
	Project Design Document REDD+ project
Project Information	
Title of the project	REDD+ El Tigre
Version	7
Project localization	Country: Colombia Department: Meta Municipality: Puerto Gaitán
Project Proponents and represent	Guahibo Indigenous Reservation of the El Tigre Region (Guahibo Indigenous Reservation of the El Tigre Region) Braulio Martínez Barrera Puerto Gaitán, Meta
Other Project Proponents and represent	Sustainable CARBO SAS Juan Andrés López Calle 77A # 12-60 Office 301 Bogotá D.C., Colombia TERRA COMMODITIES SAS Federico Ortiz Ak. 7 #No. 79B-15 Office 402 Bogotá D.C., Colombia
Document prepared by	CARBO SUSTAINABLE SAS Juan Andrés López Silva TERRA COMMODITIES SAS Federico Ortiz
Validation and Verification Body	Verifit
Operational period of the Project	June 30, 2018 to June 29, 2048; 30 years
Quantification period of reductions	June 30, 2018 to June 29, 2048; 30 years
Methodology	ProClima 2020 AFOLU Sector Methodological Document

 <p>ProClima Internacional</p>	<p align="center">Project Design Document REDD+ project</p>
<p align="center">Project Information</p>	
	<p>Quantification of GHG Emission Reductions or Removals from REDD+ Projects Version 2.2.</p>
<p align="center">Estimated net GHG reduction</p>	<p>57,332 tCO₂e/year (30-year average) 1,719,967 tCO₂e for a quantification period of 30 years</p>
<p align="center">Contact person</p>	<p>Juan Andrés López Silva jlopezsilva@carbostenible.com +57 1 249 4098 +57 311 4814086</p>

CONTENT

1	PROJECT DESCRIPTION.....	6
1.1	PROJECT SUMMARY	¡Error! Marcador no definido.
1.2	PROJECT OBJECTIVES.....	7
1.3	PROJECT LOCATION	¡Error! Marcador no definido.
1.4	OPERATIONAL PERIOD OF THE PROJECT	¡Error! Marcador no definido.
1.5	PERIOD FOR QUANTIFYING REDUCTIONS.....	¡Error! Marcador no definido.
2	APPLICABILITY OF THE METHODOLOGY	¡Error! Marcador no definido.
3	REGULATORY FRAMEWORK.....	¡Error! Marcador no definido.
4	CARBON RESERVOIRS AND GHG SOURCES.....	¡Error! Marcador no definido.
4.1	CARBON RESERVOIRS.....	15
4.2	GHG SOURCES.....	¡Error! Marcador no definido.
5	SPATIAL AND TEMPORAL BOUNDARIES	16
5.1	AREAS ELIGIBLE FOR THE PROJECT	17
5.1.1.	ADDING AREAS AFTER VALIDATION	22
5.2	REFERENCE REGION FOR BASELINE ESTIMATION.....	24
5.3	LEAKAGE AREAS.....	32
5.4	TIME LIMITS AND ANALYSIS PERIODS	34
5.4.1	Historical period of deforestation.....	35
5.4.2	Estimating REDD+ project reductions	35
6	BASELINE SCENARIO AND ADDITIONALITY	36
6.1	STEP 0. REDD+ PROJECT START DATE	37
6.2	STEP 1. IDENTIFICATION OF LAND USE ALTERNATIVES	37
6.2.1	Sub-step 1. Identification of likely land use alternatives in project areas	37
6.2.2	Substep 1b. Consistency of land use alternatives with applicable laws and regulations	39
6.3	STEP 2. BARRIER ANALYSIS	40
6.3.1	Sub-step 2. Identification of barriers that would impede the implementation of the project	40
6.3.2	Substep 2b. Demonstration that barriers would not prevent the implementation of at least one of the identified land-use alternatives	42
	STEP 3. IMPACT OF PROJECT REGISTRATION.....	43
6.4		43
7	CAUSES AND AGENTS OF DEFORESTATION AND/OR DEGRADATION.....	43
7.1	SPATIAL AND TEMPORAL DIMENSIONS	45
7.2	CONTEXT	45

7.2.1	Territorial context.....	45
7.2.2	Socio-cultural context	46
7.2.3	Economic context	49
7.2.4	Historical Context.....	50
7.3	KEY ACTORS, INTERESTS AND MOTIVATIONS	51
7.4	ECONOMIC ACTIVITIES AND THEIR IMPORTANCE	53
7.5	DIRECT AND INDIRECT IMPACT	54
7.6	RELATIONSHIPS AND SYNERGIES	54
7.7	CHAIN OF DEFORESTATION AND DEGRADATION EVENTS.....	55
8	REDD+ ACTIVITIES.....	56
8.1	LOCATION OF THE AREAS TO BE INTERVENED IN PRODUCTION SYSTEMS	
	57	
8.2	CONTRIBUTION TO NATIONAL GOALS	58
8.3	HIGH CONSERVATION VALUES- HCV	59
8.4	DESCRIPTION OF THE ACTIVITIES.....	60
9	REDD+ SAFEGUARDS.....	77
10	REDUCTION OF GHG EMISSIONS FROM REDD+ ACTIVITIES	87
10.1	MANAGING UNCERTAINTY.....	87
10.2	ACTIVITY DATA.....	88
10.2.1	Deforestation	88
10.2.2	Degradation	91
10.3	EMISSION FACTORS	95
10.3.1	Deforestation	95
10.3.2	Degradation	97
10.4	GHG EMISSIONS IN THE PERIOD OF ANALYSIS.....	98
10.4.1	Deforestation	98
10.4.2	Degradation	99
10.5	REDUCTION OF GHG EMISSIONS EXPECTED WITH THE IMPLEMENTATION OF REDD+ ACTIVITIES	101
10.5.1	Deforestation	101
10.5.2	Degradation	102
11	MONITORING PLAN	102
11.1	MONITORING PROJECT BOUNDARIES	103
11.2	MONITORING THE IMPLEMENTATION OF REDD+ ACTIVITIES.....	103
11.3	MONITORING REDD+ SAFEGUARDS.....	124
11.4	MONITORING THE PERMANENCE OF THE REDD+ PROJECT	131

11.5	MONITORING PROJECT EMISSIONS.....	133
11.5.1	Activity Data	134
11.5.2	GHG emissions in the period of analysis	137
11.5.3	Quantification of the project's emission reductions.....	138
11.5.4	Total project emissions reduction	139
11.6	QUALITY CONTROL AND QUALITY ASSURANCE PROCEDURES	140
12	RISK MANAGEMENT	140
	References	144

LIST OF TABLES

Table 1.	Sustainable Development Goals with which the project's activities are aligned. ...	8
Table 2	Conditions of applicability of the methodology.....	12
Table 3.	Carbon Reservoirs	15
Table 4.	GHG Sources	15
Table 5.	Area of forest at the boundaries of the Project.	21
Table 6.	Criteria for the addition of new areas to the REDD+ project.....	23
Table 7	Animal species in some threatened category.	31
Table 8	Plant Species in Some Threat Category.....	32
Table 9.	Criteria for defining the leakage area and its compliance.....	32
Table 10.	Estimation of emission reductions during the project crediting period.	35
Table 11	Demographic indicators of the Sikuni people	46
Table 12.	Key actors, motivations and interests.....	52
Table 13.	Summary of activities associated with deforestation and their importance.	53
Table 14	Impact on the forest	54
Table 15.	Chain of deforestation and degradation events.....	55
Table 16.	Compliance with REDD+ Safeguards	78
Table 17.	Fragmentation classes in reference area.....	91
Table 18.	Transition of fragmentation classes (ha) in reference area.....	91
Table 19	Aboveground biomass, groundwater biomass and soil organic carbon/year by fragmentation class.....	97
Table 20	Difference between aboveground biomass, groundwater biomass and soil organic carbon/year by type of fragmentation.....	97
Table 21	Permanence risk analysis.	132
Table 22.	Probability and impact matrix.	140
Table 23.	Project Risk Analysis.....	141

Table 24. Risk mitigation measures. 142

1 PROJECT DESCRIPTION

1.1 PROJECT SUMMARY

The REDD+ Project of the El Tigre Indigenous Reservation of the Sikuaní community aims to contribute to the sustainable development of the community and preserve the existing forests in the territory of the Indigenous Reservation. The intervention strategy seeks to conserve the forest through investments in strengthening territorial governance by the community (construction of the Indigenous Life Plan, construction of the Land Management Plan and strengthening of community capacities), the establishment of sustainable productive activities compatible with nature that contribute to food security and the generation of surpluses, monitoring and protection of biodiversity. The project is oriented to the national carbon market (potentially to the international market as well) and intends to commercialize the carbon certificates for the non-causation of the carbon tax as the main financial sustainability mechanism during the implementation of the project.

The project is located in the municipality of Puerto Gaitán, in the Department of Meta, in indigenous territories legally recognized by Resolution 041 of 1983 issued by the Colombian Institute of Agrarian Reform (INCORA) and clarified through Agreement 257 of 2011 issued by the Colombian Institute of Rural Development (INCODER). These last administrative acts derogate resolution 014 of February 26, 1975 of INCORA, which established the reserve of the land globe for the benefit of the Guahibo indigenous community of the El Tigre region and was approved by Resolution 109 of May 20, 1975 that titled 47,063.3 ha in favour of the reservation. However, the estimated area according to the cartographic information

managed by the REDD+ project corresponds to 47,011.5 ha (see SHP_A_RI_EL_TIGRE). This difference of almost 52 hectares is due to the following:

Based on resolution 471 of 2020 of the Agustín Codazzi Geographic Institute, through which the minimum specifications that basic cartography products must have been established, the National Origin projection was updated and adopted as the flat coordinate system. Considering that the Proclima methodology requires the use of the standard defined by the IGAC for cartographic products, for the REDD+ Project, the Magna Colombia Single Origin Flat Coordinate System was used as a reference for calculating the areas and distances within the limits of the Project. The change in the origin in the coordinate system is the cause of the difference in the calculated area.

