any type of exclusion in the use and management of their own territory or any environmental impact on it.

d) Full and effective participation:

10. **Participation:** This safeguard requires the full and effective participation of the associated parties in the project, in particular the local ethnic population that is part of it. In order to comply with it, the regulations and the organizational structure of the communities have been taken into account; their self-government and the traditional spaces for participation: the assembly and the mambeadero. During these meetings, the actors involved have been able to recognize each other and make decisions jointly and in an informed manner about the REDD+ initiatives. The approaches have been made following the guidelines of the traditional leaders and authorities of the reservation, and the rules of behavior of the sacred space of the maloca, where all the meetings have taken place. A request has also been sent to the Ministry of the Interior to find out whether or not a prior consultation of the indigenous reservations is appropriate for the implementation of the activities designed by themselves in participatory spaces for the formulation of the project[156].

Environmental and Social:

e) Conservation and benefits: This measure aims to ensure the protection and conservation of forests and their biodiversity, in order to encourage activities aimed at social and environmental benefits, and to avoid those that may negatively impact ecosystems and their inhabitants.

11. **Conservation of forests and their biodiversity:** The activities proposed in the project have been evaluated so that their impacts do not harm the conservation of forests and their biodiversity. In particular, the activities that are within the Monitoring framework are focused on monitoring and protecting the forest and its resources from traditional environmental management practices, as well as from Western methodologies and technologies that can contribute to the exercise of monitoring, sustainable use and restoration.
12. **Provision of Environmental Goods and Services:** To comply with this safeguard, activities have been designed that do not affect ecosystem services and that, on the contrary, ensure their permanence through the strengthening of

[156] See 06_SALVAGUARDAS ODS COBENEFICIOS Y CATEGORIA ORQUIDEA/ SALVAGUARDAS/PROCEDENCIA_CP

traditional environmental management practices. For example, activities to strengthen the chagras guarantee the provision of food, infrastructure activities ensure the proper use of water, and those aimed at the application of the ecological calendar and resource management standards enable the correct use of these services and ensure their permanence for future generations. The same impact assessment mechanisms will be applied to the initiatives carried out throughout the project, based on traditional knowledge that allows the measurement of the effects of each action on the ecosystems.

f) **Prevent reversion risks:** This safeguard seeks to direct initiatives to reduce the risk that forests that have been protected will be deforested or degraded again once the intervention period is over. It seeks to ensure that the measures are sustainable over time, and that the different projects focused on forest protection contemplate the long term within their activities.

13. **Environmental and Territorial Management:** In order to comply with this measure, during the design of the activities, the forms of territorial management of the communities contained in the Territorial Management Plans of the reservation and other documents have been taken into account. Strategies have also been contemplated for strengthening these planning instruments, the execution of their action plans, and the strengthening of governance structures to guarantee the sustainability of all conservation and protection initiatives that are intended from the different projects.

14. **Sector Planning:** The project is coordinated with national environmental legislation, conservation strategies and social and economic development projections for the area by state entities at the departmental and national levels. To this end, a thorough review has been carried out of these state strategies or those of other entities that cover the areas of the reserves that are the object of the project, in order to be able to contemplate these projects in which the communities have or have not participated, and thus support their continuity, or on the contrary, evaluate the possible negative impacts they may have on the forest and take measures in this regard.

g) Avoid displacement of emissions: The initiatives incorporated in the project must ensure that by reducing emissions within the contemplated area, they are not increased elsewhere, especially where there is no forest protection.

15. **Forestry Control and Surveillance to avoid displacement of emissions**: To comply with this requirement, during the formulation workshops with the communities, leakage maps were made where the direct threats of deforestation and degradation over the territory were identified, and likewise, the strategies to permanently monitor these areas through the activities of the monitoring pillar. In the design of activities, labor alternatives and economic support were also identified to avoid and prevent the participation of the inhabitants of the reservation in any related activity and thus guarantee their non-repetition and displacement to other areas.

12 Special categories, related to co-benefits

The project complies, according to BCR standard version 3.4, with the conditions to be included in the special category Orchid for the conservation of biodiversity, its benefits for communities and gender equity.

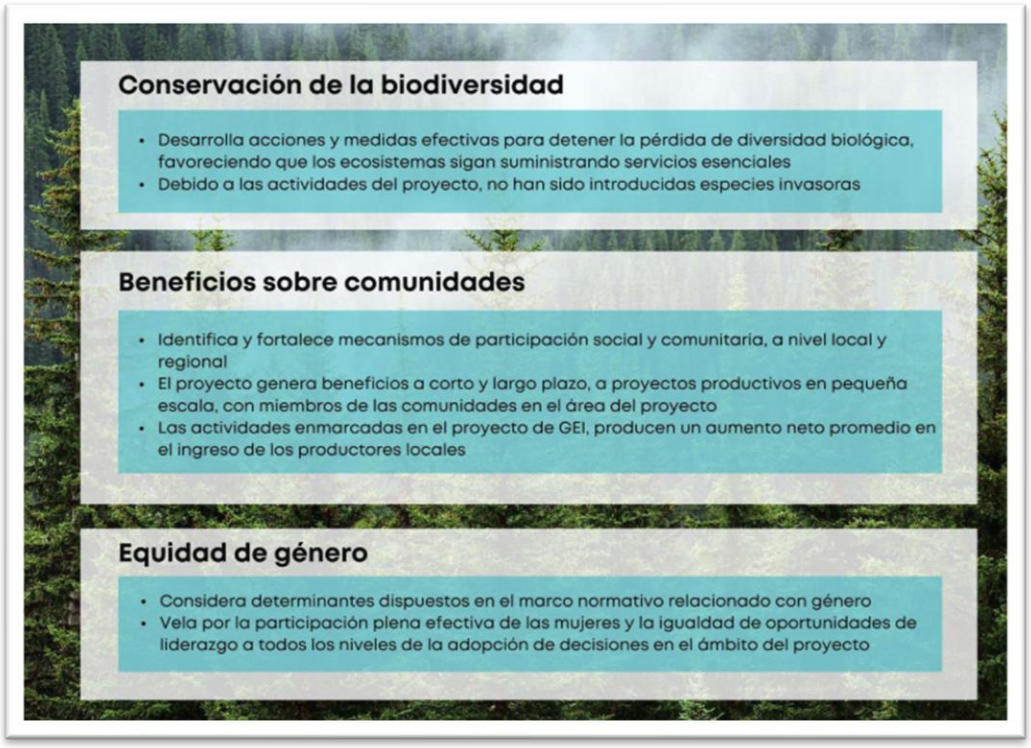


Illustration 37. Orchid category requirements.

12.1 Biodiversity conservation

12.1.1 Develops effective actions and measures to halt the loss of regional biological diversity.

This project exemplifies a comprehensive and proactive approach to halt the loss of regional biodiversity through the following actions:

Conservation of biological biodiversity: Key to human and planetary well-being, the stability of ecosystems and the food security of communities depend on it, in addition to representing a great value for traditional medicine, culture and spiritual balance.

Initiatives for implementation of territorial tours: To strengthen the knowledge and understanding of the territory with the objective of following in real time the variations in the behavior of ecosystems in order to take the appropriate measures for the correct treatment of the diverse situations that present the territorial dynamics.

Development of integrated natural resource monitoring projects: From water sources to the monitoring of the fauna and flora present in the project area. This constant monitoring allows for a comprehensive and proactive approach to halt biodiversity loss, as well as providing essential data for informed decision-making in natural resource management.

Development of reforestation projects with native species: The project will promote the recovery and restoration of degraded ecosystems, in addition to promoting the recovery of essential habitats for the region's native fauna and flora. This initiative is fundamental to re-establish balance in the natural environment and protect the native species that compose it.

Biodiversity research projects in the region: With the objective of having primary, scientific and accurate information on native species, their behavior and thus solidly plan their preservation.

12.1.2 No invasive species have been introduced due to project activities.

Forests, like other ecosystems, can be seriously affected by the entry of invasive species into their areas, bringing negative consequences for both biodiversity and the functioning of the ecosystem as a whole. Throughout history, communities have

protected and preserved local biodiversity in a natural/traditional way, which is why we want to continue preserving this guideline through actions such as:

Research on the biological diversity of the territory: Contribute by understanding the characteristics and behavior of species that could represent a threat to the ecological balance in order to identify and evaluate potential invasive species. In addition to reforestation work with native species, they prevent the introduction of invasive species that affect the ecological balance of the environment.

The articulation of the biological diversity research project The reforestation approach with native species and the rigorous monitoring of native fauna and flora are essential actions for the prevention of the introduction of invasive species in the region. Contributing to the vitality of local ecosystems, contributing and ensuring a sustainable and balanced future.

12.2 Benefits on communities

12.2.1 Identifies and strengthens mechanisms for social and community participation at the local and regional levels.

The positive impact of the project extends beyond its immediate objectives by significantly strengthening the mechanisms for social and community participation at the local and regional levels through the empowerment of communities and the strengthening of active participation in decision-making in natural resource management through the following actions:

Comprehensive training for the cabildos, leaders and members of the REDD+ committee, to acquire the tools and knowledge necessary for the correct development at the time of planning and execution of the various projects and the exercise of governance, with the objective of strengthening their individual skills, in addition to promoting the understanding of the challenges and opportunities faced by the community in relation to governance, biodiversity and sustainability.

Strengthening the self-government of the communities involved through the exercise of autonomy when making decisions on matters that affect their

environment, aiming at higher levels of self-management and empowerment crucial to their exercise of self-government.

Building agreements with neighbors is a key activity for the promotion of social and community participation because it leads to cooperation and collaboration of neighboring communities in the dialogue in search of strengthening intercommunity relations, even transcending the geographic limits of the territory, generating a significant change in local and regional dynamics. In this line, the strengthening and updating of the environmental management plan is also an initiative that invites dialogue and social and community participation for the construction of basic guidelines for the relationship with the territory, the environment and the ways and means of life of the community.

Finally, by promoting activities for **the construction and harmonization of the Malocas**, there is a direct impact on strengthening the participation of the communities by providing them with a traditional space focused on dialogue and decision making.

12.2.2 *The project generates short and long-term benefits to small-scale productive projects with members of the communities in the project area.*

The positive impact of the project extends beyond its immediate objectives by significantly strengthening the mechanisms for social and community participation at the local and regional levels through the empowerment of communities and the strengthening of active participation in decision-making in natural resource management through the following actions:

Comprehensive training for the cabildos, leaders and members of the REDD+ committee, to acquire the tools and knowledge necessary for the correct development at the time of planning and execution of the various projects and the exercise of governance, with the objective of strengthening their individual skills, in addition to promoting the understanding of the challenges and opportunities faced by the community in relation to governance, biodiversity and sustainability.

Strengthening the self-government of the communities involved through the exercise of autonomy when making decisions on matters that affect their environment, aiming at higher levels of self-management and empowerment crucial to their exercise of self-government.

Building agreements with neighbors is a key activity for the promotion of social and community participation because it leads to cooperation and collaboration of neighboring communities in the dialogue in search of strengthening intercommunity relations, even transcending the geographic limits of the territory, generating a significant change in local and regional dynamics. Along these lines, the strengthening and updating of the environmental management plan is also an initiative that invites dialogue and social and community participation in the construction of basic guidelines for the relationship with the territory, the environment and the community's ways of life and livelihoods.

Finally, by promoting activities for **the construction and harmonization of the Malocas**, we have a direct impact on the strengthening of community participation by providing a traditional space focused on dialogue and decision making.

12.2.3 Activities under the GHG project produce an average net increase in income for local producers.

The various productive initiatives proposed, such as beekeeping, fish farming, handicraft production and others, represent real opportunities for the members of the Amazonian indigenous peoples to increase their income, based on the resources already present in their ancestral territory and their traditional knowledge. Therefore, it can be concluded that by moving from an economy of self-sufficiency to obtaining surpluses to market, economic activity within the project communities is encouraged. Collective ventures such as warehouses, supermarkets and drugstores also broaden the possibilities for the project's communities.

On the other hand, it is important to bear in mind that having support for greater access to new distribution channels and markets optimizes the capacity for success of the initiatives, since improving efficiency through technical support also has a positive effect on income.

In this way, the project has a direct impact on the generation of income, strengthening the company's own initiatives and contributing to the improvement of the quality of life.

12.3 Gender equity

12.3.1 Considers determinants set forth in the gender-related regulatory framework:

This project takes gender equity into account as a fundamental pillar, thus aligning it with the Colombian regulatory framework that promotes equality and the protection of women's rights. This framework includes the 1991 Constitution, which guarantees equal rights and opportunities for men and women. Also considered is Law 51 of 1981 through which Colombia adopted the Convention on the Elimination of all Forms of Discrimination against Women. In addition, Laws 823 of 2003 and 1257 of 2008 established norms for equal opportunities and the prevention of violence against women, respectively. This project is also aligned with the National Public Policy on Gender Equity and other guidelines for gender equity considering differential approaches for indigenous women. These legal and political references provide a solid basis for ensuring gender equity in our work with indigenous communities in the Amazon.

12.3.2 Ensures women's full and effective participation and equal opportunities for leadership at all levels of decision making within the scope of the project.

The governance component **strengthens women's practices and knowledge**, and the project also contemplates the active participation of indigenous women in cultural practices in the maloca, the *chagra* and in community activities such as updating the territory's environmental management plan.

They will receive **training in leadership, rights and entrepreneurship,** to empower themselves within their communities. Women will also be involved in natural resource monitoring and biodiversity research, contributing their ancestral knowledge.

Exclusive spaces will be created for women to market their handicrafts and local products such as fariña. In this way, the project promotes the equitable participation of women in cultural, productive and environmental conservation practices.

In short, it seeks to consolidate a sustainable and inclusive gender model that recognizes the fundamental role played by indigenous women in the care and protection of the environment and in the strengthening of their communities.

Actions related to climate change mitigation bring additional benefits to the reduction or removal of GHG emissions. This is why the project is applicable to the Orquídea category by developing social and environmental actions focused on three (3) guidelines and according to the requirements set out in Table 65, already mentioned in Illustration 37 at the beginning of section 12.

12.4 Special Orquídea Category Monitoring

The following is a summary of the actions evaluated to qualify for the special Orquídea category and the indicators to measure and monitor compliance with these actions.

Table 65. Items evaluated by the Orquídea Category.

Item	Actions
Biodiversity conservation	A. Develops effective actions and measures to halt the loss of biological diversity by enabling ecosystems to continue to provide essential services. B. Due to project activities, no invasive species have been introduced.
Benefits on communities	A. Identifies and strengthens mechanisms for social and community participation at the local and regional levels. B. The project generates short and long-term benefits for small-scale productive projects with members of the communities in the project area. C. The activities under the GHG project produce an average net increase in the income of local producers.
Gender equity	A. Consider determinants set forth in the normative framework related to gender. B. Ensures women's full and effective participation and equal leadership opportunities at all levels of decision-making at the project level.

Table 66 shows the criteria and monitoring indicators for each of the guidelines, demonstrating compliance with the requirements for the special Orquídea category.

Table 66. Indicators Project monitoring for the Orquídea category.