The project area corresponds to 14,132 ha of forest located within the limits of the indigenous reservation. The change in land use has been one of the factors that has generated the most impact on the forests of the reservation and surrounding areas, highlighting oil exploitation, agricultural development, extensive cattle ranching and activities carried out mainly by internal and external actors as the main activities that affect the forests.

This project corresponds to an Agriculture, Forestry and Other Land Use (ALOFU) project, in the Reduction of Emissions from Deforestation and Degradation (REDD) category, it is developed under the ProClima 2021 methodology, the AFOLU Sector Methodological Document, Quantification of GHG Emissions Reductions or Removals from REDD+ Projects, Version 2.2. The project is expected to generate about 1,719,967 tCO₂ during the crediting period (30 years).

This project has been formulated and built with the active participation of local communities, achieving a special commitment on the part of the El Tigre reservation community and its representatives and traditional authorities, strengthening the interest and commitment of the communities with the activities and objectives of the project.

1.2 PROJECT OBJECTIVES

The project seeks to reduce deforestation and degradation of the existing forests, contribute to the sustainable development of the communities and the protection of the biodiversity present in the El Tigre Indigenous Reservation, municipality of Puerto Gaitán (Meta), Colombia.

The objectives of the project are divided into three main axes:

- (i) **Climate objective:** Mitigate climate change through the reduction of forest degradation and deforestation, and the recovery of previously degraded areas.

The project is expected to generate around 1.6 million of avoided tCO_{2e} emissions during the crediting period, as a result of the reduction in deforestation and forest degradation, as well as natural recovery processes in degraded areas.

- (ii) **Biodiversity objective:** Contribute to the conservation of species of fauna and flora present in the forests, savannahs and wetlands present in the territory of the indigenous reservation.

- (iii) **Community objective:** Promote the sustainable development of local communities and generate productive and employment opportunities for community members, prioritizing the following interventions:

- a. Develop productive systems compatible with the conservation of nature and community well-being.
- b. Contribute to improving the housing, transportation, education and basic sanitation conditions of the communities.
- c. Strengthen land use planning, control and surveillance actions, and the exercise of traditional authority.

The actions that are developed within the framework of the project are aligned with the Sustainable Development Goals, as presented below:

Table 1. Sustainable Development Goals with which the project activities are aligned.

CATEGORY	UNIT OF MEASUREMENT	SUSTAINABLE DEVELOPMENT GOALS
GHG emissions reduction	Estimated net emission reductions in the project area.	SDG 13 – Climate action
Forest cover	Forest area conserved in indigenous territories.	SDG 13 – Climate action SDG 15 – Life on Land
Land use	Forest area with improved management practices.	SDG 11 – Sustainable cities and communities SDG 13 – Climate action SDG 15 – Life on Land Ecosystems

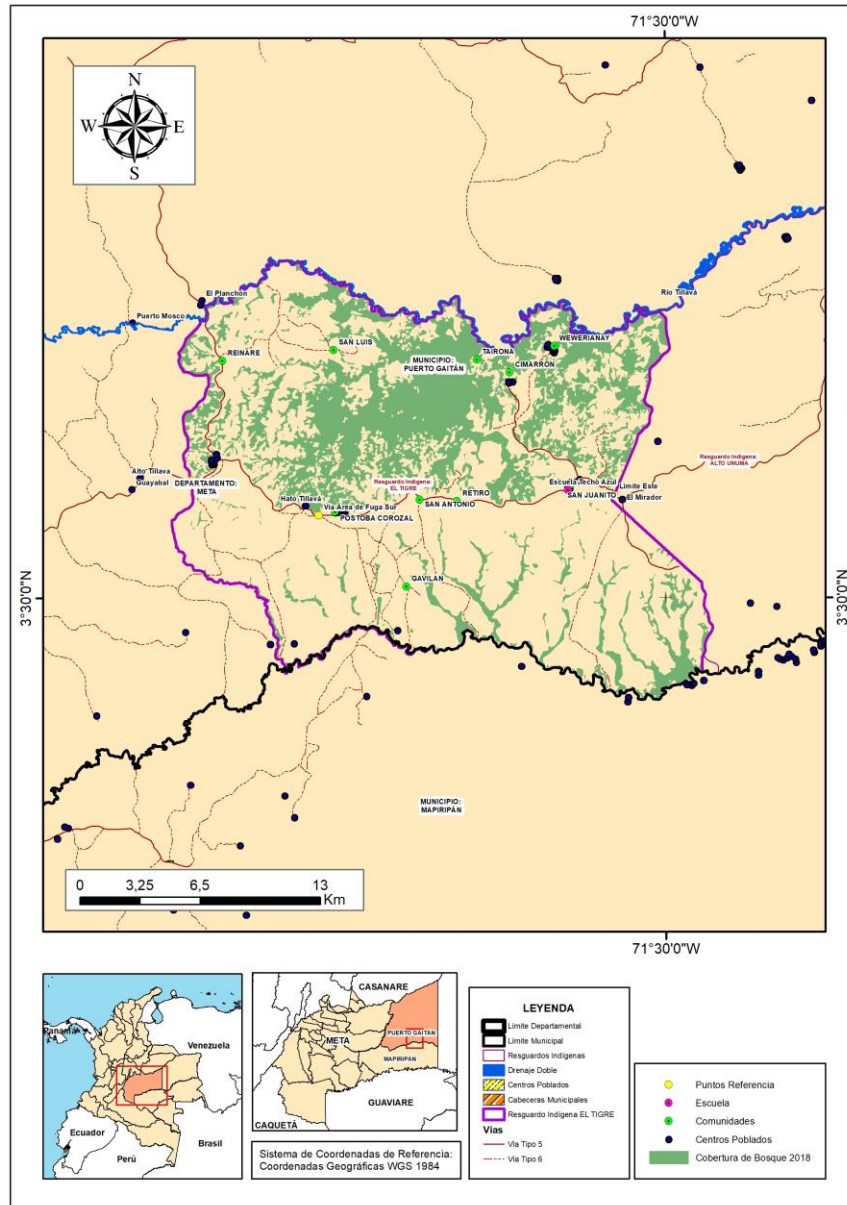
CATEGORY	UNIT OF MEASUREMENT	SUSTAINABLE DEVELOPMENT GOALS
	Area of agricultural systems with improved management practices.	SDG 2 – Zero Hunger SDG 11 – Sustainable cities and communities SDG 13 – Climate action SDG 15 – Life on Land Ecosystems
Capacity building	People who benefit from training and training in the management of productive systems, biodiversity monitoring strategies and territorial governance mechanisms.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 8 – Decent work and economic growth SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities SDG 12 – Responsible consumption and production SDG 13 – Climate action SDG 15 – Life on Land Ecosystems
	Women who benefit from training in the management of productive systems, biodiversity monitoring strategies and territorial governance mechanisms.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 5 – Gender equality SDG 8 – Decent work and economic growth SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities SDG 12 – Responsible consumption and production SDG 13 – Climate action SDG 15 – Life on Land Ecosystems
Employment	People who are employed or receive financial incentives within the framework of project activities.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 8 – Decent work and economic growth SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
	Women who are employed or receive financial incentives within the framework of project activities.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 5 – Gender equality SDG 8 – Decent work and economic growth SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
Livelihoods	People who improve their livelihoods or income as a result of project activities.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 8 – Decent work and economic growth SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
	Women who improve their livelihoods or income as a result of project activities.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 5 – Gender equality SDG 8 – Decent work and economic growth SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities

CATEGORY	UNIT OF MEASUREMENT	SUSTAINABLE DEVELOPMENT GOALS
Health	People who obtain or improve access to health services as a result of project activities.	SDG 3 – Good health and well-being SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
	Women who obtain or improve access to health services as a result of project activities.	SDG 3 – Good health and well-being SDG 5 – Gender equality SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
Education	People who gain access to or improvements in the quality of education services as a result of project activities.	SDG 4 – Quality education SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
	Women who gain access to or improvements in the quality of education services as a result of project activities.	SDG 4 – Quality education SDG 5 – Gender equality SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
Water and sanitation	People who gain access to potable water or improve the quality of their drinking water as a result of project activities.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 3 – Good health and well-being SDG 6 – Clean water and sanitation SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
	Women who gain access to potable water or improve the quality of their drinking water as a result of project activities.	SDG 1 – No poverty SDG 2 – Zero hunger SDG 3 – Good health and well-being SDG 5 – Gender equality SDG 6 – Clean water and sanitation SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
Well-being	People whose well-being improves as a result of project activities.	SDG 3 – Good health and well-being SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
	Women whose well-being improves as a result of project activities.	SDG 3 – Good health and well-being SDG 5 – Gender equality SDG 10 – Reduced inequalities SDG 11 – Sustainable cities and communities
Biodiversity conservation	Intervention area in which management measures for the conservation of biodiversity are implemented.	SDG 11 – Sustainable cities and communities SDG 14 – Life below water SDG 15 – Life on Land
	Species in some category of extinction risk that are protected within the framework of project activities.	SDG 11 – Sustainable cities and communities SDG 14 – Life below water SDG 15 – Life on Land

1.3 PROJECT LOCATION

The project is located in the villages of El Tigre and Alto Tillavá, municipality of Puerto Gaitán, in the Department of Meta.

Map 1 Location of the El Tigre Indigenous Reserve.



1.4 CREDITING PERIOD

The start date of the project corresponds to June 30, 2018 and extends for a period of 30 years, which indicates that the project will end on June 29, 2048.

1.5 PERIOD FOR QUANTIFICATION OF REDUCTIONS

The quantification period corresponds to the time between June 30, 2018 and June 29, 2048.

2 APPLICABILITY OF THE METHODOLOGY

The following table shows the project's compliance of the applicability conditions of the ProClima Methodology.

Table 2 Methodology applicability conditions

CONDITION	COMPLIANCE
The areas in the geographical limits of the project correspond to the forest category at the beginning of the project activities and ten years before the project start date.	Complies. According to the cartographic analysis carried out, it was determined that the project area corresponds to forest that was present ten years before the start date of the project activities.
The causes of deforestation identified include: expansion of the agricultural frontier, mining, logging, and expansion of infrastructure.	Complies. The expansion of the agricultural and livestock frontier were identified as the main causes of deforestation in the project area.
The causes of degradation include: collection of firewood, selective logging and/or forest fires, expansion of the agricultural frontier.	Complies. Selective logging and the expansion of the agricultural frontier - crops for illicit were identified as causes of degradation.
No reduction in deforestation or degradation is expected to occur in the absence of the project.	Complies. The trend of deforestation and degradation has remained historically and may continue in the absence of the project.
In deforested areas, carbon stocks in soil organic matter, litter, and dead wood may decline or remain stable.	Complies. In deforested areas, carbon stocks in soil organic matter, litter, and dead wood decrease.
The quantification of GHG other than CO ₂ must be included in the quantification of emissions caused 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 estimates of emissions associated with the project.
The activities that constitute the REDD+ project will not result in the violation of any applicable law.	Complies. REDD+ activities comply with national regulations and are aligned with the guidelines for land use, protection of indigenous culture and biodiversity.

3 LEGAL FRAMEWORK

The project complies with the current legal framework and all applicable regulations and regulations. The most relevant regulations for the development of the project, which are specific to Colombia, are listed below.

Resolution 1447 of 2018: issued by the Ministry of Environment and Sustainable Development (MADS), it regulates the system of monitoring, reporting and verification of mitigation actions at the national level referred to in article 175 of Law 1753 of 2015.

Resolution 471 of 2020: issued by the Agustín Codazzi Geographic Institute (IGAC), it indicates the minimum technical specifications that the official basic cartography products of Colombia must have, as well as its scope, scope, among others.

Comprehensive Strategy to Control Deforestation and Forest Management: approved in 2020 (CONPES Document 4021), its main objective is to reduce deforestation and forest degradation, to the extent that forest management is promoted in Colombia, under an approach sustainable comprehensive rural development.

National REDD+ Strategy: defines REDD+ policies and measures that will reduce GHG emissions associated with the forestry sector. Draw the "road map" that establishes the activities that can be carried out, how they can be carried out and the economic resources required. It is part of the actions on Climate Change contemplated in the National Development Plan 2018-2022.

National Interpretation of Social and Environmental Safeguards for REDD+ in Colombia: provides guidelines regarding social and environmental safeguards, which must be taken into consideration to ensure respect for the rights of communities and the mitigation of social and environmental risks.

Conceptual and methodological guidelines for the characterization of causes and agents of deforestation in Colombia: issued in 2018 by the IDEAM, it presents a methodological and conceptual guide to adequately characterize the causes and agents of deforestation, so that the information is comparable and interoperable, at different spatial and temporal scales.

Proposal for a reference level of forest emissions from deforestation in the Colombian Amazon Biome for payment by REDD+ results under the 2019 CMUNCC: presents the reference values to evaluate Colombia's performance in the execution of REDD+ activities. The proposal presents the reference levels by biome (Amazon, Andes, Caribbean, Orinoquía and Pacific).

Estimation of forest degradation in Colombia through a fragmentation analysis: prepared in 2018, it presents the results of one of the methodologies prioritized by the Forest and Carbon Monitoring System (SMByC), to estimate forest degradation in Colombia.

The guidelines established by the IPCC in 2006 and 2019 for national greenhouse gas inventories – Volume 4. Agriculture, forestry and other land uses: define the guidelines for estimating and reporting GHG emissions and removals, incorporating good practices and management of uncertainty in national GHG inventories.

Law 1819 of 2016: adopts the tax reform, the mechanisms for the fight against tax evasion and avoidance are strengthened, and creates the National Carbon Tax responding to the need of country to have economic instruments to encourage compliance with greenhouse gas (GHG) mitigation goals at the national level.

Decree 926 of 2017: Establishes the procedure for the Non-Causation of the National Carbon Tax. The purpose of this is to stimulate the formulation and implementation of mitigation initiatives that generate emission reductions or GHG removals in exchange for the non-causation of the tax.

PROCLIMA® Program: Certification and Registration Program for GHG Mitigation Initiatives and other Greenhouse Gas Projects, corresponding to the latest published version.

Nationally Determined Contribution: Colombia signed and ratified the commitment acquired by the Paris Agreement in 2015 to strengthen its efforts to regulate its emissions to prevent the increase in global temperature. Within the framework of this agreement, Colombia signed in its Nationally Determined Contribution (NDC) an initial goal of reducing its emissions by 20% compared to a trend scenario for 2030. In 2020, Colombia updated its NDC, acquiring a commitment to reduction of emissions of 51% by 2030 with a clear focus on reducing emissions from deforestation and forest degradation.

Resolution 014 of 1975: INCORA established a globe of land as a reserve for the benefit of the Guahibo indigenous community of the El Tigre region, which was later approved by Executive Resolution 109 of May 20, 1975 and which is later derogated by Resolution 041 of 1983 and clarified by Agreement 257 of 2011 issued by the Colombian Institute of Rural Development (INCODER).

Resolution 041 of 1983: issued by the Colombian Institute of Agrarian Reform (INCORA) and clarified by Agreement 257 of 2011 issued by the Colombian Institute of Rural Development (INCODER), indicates the legal constitution of the El Tigre Indigenous Reservation.

4 CARBON POOLS AND SOURCES OF GHG EMISSIONS

4.1 CARBON POOLS

Table 3. Carbon pools

Carbon pool	Included	Justification
Aboveground tree biomass	Yes	It represents the largest carbon pool derived from the implementation of project activities.
Aboveground non-tree biomass	No	This deposit is not included, taking into account that it is expected to develop productive activities, based on semi-annual and annual agricultural species.
Belowground biomass	Yes	It is a representative carbon pool derived from the implementation of project activities.
Dead wood	No	This deposit is conservatively excluded, as it is not expected to increase in the post-deforestation scenario.
Soil organic carbon	Yes	It is a pool whose carbon content is expected to change in the with-project scenario.

4.2 SOURCES OF GHG EMISSIONS

The sources of GHG associated with the project activities are indicated below. Potential emission sources are associated with the possible occurrence of natural events, specifically forest fires..

Table 4. GHG sources

Source	GHG	Selected	Justification
Combustion of woody biomass	CO ₂	No	No project activities involving the burning of biomass are generated.
	CH ₄	No	In the event of forest fires occurring during the monitoring period of the activities, methane emissions will be estimated and included in the emissions for the corresponding period.

	N ₂ O	No	In the event of forest fires occurring during the monitoring period of the activities, nitrogen dioxide emissions will be estimated and included in the emissions of the corresponding period.
--	------------------	----	--

5 SPATIAL AND TEMPORAL BOUNDARIES

Since the constitution of the El Tigre Reservation, under Resolution 041 of July 21, 1983, the Incora Institute (today the National Land Agency) began to carry out the sanitation of the territory through the purchase of the lands that were under control of settlers with the improvements made (peasants from the interior of the country). According to the verbal information provided by the Legal Representative of the Reservation, Mr. Braulio Martínez Barrera, this clean-up lasted from the formation of the reservation until the beginning of the 2000s; at present, there are no settlers living in the El Tigre Reservation. Agreement 257 of 2011, in its numeral 3.5, describes that within the territory to be titled there were no private property titles, but there were improvements of settlers or people outside the partiality. According to the information provided by Mr. Martínez, the improvements such as pastures, crops or houses that remained at the time were used by members of the community for some time, but were later abandoned and only a few members of the community still use houses left by the settlers. The process of property reclamation (acquisition of the improvements) was carried out satisfactorily by INCODER and by the Unit for the Management of the Restitution of Dispossessed Lands, which can be corroborated almost completely in the document Annex 6.5 PRELIMINARY STUDY RESGUARDO EL TIGRE – URT, page 28.

In the leakage area of the project, the presence of settlers is observed and the mobilizations of people along the entire border have been considered as part of the characteristics that are recognized as determining factors to delimit the possible areas of displacement of deforestation activities, as a result of the implementation of the REDD+ Project.

The area of the reserve is considered to belong to the Orinoquia biome, according to Annex 2 of Renare (2019), tracing the boundary of the Amazon biome just south of the boundaries of the reserve. According to IDEAM and SINCHI, from an ecosystem point of view, the official boundary of the Amazon biome with the Orinoquia is a little further north than the one proposed by Renare, drawing the boundary right in the middle of the territory of the Resguardo. In order to be consistent with the national reference level, carbon accounting

was based on the RENARE limit and the use of emission factors from Orinoquia forests was defined as the variables to be used to estimate the benefits of project reductions.