Item	Actions	Indicator	Type	Goal	Unit of Measurement	Monitoring methodology	Monitoring Frequency	Responsible
Conservation of biodiversity	A	Records of fauna and flora species in some category of threat in the project area.	Impact	Increase in sightings per monitoring period	No. of records	Photo trapping of biodiversity	Semiannual	Professional biologist
		Records of endemic fauna and flora species in the project area.						
		Area of forest core extent from forest fragmentation analysis.	Result	Maintain connectivity during the life of the project.	Core size or forest patch	Landscape fragmentation analysis	Annual	GIS Expert
	B	List of species used in project activities.	Impact	Avoid the introduction of invasive species due to project activities.	Number of invasive species Introduced as a result of project activities	Documentary review.	Semiannual	Forestry Engineer
Benefits on communities	A	Promotion of local and regional participation	Impact	Increasing community participation at the local and regional level.	Spaces for local and regional participation.	Follow-up of participation spaces.	Annual	Social Professional
	B and C	Jobs generated.	Product	Increase employment.	No. of days.	Documentary review.	Semiannual	Forestry Engineer
		Conservation incentives.		Maintain the number of beneficiary families.	No. of families benefited.		Annual	
		Families linked to productive projects.	Impact	To increase the quality of life of the families	No. of families linked to a productive			
Gender equity	A	Promotion of the appropriation of the normative framework for gender equity.	Impact	Strengthen community knowledge of the normative framework for gender equity.	Number of trainings focused on gender equity.	Follow-up of training opportunities.	Annual	Social professional
Gender equity	B	Promoting women's participation in project activities.	Impact	Ensure the participation of women at all level of the project.	Number of women participating in the implementation of activities.	Documentary review.	Annual	Social professional

13 Grouped projects

The REDD+ Marena Ichena - Nag+ma Enoye Rafue project is a clustered project, allowing the incorporation of new areas after validation of the GHG Project, according to the BCR Standard, version 3.4, without the need for a new validation of the Project description.

Initially, there are two areas corresponding to the Huitora and Coropoya reserves with self-determination and independence in implementation activities. In addition, there is an expansion area that includes other reservations of the Murui community, namely:

Indigenous reservation	Resolution	Date Resolution	Awarded Area
Huitoto De Jirijiri	Resolution N° 62	19/08/1987	4960
Aguas Negras	Resolution N° 52	17/10/1995	17645
Huitoto (El Quince)	Resolution N° 97	27/07/1982	1256,649
La Primavera Etnia Huitoto	Agreement N° 172	22/07/2021	12833,43772

According to the standard, the new areas must meet the following conditions:

a) Identify the expansion area of the project during the validation process and define the criteria for the incorporation of new areas. The criteria for the incorporation of new areas are: Present a letter of invitation to the development of a REDD+ initiative in the territory signed by the legal representative or governor of the council, be part of the expansion area and comply with the following numerals defined by the standard, especially those related to the additionality of the area proposed for inclusion.

b) Comply with the guidelines of the BCR standard, in its most recent version.

c) Comply with everything provided in the METHODOLOGICAL DOCUMENT. AFOLU SECTOR. Quantification of GHG Emission Reductions. REDD+ Projects, in its most recent version.

d) Include the reduction of emissions only for activities to avoid deforestation and forest degradation of validated REDD+ projects.

e) Implement the activities to avoid deforestation and degradation, described in this validated project document.

f) Demonstrate that the baseline scenario, land tenure and additionality considerations are consistent and valid for the new areas.

g) Provide evidence of the start date of activities in the new areas, demonstrating that this date is after the start date of project activities in the areas included in the validation.

h) Demonstrate that the drivers and agents of deforestation and degradation, and the baseline scenario in the new areas are consistent with the validated characteristics for the initial areas.

i) Considering that, in some cases, the leakage belt may overlap with the validated expansion area, the project holder shall update the leakage belt to include potential displacements of deforestation and degradation due to the implementation of REDD+ project activities.

14 Other GHG program

The Marena Ichena – Nag+ma Enoye Rafue REDD+ project is not registered under any other GHG program.

15 Avoidance of double counting

In accordance with the guidelines established in the BCR0002 Version 4.0 methodology and BCR's "Avoiding Double Counting (ADC) Version 2.0" tool, in order to avoid double counting, an analysis was performed by verifying information from projects registered in the carbon standards Biocarbon Registry, Cercarbono and Verra. It was confirmed that there is no overlap with other registered projects (see 09_ESTIMACIONES CARBONO/EVITAR_DOBLE_CONTABILIDAD/PROYECTOS).

15.1 Legal status of the territory and PSA

To identify possible PES in the project area, the intersection with protected areas of the RUNAP and Forest Reserves of Law 2ª of 1959 was reviewed, the result of which is the only overlap with areas of the Amazon Forest Reserve where the development of REDD+ projects is permitted according to the resolution of 1925 of 2013, issued by the MADS. see 09_ESTIMACIONES CARBONO/EVITAR_DOBLE_CONTABILIDAD/PSA.

Additionally, PSA of BANCO2 projects are evaluated, where they are filtered according to the departments of the project area (Putumayo and Caquetá); however, there are no overlaps because it focuses on the conservation and preservation of territories where peasant communities are settled and no indigenous reservations are present in these departments, as observed in the Illustration 38. PSA projects located in the departments of Caquetá and Putumayo.

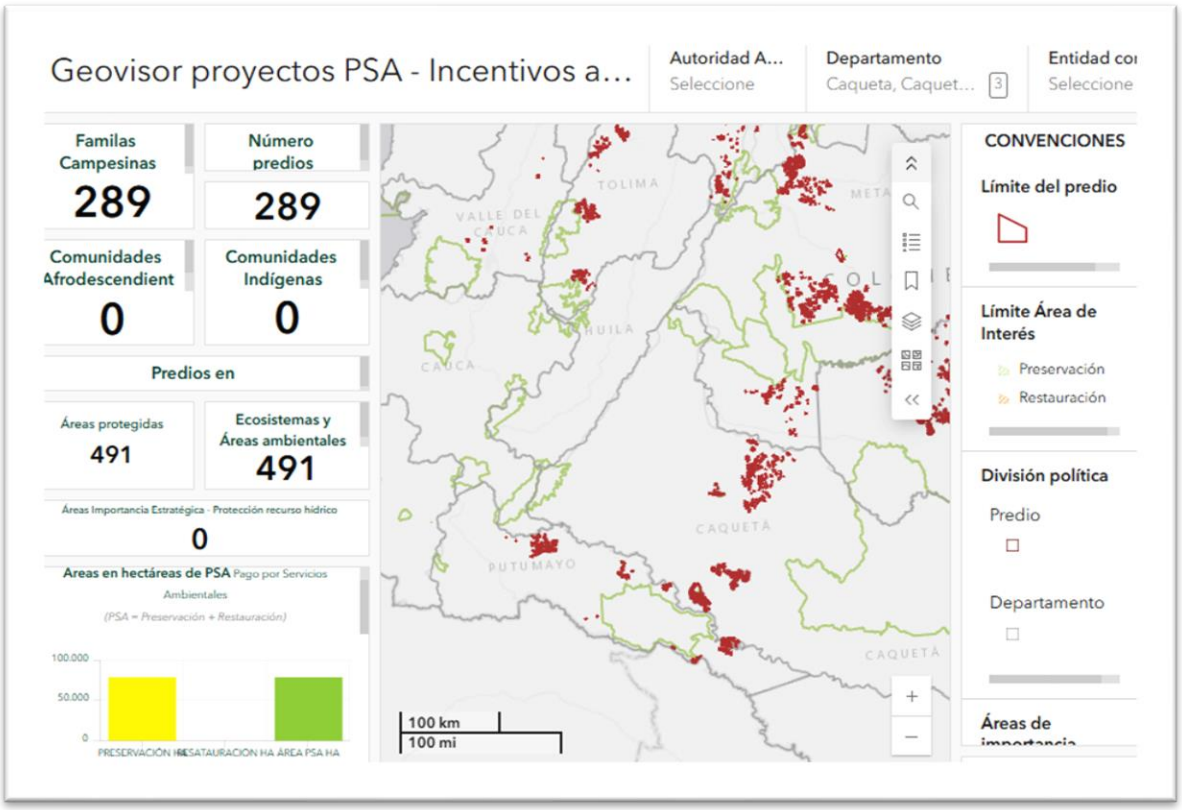


Illustration 38. PSA projects located in the departments of Caquetá and Putumayo.