However, it is very important to mention that when comparing the characteristics of the forest of the reserve, precipitation, humidity, temperature, geomorphology, altitudinal ranges and the physical appearance of the forests, with those of the forests of the Amazon and the Orinoquia, it is concluded that they are similar to those of the forests of the Amazon (see folder files folder MAPS Identification of the Amazon Biome, located in the MAPS folder). The reserve is located right in the transition zone of the biomes and the scale of analysis (1:100,000) to set the boundaries used by entities such as IDEAM and SINCHI, does not allow us to accurately detect that the characteristics of the forests located in the northern half of the reserve are Amazonian.

The current spatial configuration of the reserve's forests has been shaped by historical deforestation processes, causing a break in the continuity of the dense Amazon forest landscape to reach a forest island configuration that is observed today. Since 1975, when the proliferation of marijuana and coca crops began in this region, intense deforestation processes have been activated for the best lands (dense forest), as well as important portions of gallery forests associated with the banks of the rivers (see Annex 6.5 Preliminary Study of the El Tigre Reservation – Urt). This break in continuity, as well as the scale of analysis (1:100,000) has also led to the southward shift of the proposed boundary for the Amazon biome. An analysis of satellite images (Map 3) shows that the dense forest of the reserve corresponds to the same dense forest unit that is included in the Amazon biome.

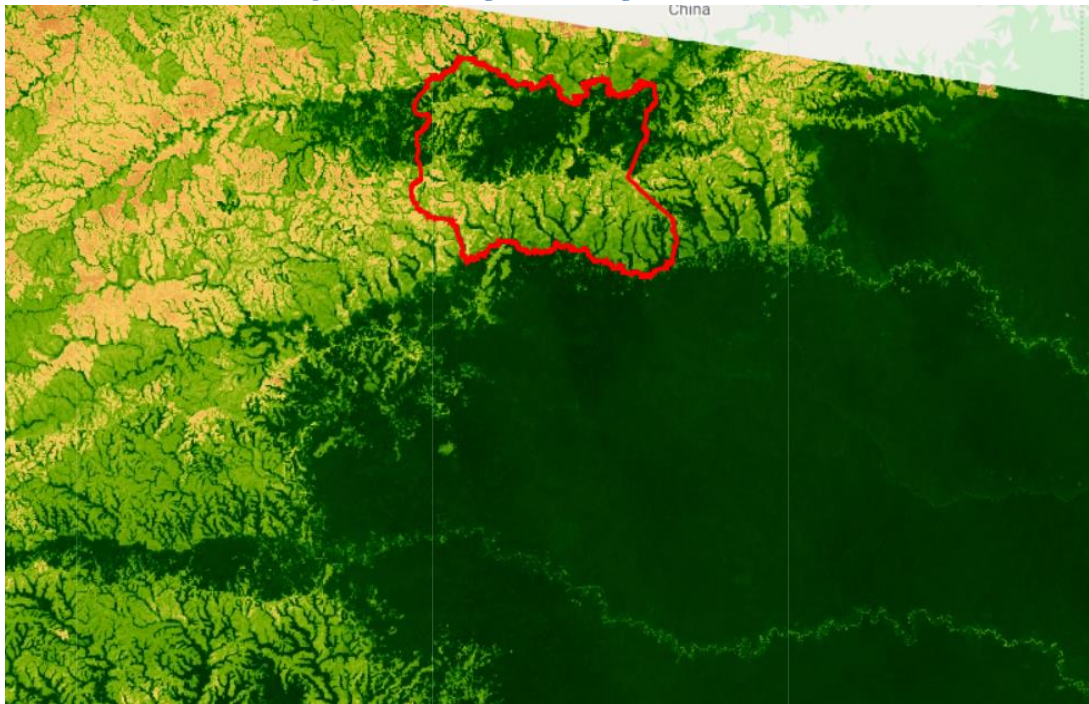
5.1 AREAS ELIGIBLE FOR THE PROJECT

The project area is made up of forests that were 10 years prior to the start date of the project. This can be corroborated in section 5.1 of the DDA and in the project's geographic database (see RI_El_TIGRE_V4.gdb file, located in the MAPS folder).

Map 2 Social Cartography El Tigre Indigenous Reservation (Ministerio de Cultura, 2012)

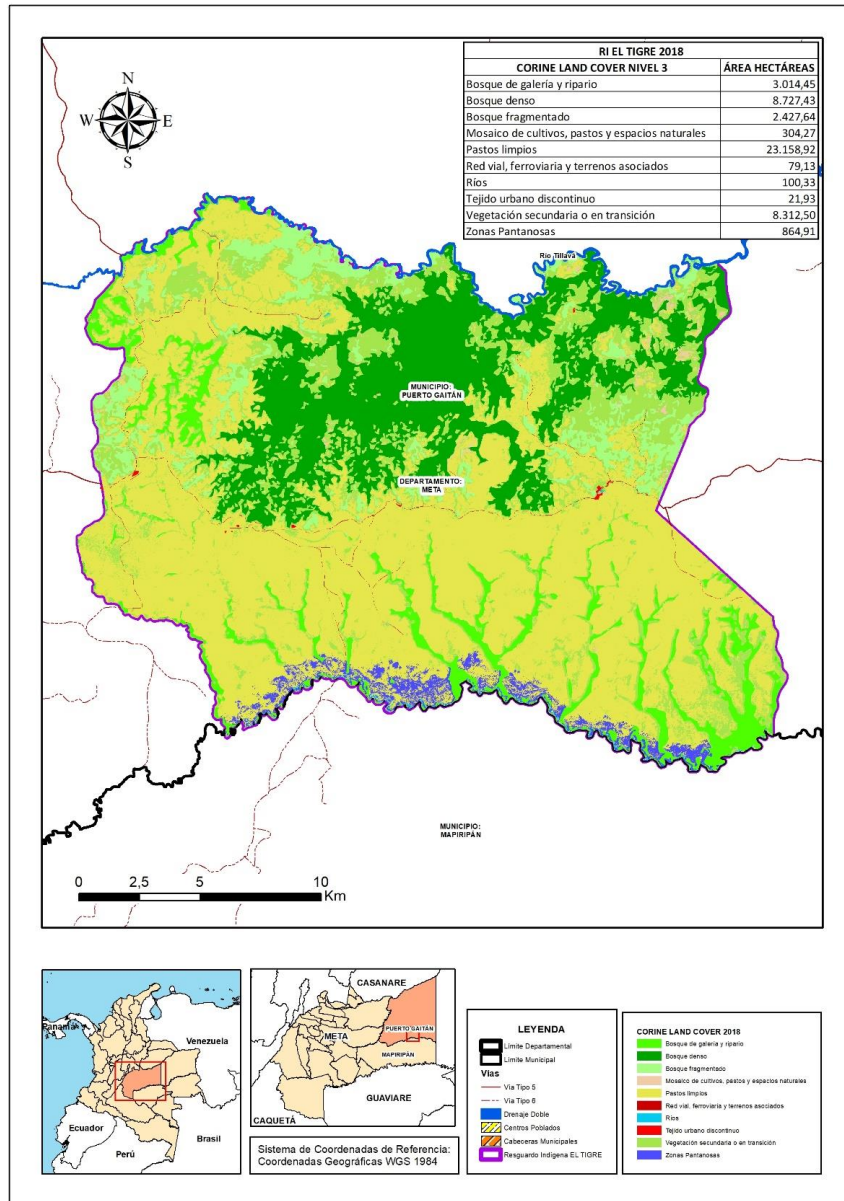


Map 3 Datalital image of the indigenous reservation.



Within the indigenous reservation there is a presence of wetlands, as evidenced in the classification of coverage in the figure below and in the files in folder MAPAS_CORINE_LAND_COVER_EL_TIGRE, located in the MAPS folder). However, these wetlands are not eligible as part of the project area and have not been included within the project area.