Source: https://banco2.com/project/corpoamazonia/

These projects are the following:

1. **Cuidadores de la Amazonía:** According to (BancO2, n.d.), with the implementation of BancO2 in the jurisdiction of Corpoamazonía, the strategic ecosystems of Caquetá and Putumayo are preserved by the hand of peasant communities and territorial entities. BancO2 is implemented in Caquetá, in the municipalities of Cartagena del Chairá, La Ceja, Leguizamo, Puerto Guzmán, San Vicente del Caguán and Solano. In the case of Putumayo, in the municipalities of Colón, Mocoa, Orito, Puerto Asís, Puerto Caicedo, Puerto Guzmán, Puerto Leguizamo, San Francisco, San Miguel, Santiago, Sibundoy, Valle del Guamuez, Villagarzón. These places are essential for the care of water resources, since rivers such as the Putumayo run through them, considered to be in the area of influence of the Nudo de los Pastos water star.
2. **Menos deforestación en la Amazonia colombiana:** Payment for environmental services is consolidated as one of the strategies of Visión Amazonía in its agro-environmental development component. From this PSA strategy (See Illustration 39. Geographical context of the BanCO2 project.), developed by the Corporation, it is sought that the peasant families involved receive an economic incentive for their work and commitment to the conservation of their forests, an incentive that also results in an improvement in their living conditions (BancO2, n.d.).

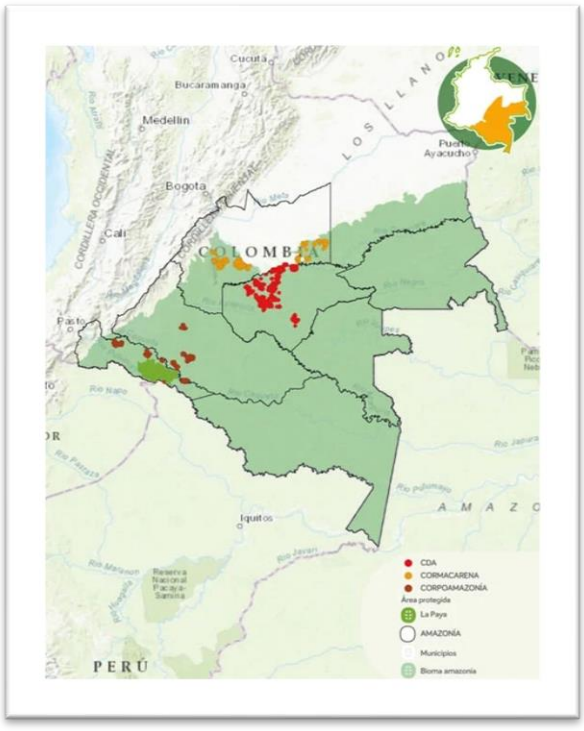


Illustration 39. Geographical context of the BanCO2 project.
Source: (BancO2, s.f)

15.2 Programa visión amazonia

The Vision Amazonia GHG program is included in the double counting review, it is found that it is located within the entire Amazon biome; however, there is no double counting overlap since the Vision Amazonia REM Program received payments for emission reductions between 2013-2017 and the REDD+ Marena Ichena - Nag+ma Enoje Rafue project has a crediting period of 2018-2047.

15.3 Information available from RENARE

Additionally, a review of the Diagnosis of REDD+ projects in the Colombian Amazon published by the SINCHI Institute (2023) was conducted, which includes all registered REDD+ projects, according to RENARE, as of July 2022, there are 51 REDD+ P&R registered in the Amazon region (Illustration 40). In addition, the actors related to REDD+ P&R in the Colombian Amazon are listed according to the platforms of the standards or certification programs, where a total of 33 REDD+ P&R in the Amazon were found registered in the platforms of the certification standards (Illustration 41 and Illustration 42), also observing in the descriptive tables by indigenous reservations that there was no overlap with another project.

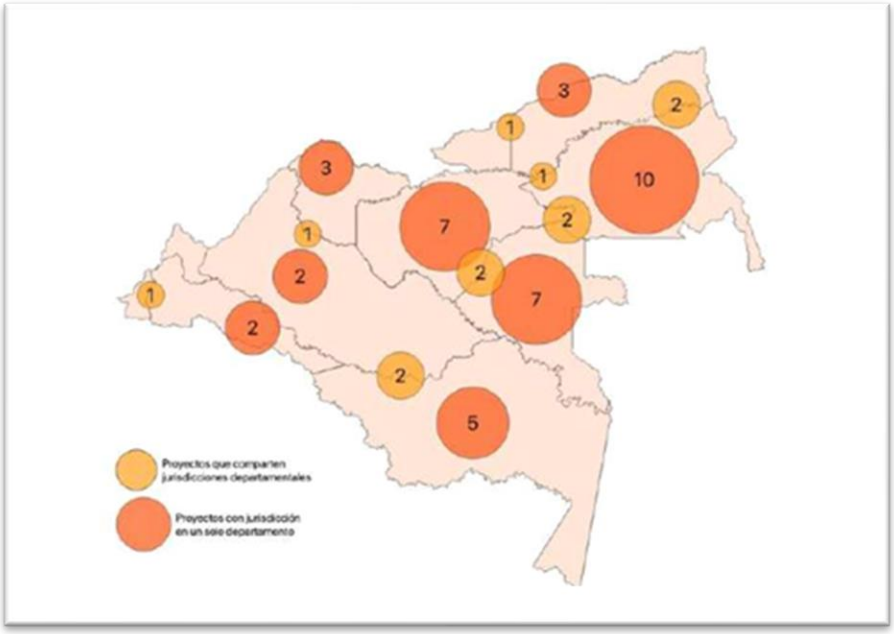


Illustration 40. REDD+ Projects identified in the Colombian Amazon in RENARE.

Source: https://www.sinchi.org.co/diagnostico-de-proyectos-redd-en-la-amazonia-colombiana

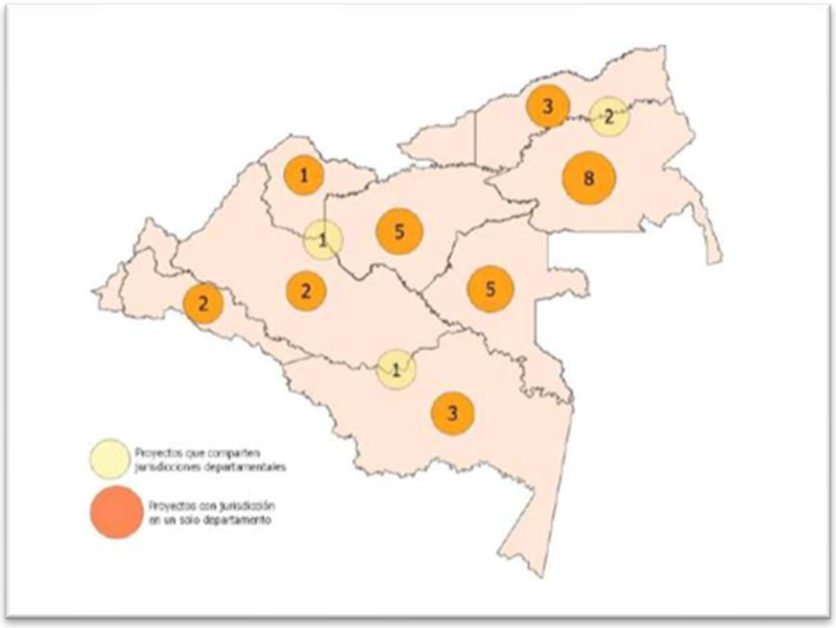


Illustration 41. REDD+ projects identified in the Colombian Amazon in certification programs.
Source: https://www.sinchi.org.co/diagnostico-de-proyectos-redd-en-la-amazonia-colombiana

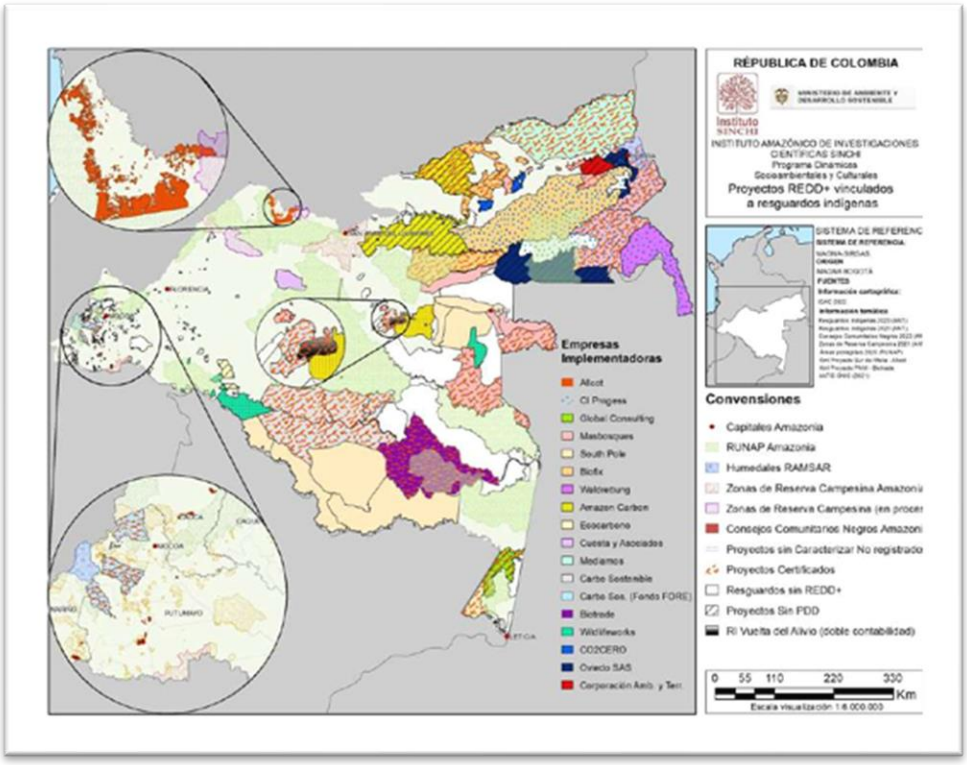


Illustration 42. REDD+ projects linked to indigenous reservations in Amazonia.
Source: https://www.sinchi.org.co/diagnostico-de-proyectos-redd-en-la-amazonia-colombiana

15.4 BioCarbon Cert

In BioCarbon Cert we found several nearby projects and the absence of overlap with the project area was confirmed, as shown in the following illustration.

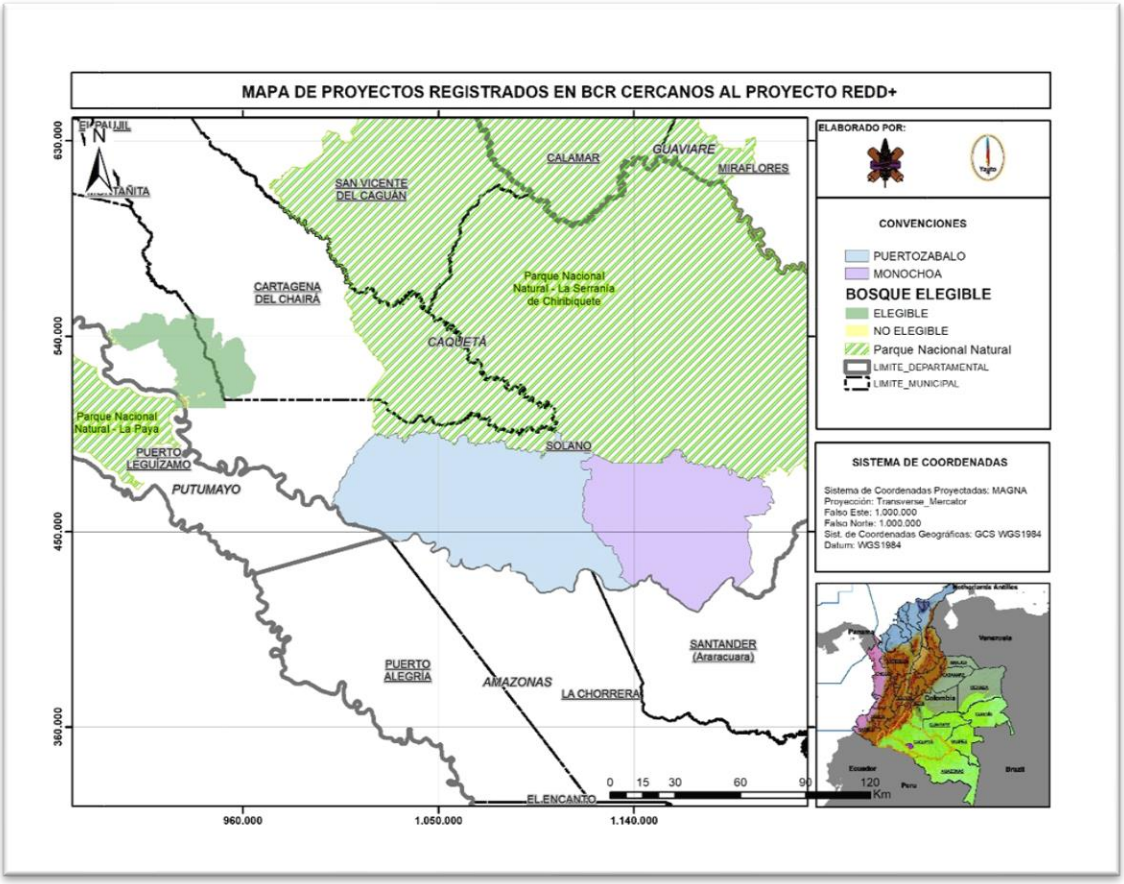


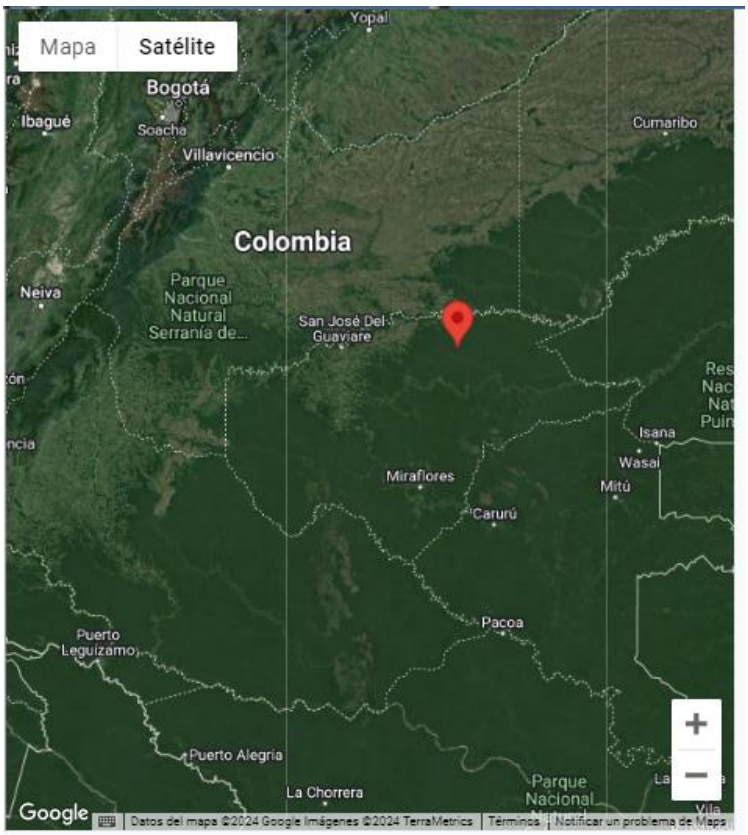
Illustration 43. Avoiding overlaps with other projects in BioCarbon Cert.