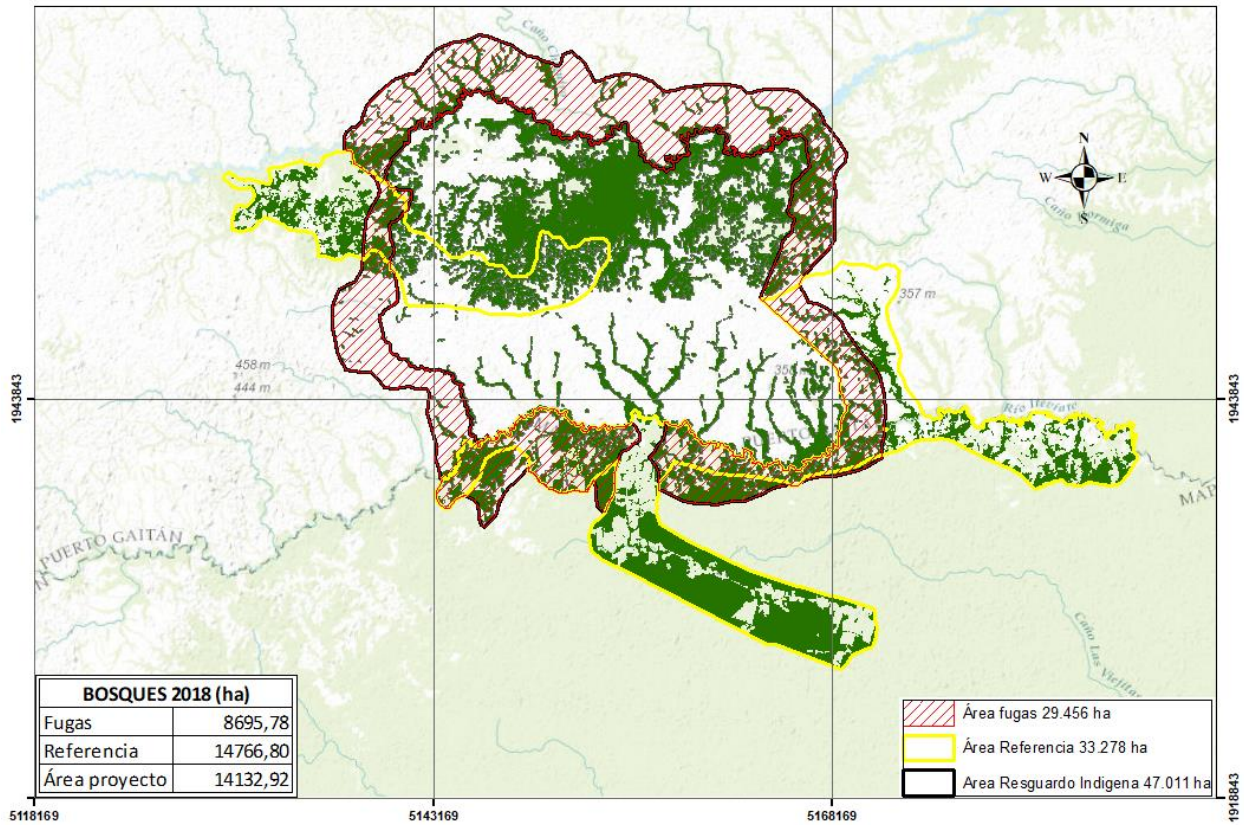
Map 4 Land cover within the El Tigre Reserve.



The eligible area corresponds exclusively to forest areas. Wetlands are not part of the project area, as shown in the figure below (see 2018 project area in RI_El_TIGRE_V4.gdb, MAPS folder).

Map 5 Limits of the El Tigre REDD+ project.

**RESGUARDO INDIGENA EL TIGRE
BOSQUE NO BOSQUE 2018
PUERTO GAITÁN -META**



To classify the eligible area, the definition of forest adopted by Colombia and used by the SMByC was taken, namely, land occupied mainly by trees that may contain shrubs, palms, bamboos, grasses and lianas, in which tree cover predominates with a minimum canopy density of 30%, a minimum in situ canopy height of 5 meters at the time of identification and a minimum area of one hectare. Eligible forest areas within the project boundaries are presented in the following Table: (IDEAM, 2014a).

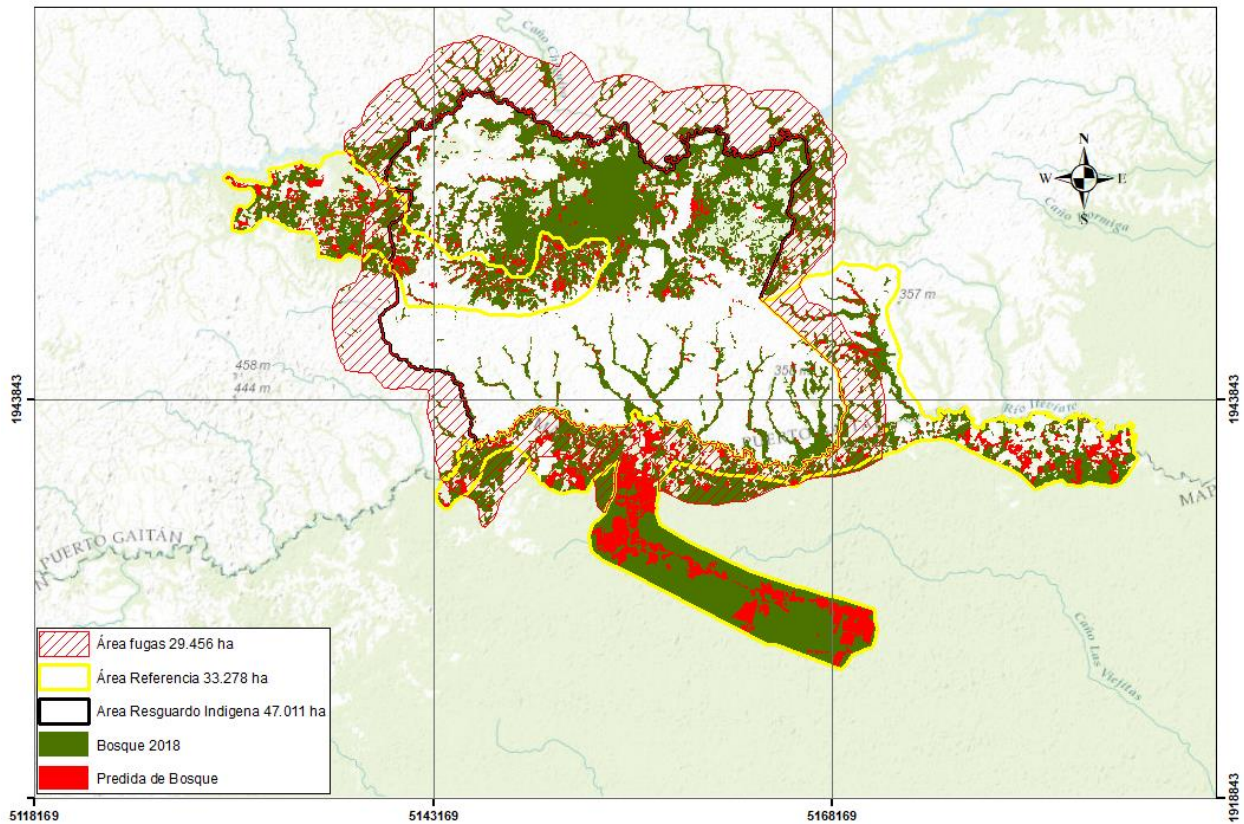
Table 5. Area of forest at the boundaries of the Project.

EL TIGRE PROJECT AREA		REFERENCE AREA		LEAKAGE AREA	
FOREST 2008	16.166	FOREST 2008	20.783	FOREST 2008	10.317
FOREST 2018	14.132	FOREST 2018	14.766	FOREST 2018	8.695

The map of the project area shows the forest present since 2008 and its status until 2018.

Map 6 Forests and deforestation from 2008 to 2018 in the boundaries of the El Tigre REDD+ Project.

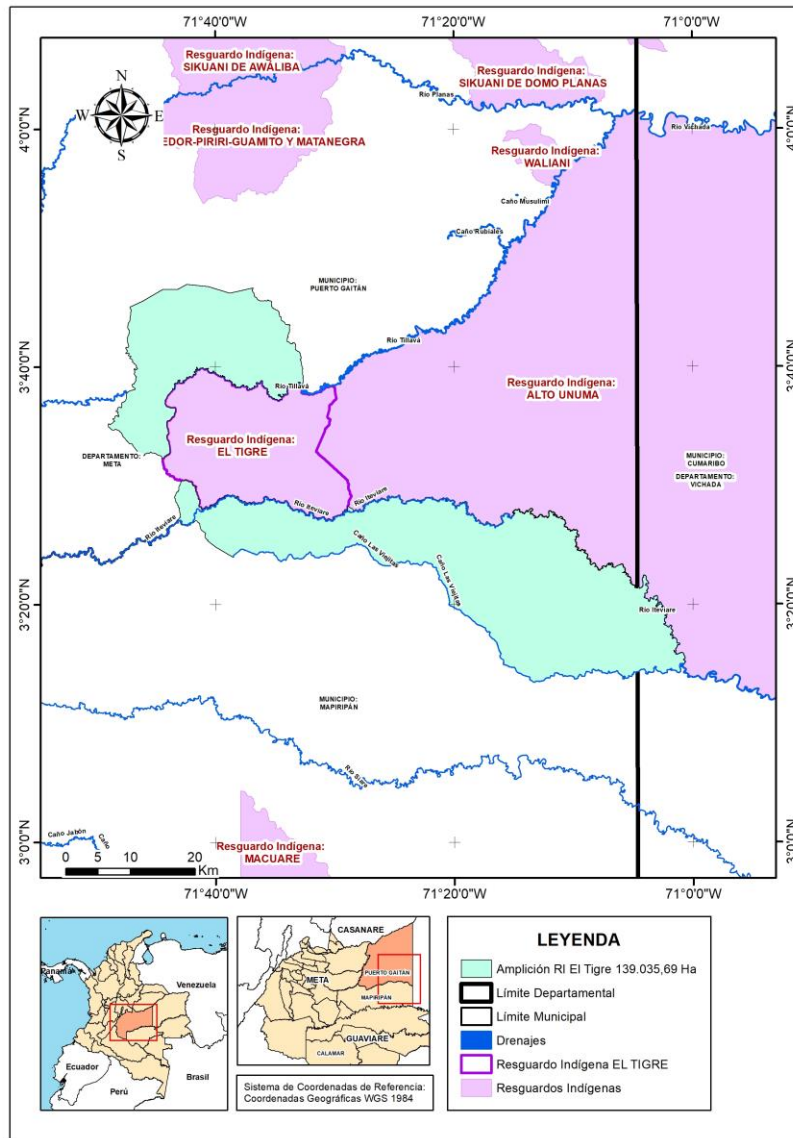
**RESGUARDO INDIGENA EL TIGRE
PERDIDA DE BOSQUE 2008 - 2018
PUERTO GAITÁN -META**



5.1.1. ADDING AREAS AFTER VALIDATION

The project contemplates the incorporation of new areas after its beginning, in a second instance, corresponding to the territory that can be awarded in favor of the El Tigre Reservation as a result of an expansion process that is being carried out before different national authorities. The possible boundaries of the extension area are presented in the following Map.