15.5 COLCX

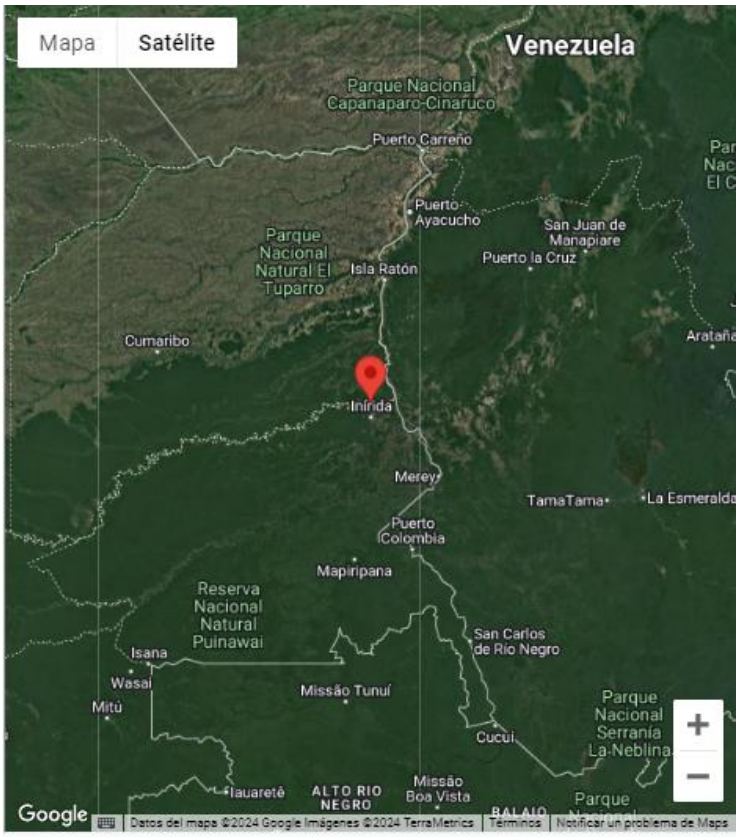
Finally, the following nearby projects were identified in the COLCX Program, identifying that they are not located in the municipalities included in the project area or in the indigenous reserves proposing the initiative:

- The DEIYIABENA REDD+ NÜKAK project is being developed in a territorial extension of 824,842 hectares of project area and 275,337 hectares of leakage belt, without overlapping with National Natural Parks, in the jurisdiction of the Nükak Makú Indigenous Reservation. These hectares correspond to

tropical forest of the Colombian Amazon biome in the department of Guaviare; jurisdiction of the Corporation for the Sustainable Development of the Northern and Eastern Amazon:

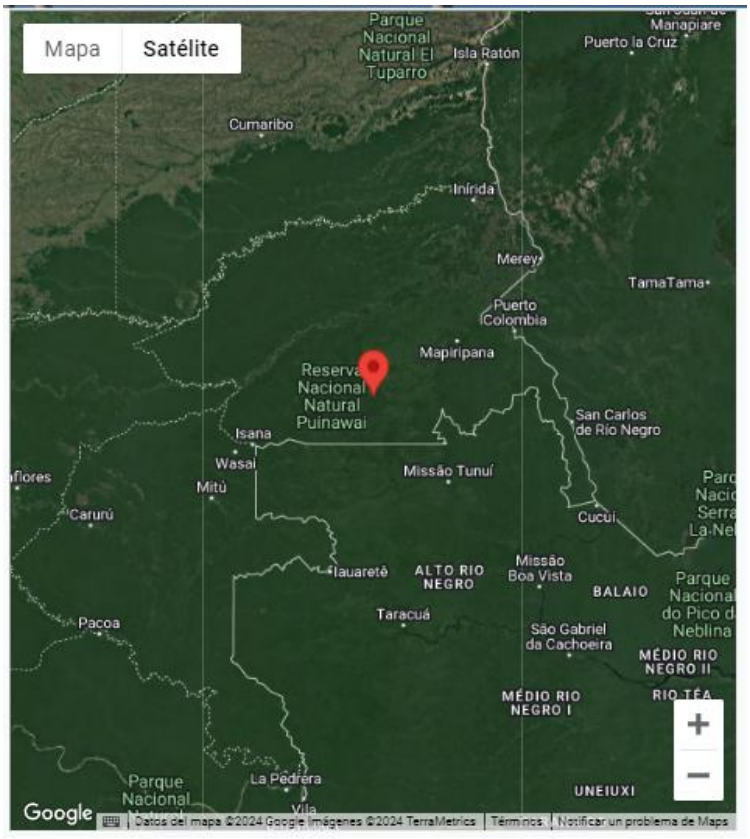


- The REDD+ JUGLE IJEWET project is an initiative of the indigenous community of the Puinawe and Sikuani peoples of the Laguna Niñal, Cocuy, Loma Baja and Loma Alta del Caño Guariben reservation in the municipality of Inírida in the department of Guainía:



- KÚVAY MACÄRÖ VIDI REDD+ CARURÚ is a REDD+ initiative aimed at mitigating CO2 carbon dioxide emissions through Nature-Based Solutions that promote the conservation of biodiversity and sustainable forest management by the 16 communities of the Tukano, Wuanano, Desano, Kubeo and other ethnic groups that make up the Arará, Bacatí, Carurú and Jaimacurú Lakes Indigenous Reservation; which covers an area of 289,519 hectares and is located in the Amazon biome, specifically in the departments of Vaupés and Guaviare:

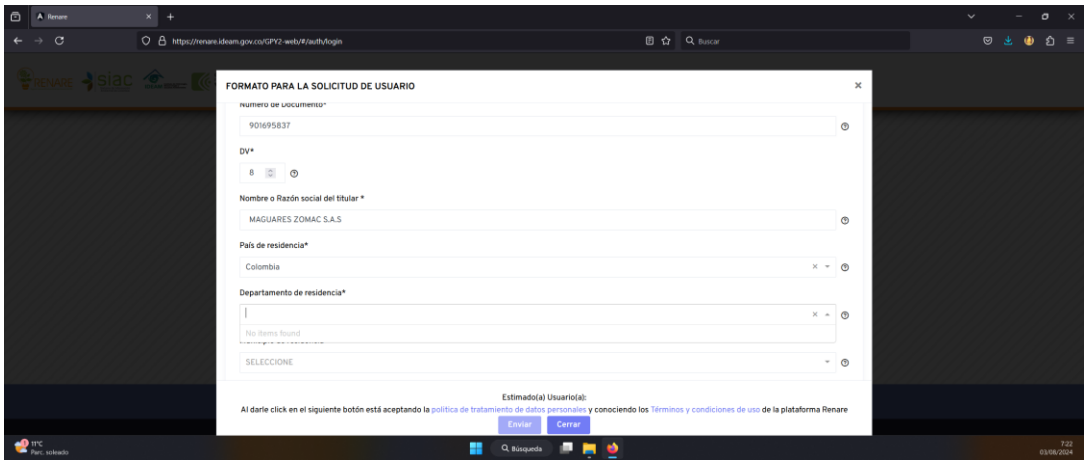
- REDD+ REENCUENTRO CON PUINAWA Project: The main objective of the project is the conservation and sustainable management of forest resources within the area of two indigenous reservations: "CUIARI E INSANA" and "PARTA ALTA DEL RIO SAN GUANÍA" Project with a total land area of 1'403,200 hectares. Of "CUIARI E INSANA" (land of 926,500 hectares approximately), and of "PARTA ALTA DEL RIO SAN GUANÍA" (477,200 hectares approximately):



Verification in the ColCX standard cannot be carried out in a geographic information system, because the platform does not publish information on polygonal boundaries of the initiatives it registers, it only provides a geographic coordinate without a list of participating communities that does not allow verification of the overlap. However, with the locations presented above it can be concluded that there is no overlap because the location of the initiatives registered in ColCX is not located in any of the municipalities where the Marena Ichena – Nag+ma Enoye Rafue REDD+ project is being developed.

On the other hand, the RENARE platform[157], officially in charge of registering initiatives and reporting overlaps, has been enabled since June 4, 2024, however it is not possible to make the registration of new user for Maguares ZOMAC SAS/YAUTO SAS, because the platform does not allow to choose the department and municipality, therefore it is not possible to access to register this project on the platform. As soon as this technical anomaly is solved, again the project will proceed to make the registration, in accordance with resolution 1447 of 2018.

[157] https://renare.ideam.gov.co/GPY2-web/#/auth/login



The project also has evidence that the territories of the indigenous reservations have not been registered in another program as dictated by one of the declarations of the mandate contract, "II. DECLARATIONS. D. As of the date of signature of this Contract, it has not granted a mandate to any other national or international organization, public or private, to carry out any or all of the following activities on its behalf or on behalf of a third party: (i) Origination of greenhouse gas reduction, mitigation, capture and/or sequestration projects to be implemented in the identified Reservation;(iii) Implementation of greenhouse gas reduction, mitigation, capture and/or sequestration projects to be implemented in the identified Reservation; among others (see Annex 01_ACUERDOS Y CERTIFICADOS)

16 Monitoring plan

The monitoring plan presents the procedures for adequate follow-up of project activities, compliance with safeguards and reduction of GHG emissions in the project area.

The plan foresees collecting relevant information and data for:

i. Verify applicability conditions listed in section 2 Applicability of the methodology.
ii. Monitor environmental policy related to the project and the guidelines for implementing Colombia's agreements and commitments to the UNFCCC.
iii. Verify changes in carbon stocks in selected reservoirs.
iv. Verify project emissions and leakage.
v. Verification of project implementation activities with compliance with the SDGs and co-benefits of the *Orquídea* category.
vi. Verification of compliance with social and environmental safeguards.

The data collected shall be archived for at least two years after the end of the last project period. This will include the data and parameters monitored, the methods used for their

generation, their proper collection and archiving, and the processes related to sampling and quality control models.

16.1 Monitoring of emission reductions

The procedures for monitoring project emissions are described below. These procedures were taken from BCR0002 methodology version 3.1.

16.1.1 Activity data

Mechanisms are presented for monitoring the project's associated emissions discriminated by deforestation and forest degradation.

16.1.1.1 Annual Deforestation in the Project Area

According to BCR0002 methodology version 3.1, deforestation in the project area during the monitoring period is estimated as follows:

Equation 11. Annual change in the area covered by forest in the project area.

$$CBS_{año} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{REDD+Proy,1} - A_{REDD+Proy,2}\right)$$

Where:

$CBS_{año}$ = Annual change in the area covered by forest in the project area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{REDD+Proy,1}$= Forest area in the project area at the beginning of the monitoring period: ha

$A_{REDD+Proy,2}$= Forest area in the project area at the end of the monitoring period: ha

16.1.1.2 Annual deforestation in the leakage area

Annual deforestation in the leakage area is calculated using the following equation.

Equation 12. Annual change in the area covered by forest in the leakage area

$$CBS_{f,año} = \left(\frac{1}{t_2 - t_1}\right) x\ (A_{f,1} - A_{f,2})$$

Where:

$CBS_{f,año}$ = Annual change in area covered by forest in the leakage area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{f,1}$= Forest area in the leakage area at the beginning of the monitoring period: ha

$A_{f,2}$= Forest area in the area of leakage at the end of the monitoring period: ha

16.1.1.3 Annual degradation in the project area

Annual primary degradation within the project area is estimated using the following equation:

Equation 13. Annual primary degradation in the project area

$$CFP_{REDD+proy,año} = \left(\frac{1}{t_2 - t_1}\right) x\ (A_{núcleo} - A_{núcleo-parche})$$

Where:

$CFP_{REDD+proy,año}$ = Annual primary degradation in the project area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{núcleo}$= Area of the project in core class, in the year of the beginning of the monitoring period; ha

$A_{núcleo-parche}$= Project area changing from core to patch, in the final year of the monitoring period; ha

And secondary degradation within the project area, by means of the following equation:

Equation 14. Annual secondary degradation in the project area

$$DFS_{REDD+proy,año} = \left(\frac{1}{t_2 - t_1}\right) x \, (A_{perforado} - A_{perforado-parche})$$

Where:

$CFS_{REDD+proy,año}$ = Annual secondary degradation in the project area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{perforado}$= Area of the project in class drilled, in the year of the beginning of the monitoring period; ha

$A_{perforado-parche}$= Project area changing from drilled to patch, in the final year of the monitoring period; ha

16.1.1.4 Annual degradation in leakage area

The following equation is used for the annual degradation in the leakage area:

Equation 15. Annual primary degradation in the area of leakage

$$DFP_{f,año} = \left(\frac{1}{t_2 - t_1}\right) x \, (A_{núcleo,f} - A_{núcleo-parche,f})$$

Where:

$DFP_{f,año}$ = Annual primary degradation in the leakage area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{núcleo,f}$= Leakage area in core class, in the year of the beginning of the monitoring period; ha

$A_{núcleo-parche,f}$= Leakage area changing from core to patch, in the final year of the monitoring period; ha

And,

Equation 16. Annual secondary degradation in the area of leakage

$$DFS_{f,año} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{núcleo,f} - A_{núcleo-parche,f}\right)$$

Where:

$DFP_{f,año}$ = Annual secondary degradation in the leakage area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{núcleo,f}$= Area of leakage in perforated class, in the year of the beginning of the monitoring period; ha

$A_{núcleo-parche,f}$= Area of leakage changing from borehole to patch, in the final year of the monitoring period; ha

16.1.2 GHG emissions in the monitoring period

The variables used to monitor the activities are presented below.

16.1.2.1 Deforestation

The annual emission associated with deforestation in the project area is estimated according to the following equation.

Equation 17. Annual emission in the project area

$$EA_{REDD+proy,año} = DEF_{REDD+proy,año} \, x \, TCO_{2eq}$$

Where:

$EA_{REDD+proy,año}$ = Annual emission in the project area; $tCO_2\ ha^{-1}$

$DEF_{REDD+proy,año}$ = Annual deforestation in the project area; ha

TCO_{2eq} = Total carbon dioxide equivalent; $tCO_{2e}\ ha^{-1}$

And the annual emission associated with deforestation in the leakage area through:

Equation 18. Annual emission in the leak area

$$EA_{f,año} = (DEF_{f,año} \, x \, TCO_{2eq}) - EA_{lb,f,año}$$

Where:

$EA_{f,año}$ = Annual emission in the leakage area; tCO_2 ha^{-1}

$DEF_{f,año}$ = Annual deforestation in the leakage area; ha

TCO_{2eq} = Total carbon dioxide equivalent; tCO_{2e} ha^{-1}

$EA_{lb,f,año}$ = Annual emission from deforestation in the leakage area in the baseline scenario; tCO_{2e}

16.1.2.2 Degradation

The annual emission from degradation within the project area is calculated using the following equation.