Map 7 Potential expansion area of the El Tigre Indigenous Reserve.



The following are the criteria for the addition of new areas, in accordance with the requirements of the ProClima methodology (2021):

Table 6. Criteria for the addition of new areas to the REDD+ project.

Criterion	Description
Comply with the guidelines of the Certification and Registration Program for GHG Mitigation Initiatives and other Greenhouse Gas Projects, in its most recent version.	The additional area must comply with the guidelines listed in the Program.

Criterion	Description
Comply with all the provisions of the METHODOLOGICAL DOCUMENT. AFOLU SECTOR. Quantification of GHG Emission Reductions or Removals. REDD+ projects, in their most recent version.	The addition of new areas must comply with the provisions of the most recent version of the methodological document Sector AFOLU Quantification of GHG emission reductions or removals REDD+ projects.
Include emission reductions only for validated REDD+ project activities.	The emission reductions considered in the new areas correspond to the REDD+ activities initially validated.
Implement the activities to avoid deforestation or degradation described in the validated document.	The activities to prevent deforestation and forest degradation in the new areas should correspond to those described in the validated document.
The additionality, causes and agents of deforestation/degradation, land tenure, and baseline scenario of the new areas should be consistent with the characteristics validated for the initial areas.	The causes and agents of deforestation/degradation, land tenure, additionality, and baseline scenario of the new areas should be consistent with those validated for the initial areas.
Have a start date later than the start date of the areas included in the validation	The start date of the project in the new areas must be later than the start date of the initial project.

5.2 REFERENCE REGION FOR BASELINE ESTIMATION

The Reference Region has 33,278 hectares, of which 20,783 hectares correspond to forest area at the beginning of 2008 and 14,766 hectares in 2018. This area includes part of the project area as well as the surrounding areas. In this way, it is guaranteed that the reference region presents conditions similar to those present in the project area in terms of climate, ecosystems, type of vegetation, political context, causes and agents of deforestation and enforceable regulations, according to the parameters required by the Proclima v2.2 methodology. To know the workshop of each of the processes, refer to the file *Definition Limits Proyecto_El Tigre 2021 v3*, located in folder *Maps*, subfolder *Definition Limits Project*).

For the selection of the Reference Region, parameters such as: i) access to the area, ii) agents and drivers of deforestation, iii) land tenure, iv) land uses resulting from

deforestation, v) forest and ecosystems present, vi) political context, and vii) enforceable norms were taken into consideration.

a) **Access to the area:** The reference region is located in the municipalities of Puerto Gaitán and Mapiripán (Meta). The same access paths are used to access the reference area as to access the project area. The main land route crosses the El Tigre reservation and comes out of both the southern and eastern limits, to reach the polygons defined as the reference area. River access is made using the two main rivers associated with the reserve, the Tillava River and the Itiviare River. This area has a precarious road infrastructure in poor condition, but that allows access to this region.

b) Agents and causes of deforestation/degradation:

As a strategy to obtain primary information on deforestation in the territory, a participatory methodology was implemented that is described in the files *Participatory Workshops Methodology v1* and *Methodological Proposal Phase 2 REDD+ Projects* located in the *Workshops – Monitoring* folder. This approach involved conducting surveys and workshops with the community that included exercises in social mapping, definition of the problem tree and definition of the solution tree, among others. The community surveys offer a concrete overview of the problem of deforestation, the causes, motivations, resources invested and potential solutions, as corroborated in the archive *El Tigre Consolidation Surveys* (workshop 1). The problem trees and solution trees (see *Taller_El_Tigre_Árbol_Problemas* and *Taller_El_Tigre_Arbol_Soluciones* files) provide very valuable information regarding the dynamics of deforestation in the territory and all the direct and indirect causes that are involved and perceived by people. Secondary sources of information were the Safeguards Plan (Plan Safeguard Sikvani_El Tigre 2013), the Characterization of the Sikvani People developed by the Ministry of Culture (Characterization of the Sikvani People), the Study for the Process of Restitution of Territorial Rights of the El Tigre Reservation carried out by the Land Restitution Unit (PRELIMINARY STUDY OF THE EL TIGRE RESERVATION – URT) and the reports of IDEAM through the SMByC and the Foundation for the Restitution of the Sikvani People. Conservation and Sustainable Development of the Amazon (Recent Deforestation amazonia_2021_Cátedra R. BOTERO). This information is part of the files located in the *Workshops – Monitoring* folder (see methodological

documents), Workshop 1 sub-folder and folder *Agreements, Legal Representation, General Info. El Tigre.*

The main drivers of deforestation identified in the reference region and in the project area are similar, including:

Expansion of the Agricultural Frontier

- i. Livestock producers with beef cattle for sale (indigenous people and settlers).
 - ii. Livestock producers with dual-purpose livestock for sale (indigenous and settlers).
 - iii. Livestock producers with dual-purpose livestock for self-consumption (indigenous people and settlers).
 - iv. Livestock producers with beef cattle for self-consumption (indigenous people and settlers).
 - v. Agricultural producers with traditional crops for self-consumption (indigenous and settlers).
 - vi. Intermittent agricultural producers of illicit crops (outlaw groups).
 - vii. Timber extraction
 - viii. Wood extractors for self-consumption (indigenous people and settlers).
- c) **Land tenure:** The reference region has the same form of land tenure as the project area because it includes areas located within the Alto Unuma Indigenous Reservation (the area of the reservation that corresponds to the jurisdiction of the department of Meta). In the reference region there is also an area of the Second Law of Forest Reserve and some private properties.
- d) **Land uses:** the main land uses in the polygon of the reference area correspond to savannahs, dense high terra firma forest, gallery forest, areas with heterogeneous agrosystems, areas with herbaceous and/or shrubby vegetation, fragmented forests with pastures and crops and with secondary vegetation. These covers are also present within the El Tigre indigenous reserve.
- e) **Forest and ecosystems present:** considering that the reference area is close to the project area, the forests and ecosystems present are similar and belong to the following biomes: i) Tropical Humid Forest Zonobiome, ii) Orobiomes of the

tropical humid forest zonobiome, and iii) Pedobiomes and helobiomes of the tropical humid forest zonobiome.

- f) **Political context and enforceable norms:** the reference area is located within the administrative limits of the department of Meta, municipalities of Puerto Gaitán and Mapiripán. The project area is located in Puerto Gaitán. As it is, the enforceable rules and the political context are the same. In indigenous territories, the environmental authority is vested in the indigenous communities, who are responsible for administering and managing the lands in accordance with their traditions, customs and needs. Outside the indigenous territories, the Corporation for the Sustainable Development of the La Macarena Special Management Area – CORMACARENA is the environmental authority that is responsible for structuring and implementing policies, plans, programs and projects that promote the conservation, protection and recovery of the environment and renewable natural resources (see section 3).
- g) **Climate:** The climate corresponds to that of the highlands, hot and humid, with an annual rainfall of around 2,300 mm and an average temperature of between 24°C and 30°C. The least rainy months are from December to March with average rainfall between 50 and 70 mm per month. On the other hand, the rainiest are between April and November, with May, June and July being the rainiest (320 mm).
- h) **Hydrography:** The Resguardo is located on the right bank of the Tillava River and the left bank of the Itéviare River, between the Salado and Musuane streams of the Tillava River and between the Moriche and Jivitasimisa or Morenita streams of the Itéviare River. These two rivers flow into the Guaviare River, which in turn flows into the Orinoco River. The Department of Meta has a large number of water streams that descend from the Cordillera Oriental and are channeled in a flat to eastward sloping region. The Tillavá River has a bimodal flow regime, with high rainfall in the second quarter of the year and in October, with June being the month with the highest rainfall and the highest flow. The dry periods correspond to the remaining months, with December, January and February being the most critical. The different watercourses play a very important role in the modelling of the geofoms that are currently observed, in river transport, the ichthyological richness, the availability of water for crops and the flooding problems that occur in the region.(García & Torres, 2016)(García & Torres, 2016)

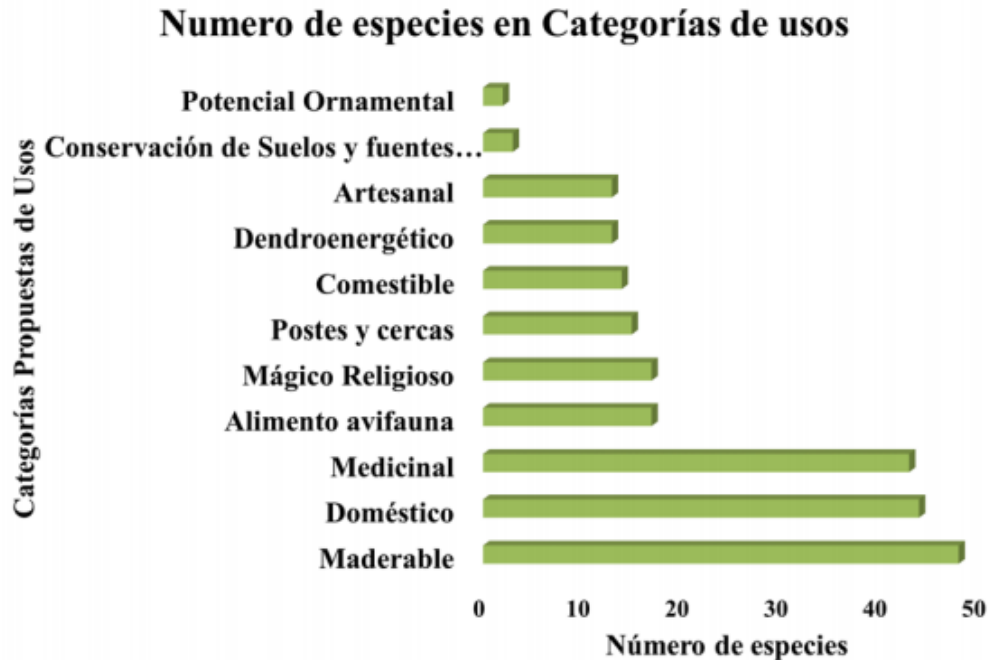
- i) **Geology:** For the municipality of Puerto Gaitán and Mapiripán, Tertiary and Quaternary deposits of alluvial and colluvial-alluvial origin are found covering the ancient rocks of the Guiana shield. The geology of the department of Meta is closely linked to the evolutionary process of the eastern mountain range, which has been a source of sediments and consolidated materials that constitute the flat part of the Department, which have given rise to the soils of Meta in what is geomorphologically known as the dissected highlands to the east of the Department. Tectonically, the area is influenced by the different structural features present in the Piedmont Plains. The slopes are lower throughout the territories, with inclinations that do not exceed 7 degrees, as can be seen in the following map. (García & Torres, 2016)
- j) **Geomorphology:** For the department of Meta, during the Middle and Recent Pleistocene there were several glaciations and climatic changes that caused a new cycle of sedimentation and deposition of materials in the region of the Eastern Plains, giving rise to the formation and differentiation of new types of relief (terraces and fans of piedmont and dunes of the highlands). By the Holocene period, river flows decreased, lowering the level of regional erosion and creating the more recent geofoms that are currently observed in valley and plain landscapes. (García & Torres, 2016)
- k) **Biodiversity:** The region in which the reference region and the El Tigre Indigenous Reserve are located include some humid plant formations such as dense forests and gallery forests, which are home to important biological diversity due to the fact that they are located right in the transition strip of the Amazon and Orinoquia biomes. The most widely used species in the Tillavá River basin area include: (Forero, 2016)
- Moriche, *Mauritia flexuosa* L.f.
 - Seje, *Oenocarpus bataua* Mart.
 - Tarriago, *Phenakospermum Typeannense*
 - Chuapo, *Socratea exorrhiza* (Mart.) H.Wendl
 - Carob, *Hymenaea courbaril* L.
 - Caraño, *Protium heptaphyllum* (Aubl.)
 - Cumaré, *Astrocaryum chambira* Burret
 - Oil, *Copaifera officinalis* L.

- Romadizo, *Siparuna cf. guianensis* Aubl

Other species found in this basin are: (Forero, 2016)

- Guatero, *Tachigali cf. cavipes* (Benth.)
- Manaca, *Euterpe precatoria* Mart
- Malaghetto, *Xylopia aromatica* (Lam.) Mart
- Chaparro, *Curatella americana* L
- Botagajo, *Pseudolmedia laevis*
- Axe cape, *Aspidosperma excelsum* Benth
- Jua jua, *Ischnosiphon arouma* (Aubl.)
- Yarumo, *Cecropia* spp.
- Slippery, *Capirona decorticans* Spruce
- Bototo, *Cochlospermum vitifolium* (Willd.)
- Yopo, *Anadenanthera peregrina* (L.)
- Bejuco Chaparro, *Davilla nitida* (Vahl) Kubitzki
- Cedro Mure, *Cedrelinga cateniformis* (Ducke)
- Sour Reed, *Costus cf. spiralis* (Jacq.) Roscoe
- Cow's tongue, *Potalia amara* Aubl.
- Monkey ladder, *Schnella guianensis* (Aubl.)
- Matapalo, *Ficus* spp.
- Macano, *Terminalia amazonia* (J.F.Gmel.)
- Totumo, *Crescentia cujete* L.
- Guamo, *Inga umbellifera* (Vahl) DC
- Chundú, *Mandevilla hirsuta* (Rich.)

Map 8 Categories of use vs. number of species present in the region of the El Tigre Indigenous Reserve.



Source: Taken from (Forero, 2016)

Regarding the birdlife for the municipality of Puerto Gaitán, it is recorded that the dominant families according to the records are Tyrannidae and Thraupidae with 21 and 13 taxa respectively adding 21.9% of the total birds, followed by Thamnophilidae (5.1%) and Columbidae (4.5%), Psittacidae, Icteridae, Furnariidae, Accipitridae and Falconidae together add up to 19.3% with six species each. Three families (Pipridae, Cathartidae, Alcedinidae) were represented by five taxa reaching 9.6%. (Martínez, 2018)

Regarding amphibians, there are endemic species such as *Scinax kennedyi*.

The following are some species present in the area that have been identified as being under some degree of threat in the Red Books of Colombia: Red Book of Reptiles of Colombia (Morales-Betancourt, Lasso, Páez, & Bock, 2015), Red Book of Freshwater Fish of Colombia (Mojica, Usma Oviedo, Álvarez León, & Lasso, 2012), Red Book of Birds of Colombia (Renjifo, 2012). Amaya-Villarreal, Burbano-Girón, & Velásquez-Tibatá, 2016), red book of plants from Colombia (Calderón-Sáenz, 2006; Cárdenas L.

& Salinas, 2007) and information obtained from the Municipality of Puerto Gaitán that are of interest in the project area:

Table 7 Animal species in some category of threat.

Category	Scientific name	Common name	Threat Category
Reptiles	<i>Micrurus medemi</i>	Villavicencio Choir	In danger
	<i>Atractus punctiventris</i>	Dotted belly earth snake	In danger
	<i>Podocnemis unifilis</i>	Terecay	In danger
	<i>Chelonoidis carbonarius</i>	Tortoise	Vulnerable
	<i>Crocodylus intermedius</i>	Plains alligator	Critical Hazard
Amphibians	<i>Colostethus ranoides</i>	Villavicencio Jumping Frog	Critical Hazard
Marsupial	<i>Metachirus nudicaudatus</i>	Spectacled Weasel	Low Concern
Other mammals	<i>Panthera onca</i>	Jaguar	Vulnerable
	<i>Myrmecophaga tridactyla</i>	Anteater	Vulnerable
	<i>Leopardus tigrinus</i>	Oncilla	Vulnerable
	<i>Lontra longicaudis</i>	Neotropical otter	Vulnerable
	<i>Inia geoffrensis</i>	Common bottlenose dolphin	Vulnerable
	<i>Aotus brumbacki</i>	Mico de noche llanero	Vulnerable
	<i>Callicebus caquetensis</i>	Monkey Stump	Vulnerable
	<i>Cuniculus paca</i>	Paca	Vulnerable
	<i>Pteronura brasiliensis</i>	Water Dog/Giant Otter	In danger
	<i>Odocoileus virginianus</i>	Savannah Deer	Critical Hazard
	<i>Tapirus</i>	Tapir	Critical Hazard
Fishes	<i>Brachyplatystoma juruense</i>	Catfish / Black Mantle	Vulnerable
	<i>Brachyplatystoma platynemum</i>	Slimy Catfish	Vulnerable
	<i>Brachyplatystoma rousseauxii</i>	Gold	Vulnerable
	<i>Sorubim lima</i>	Paddle / Tilefish / Spoon	Almost Threatened
	<i>Brachyplatystoma filamentosum</i>	Valentine	Vulnerable
	<i>Potamotrygon motoro</i>	Motoro Stripe	Vulnerable
	<i>Zungaro Zungaro</i>	Yellow	Vulnerable
Poultry	<i>Grallaria Kaestneri</i>	Torotoi	In danger
	<i>Polystictus pectoralis</i>	Tachuri Barbado	Appendix II CITES
	<i>Falco deiroleucus</i>	Red Hawk	Appendix II CITES

Also included are some plant species that have been classified under some category of threat.

Table 8 Plant species in any threat category

Scientific name	Common name	Threat Category
<i>Aniba Perutilis Hemsi</i>	Comini	Critical Hazard
<i>Pacbira quinata</i>	Ceiba Tolúa	In danger
<i>Cattleya schroederiae</i>	Lily	Vulnerable
<i>Masdevallia caesia</i>	Orchid	Vulnerable
<i>Lycaste macrophylla</i>	Orchid	Almost Threatened
<i>Masdevallia sanctae-fidei</i>	Orchid	Almost Threatened
<i>Cattleya violacea</i>	Orchid	Least Concern
<i>Rodriguezia venusta</i>	Orchid	Least Concern
<i>Bactris gasipaes varo chichagui</i>	Chinamato	Vulnerable

5.3 LEAKAGE AREAS

The leakage area comprises the area of forest to which deforestation and degradation agents and activities may be displaced, but which is outside the project boundaries. The leakage area has a total area of 29,456 ha, of which 10,317 ha were forest in 2008 and 8,695 ha remained stable until the end of the reference period and start date of the project, observing a loss of coverage equivalent to 1.5% per year. To determine the project's leakage area, the following criteria were considered:

Table 9. Criteria for defining the leakage area and its compliance.