Equation 19. Annual emission in the project area for the monitored period

$$EA_{REDD+proy,año} = (DFP_{REDD+proy,año} \text{ x } DTBCO_{2eq,1}) + (DFS_{REDD+proy,año} \text{ x } DTBCO_{2eq,2})$$

Where:

$EA_{REDD+proy,año}$ = Annual emission in the project area for the monitored period; tCO_2 ha^{-1}

$DFP_{REDD+proy,año}$ = Historical annual primary degradation in the project area; ha

$DFS_{REDD+proy,año}$ = Annual historic secondary degradation in the project area; ha

$DTBCO_{2eq,1}$= Dióxido de carbono equivalente contenido en la diferencia biomasa total por hectárea en la clase de degradación primaria; tCO_{2e} ha^{-1}

$DTBCO_{2eq,2}$= Dióxido de carbono equivalente contenido en la diferencia biomasa total por hectárea en la clase de degradación secundaria; tCO_{2e} ha^{-1}

16.1.3 Quantification of project emission reductions

The equations needed to quantify the emissions reduced by the implementation of the project are presented below.

16.1.3.1 Deforestation

The following equation is used for emissions reduced by avoided deforestation.

Equation 20. Annual emission in the project area for the monitored period

$$RE_{REDD+proy,año} = (t_2 - t_1) \times (EA_{DEF,lb,año} - EA_{DEF,REDD+proy,año} - EA_{DEF,f,año})$$

Where:

$RE_{REDD+proy,año}$ = Annual emission in the project area for the monitored period; $tCO_2\ ha^{-1}$

t_2 = End year of monitoring period; year

t_1= Initial year of the monitoring period; year

$EA_{DEF,lb,año}$ = Annual emissions from deforestation in the baseline scenario; $tCO_{2e}\ ha^{-1}$

$EA_{DEF,REDD+proy,año}$ = Annual emission of deforestation in the project area for the monitored period; $tCO_{2e}\ ha^{-1}$

$EA_{DEF,f,año}$ = Annual emission from deforestation in the leakage area for the monitored period.; $tCO_{2e}\ ha^{-1}$

16.1.3.2 Degradation

The following equation is used for degradation.

Equation 21. Annual emission in the project area for the monitored period.

$$RE_{DEG,REDD+proy,año} = (t_2 - t_1) \times (EA_{DEG,lb,año} - EA_{DEG,REDD+proy,año} - EA_{DEG,f,año})$$

Where:

$RE_{DEG,REDD+proy,año}$ = Annual emission in the project area for the monitored period; $tCO_2\ ha^{-1}$

t_2 = End year of monitoring period; year

t_1= Initial year of the monitoring period; year

$EA_{DEG,lb,año}$ = Annual emission of degradation in baseline scenario; $tCO_{2e}\ ha^{-1}$

$EA_{DEG,REDD+proy,año}$ = Annual emission of degradation in the project area for the monitored period; $tCO_{2e}\ ha^{-1}$

$EA_{DEG,f,año}$ = Annual emission of the degradation in the leakage area for the monitored period; tCO_{2e} ha^{-1}

16.2 Project boundaries

The monitoring of the project boundaries will be carried out using Geographic Information Systems (GIS) tools based on the processing of official information issued by IDEAM with forest and non-forest cover, following the technical specifications required for cartographic products. Consequently, all the information on the project boundaries and its follow-up and monitoring is stored in a GeoDataBase, which is attached in the 08_SIG.

16.3 Implementation of REDD+ activities

Following the guidelines of the methodological document BCR0002 version 3.1, in its section 14.2 Monitoring the implementation of REDD+ activities and considering the large number of tables associated with this monitoring plan, the attached Excel file presents all measures of the monitoring plan for the project activities, including compliance with the Sustainable Development Goals (SDGs) (See 04_ACTIVIDADES REDD+/Plan Monitoreo Indicadores Proyectos MI-NER v1.xlsx).

16.4 Monitoring of REDD+ safeguards

Following the guidelines of the methodological document BCR0002 version 3.1, section 14.3, a REDD+ safeguards monitoring systematization tool was developed, which is presented in the annex (see 06_SALVAGUARDAS ODS COBENEFICIOS Y CATEGORIA ORQUIDEA/SALVAGUARDAS/ Cumplimiento de Salvaguardas-RM1.xlsx)

16.5 Monitoring of REDD+ project permanence

Following the guidelines of the methodological document BCR0002 version 3.1, in section 14.4, the Project identified the possible risks and prepared a risk management plan called Risk Management Plan MI-NER v1, which can be consulted in the attached information (see 07_PDD/TOOLS/EVALUACIÓN_IMPACTOS/ Plan_Gestion_Riesgo_MI-NER_v1.pdf).

Also, in case of forest fires as a permanent risk, the following table is presented to report the monitoring and, in case of forest fires, a format for their registration and follow-up

was prepared (see 09_ESTIMACIONES CARBONO/Perturbaciones/Formato_Reporte_Incendios_v1.pdf).

Data / Parameter	Presence or absence of forest fires
Unit	Binary answer (Yes or No)
Source	It comes from the forest fire report format and the measurements come from the processing and analysis of forest cover change maps generated by the Forest and Carbon Monitoring System (SMByC). For years where the aforementioned inputs are not available, a cartographic processing is performed for the classification of satellite images according to the availability of remote sensing sources.
Monitoring equipment or instrument	From forest fire report format and measurements are from remotely sensed data provided by IDEAM, FIRMS or other sources) - GIS Software
Justification and Purpose	Estimated emission reductions during each monitoring period
Comments	In the event of fires, it is necessary to measure and report the emissions associated with all GHGs.

16.6 Quality control and quality assurance procedures

The project has elaborated from the guidelines of the methodological document BCR0002 version 4.0, in its section 14.4, the Quality Control/Assurance Control (QA/QC) tool (see 14_GESTION DE LA INFORMACION/Control Calidad/ 2024_Check list_GC_CC_v1.xlsx).

With this tool it is possible to follow up and review the processing of the information.

For the recording and filing system of the data, as established in the protocol, the organization responsible for the project must have a database that includes the information presented in Table 67. Information management.

Table 67. Information management.

Information required	Location
Project area	08_SIG
Geographic coordinates	08_SIG
Vegetation cover at the beginning of forestry activities.	08_SIG
Information on tenure and land use rights.	02_TENENCIA DE LA TIERRA

Information required	Location
Species(s).	Not applicable – Conservation program
Provenance and production of plant material.	Not applicable - Conservation program
Objective of the forestry activity (e.g., conservation, recovery, production, etc.).	Conservation
Management cycle of the species(es) and duration of forestry activities.	Not applicable - Conservation program
Date of beginning of forestry activities.	03_FECHA DE INICIO
Silvicultural management	Not applicable - Conservation program
Annual growth in biomass, if periodic measurements are taken.	Not applicable
Parameters related to biomass conservation to carbon variation according to the selected methodology.	Not applicable - Conservation program
Results of the quantification of removals.	09_ESTIMACIONES CARBONO
Disruption events (if present)	If submitted, they will be collected and stored in the folder: 09_ESTIMACIONES CARBONO\Perturbaciones
Monitoring	11_REPORTE MONITOREO

In addition to the information presented in the table above, the organization will have within the database a folder called 12_*Histórico de Certificaciones* to track the avoided removals assigned to the project as a result of the verification processes, to ensure that no double counting occurs. The file name must contain the monitoring delivery date and the verification number.

All information in the database will be reviewed periodically to ensure compliance with the proposed goals and that the information is accurate. Likewise, in the event that errors or omissions are found in the reviews, these will be dealt with by generating a report of the finding, after which a respective adjustment must be made and the appropriate person must be notified. Having the documentary information database makes it possible to generate an adequate document control, including those corresponding to removals and compensation issued for such removals.