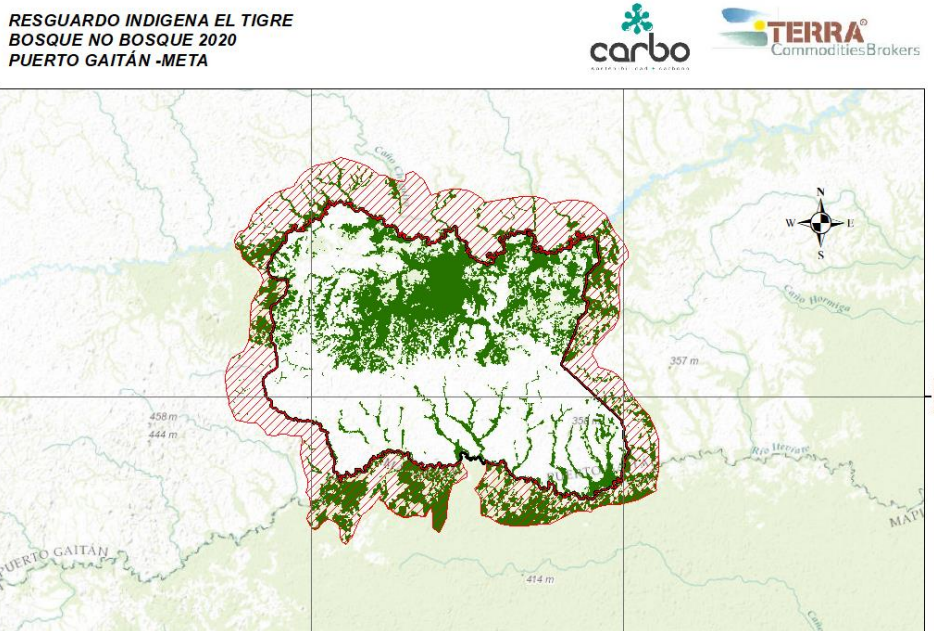
CRITERION	COMPLIANCE
All forest areas that are within the range of mobility of the identified agents should be included.	Complies. This includes the total area of forest that is within the range of mobility of deforestation agents.
Exclude areas with restricted access to agents of deforestation and degradation.	Complies. National natural park areas are excluded.

The leakage area was delimited based on the mobility circumstances of the deforestation agents that are related to the project area. According to interviews with community members, deforestation agents move along the entire perimeter of the reserve. It was identified that the population of the interior of the reservation crosses the limits of the perimeter to look for forest resources and establish crops. It was also identified that agents

outside the perimeter of the reservation eventually make incursions into the interior of the reservation (see folder *Workshop 1, El Tigre Consolidation Surveys file*, columns "FI" to "GS"), at which point they are agreed by the indigenous people to maintain their extractive and production activities outside the territory of El Tigre. This causes the deforestation activities that would have occurred within the reservation to be displaced to the surrounding strip and within the range of mobility of people on foot.

On the eastern side of the reservation there is a proximity to the Alto Unuma Indigenous Reservation, and the behavior and use of the border resources are similar to those observed in the rest of the perimeter; No significant difference was detected. Some members of the population of the El Tigre reservation cross the border and can use resources outside the perimeter. It also happens that at other times neighbors make incursions into the El Tigre reservation, and community members exercise control to prevent deforestation of their territory. These dynamics of mobility of deforestation agents were taken into account to define the boundaries of the leakage area.

Map 9 Leakage area in the El Tigre REDD+ Project.



To define the mobility distance of deforestation agents, interviews were conducted with community members and the following situations were analyzed: most of the deforestation agents move on foot (53 people out of 109 surveys), others use beasts (19 people), trucks or tractors (10 people) and eventually by boat (1 person). The mobility distance ranges from 1

kilometer to 6 kilometers. Taking into account the frequency of the distance travelled, it was established that in areas where roads are not available, officers usually travel 3 km on average, while in road areas they can travel about 3 km more. and then walk 2 km (see Annex 7.1 El Tigre Consolidation Surveys). Based on these distances and the location of areas of timber interest surrounding the El Tigre catch, a leakage area contiguous to the project area was defined, excluding areas with the absence of forests susceptible to exploitation and others with limited or restricted access, as defined by the Proclima methodology.

Finally, the forest cover within the area delimited as a potential leakage area was analyzed to identify the forests that were present at the beginning of the reference period and were still standing at the end of it (2008-2018), and thus take a forest area at the start date of the project equivalent to 8,695 ha.

5.4 TIME LIMITS AND ANALYSIS PERIODS

The time limits of the project are presented below:

- Project start date: 30-June-2018.

The start date corresponds to the moment when the Legal Representative of the Indigenous Reservation grants a special, broad and sufficient power of attorney to the organization Plan Ambiente SAS, to carry out all the necessary steps to develop a carbon project that allows access to the economic incentives associated with the conservation of the forests of its territory (see file *Power of attorney to develop project carbono_El Tigre 062018.pdf* in Annex *Start Date and Project Management Agreement*). This is evidence of the first action of the REDD+ project as it is the result of a series of concerted voluntary decisions at the community level to conserve their forests and improve land management, with the expectation of accessing economic recognition derived from the carbon project. As additional support, two interviews conducted with the Legal Representative of the Resguardo Braulio Martínez are presented, where he describes how the community advanced in the intention and development of early actions to structure the carbon project since 2017 and that finally translate into a concrete action through the assignment of broad and sufficient legal power to the organization Plan Ambiente to materialize its community efforts of voluntary conservation in a carbon project (see files *Entrevista_Braulio_Tigre.mp3* and *VID_20210911_Entrevista Braulio Martinez.mp4* in Annex *Start Date and Project Management Agreement*). Once this agreement is signed, conservation activities and

reduction of the conversion of forests to other land uses within the territory of the Reservation begin and are evidenced, as well as a series of efforts to involve the territory of the Reservation in different programs and action plans of municipal and regional entities that result in activities implemented in the territory that contribute to the objective of forest conservation and development as well as the fulfillment of the Life Plan and the Plan for the Safeguarding of the community.

- Emissions quantification period: 30-June-2018 to 29-June-2048 (30 years).

Monitoring periods: The first period corresponds to June 30, 2018 to December 31, 2020; Subsequently, monitoring reports are expected to be carried out every two years.

5.4.1 Historical period of deforestation

To estimate the deforestation trend in the reference area and the leakage area, the changes observed during the historical period 04-2008 to 03-2018 were analyzed, which corresponds to the period of almost ten years before starting the project (9 years and 11 months), due to the availability of cartographic information. The estimate of forest degradation was calculated taking two historical periods, the year 2008-2014 and 2014-2018.

5.4.2 Estimating REDD+ project reductions

Table 10. Estimation of emission reductions during the project crediting period.

Number of years	Year	Reduction of Emissions Deforestation (tCO ₂)	Emissions from Deforestation in Leakage Area (tCO ₂)	Net Deforestation Emissions Reduction (tCO ₂)	Reduction of cumulative net deforestation emissions (tCO ₂)	Reduction of Emissions Degradation (tCO ₂)	Emissions Degradation Leakage Area (tCO ₂)	Cumulative net avoided degradation emission reductions (tCO ₂)	Total Net reductions (tCO ₂) (deforestation + degradation avoided)
1	07-2018	39.689,7	1.125,7	38.564,0	38.564,0	5.382,0	667,4	4.714,7	43.278,7
2	2019	98.177,5	2.683,9	95.493,7	134.057,7	12.849,9	1.586,0	15.978,6	106.757,6
3	2020	98.627,1	2.641,3	95.985,8	230.043,5	12.690,0	1.548,7	27.119,8	107.127,0
4	2021	98.262,8	2.599,4	95.663,4	325.706,9	12.532,0	1.512,4	38.139,5	106.683,0
5	2022	62.125,8	2.558,2	59.567,6	385.274,5	12.376,0	1.476,8	49.038,6	70.466,8
6	2023	60.312,2	2.517,7	57.794,5	443.069,0	12.221,9	1.442,2	59.818,4	68.574,3
7	2024	58.551,5	2.477,8	56.073,7	499.142,7	12.069,8	1.408,3	70.479,9	66.735,2
8	2025	56.842,2	2.438,5	54.403,7	553.546,3	11.919,6	1.375,2	81.024,3	64.948,0
9	2026	55.182,8	2.399,8	52.782,9	606.329,3	11.771,2	1.342,9	91.452,6	63.211,2
10	2027	53.571,8	2.361,8	51.210,0	657.539,3	11.624,7	1.311,4	101.765,9	61.523,3
11	2028	52.007,9	2.324,4	49.683,5	707.222,8	11.480,0	1.280,6	111.965,3	59.882,9

Number of years	Year	Reduction of Emissions Deforestation (tCO ₂)	Emissions from Deforestation in Leakage Area (tCO ₂)	Net Deforestation Emissions Reduction (tCO ₂)	Reduction of cumulative net deforestation emissions (tCO ₂)	Reduction of Emissions Degradation (tCO ₂)	Emissions Degradation Leakage Area (tCO ₂)	Cumulative net avoided degradation emission reductions (tCO ₂)	Total Net reductions (tCO ₂) (deforestation + degradation avoided)
12	2029	50.489,6	2.287,5	48.202,1	755.424,8	11.337,1	1.250,5	122.051,9	58.288,6
13	2030	49.015,6	2.251,3	46.764,4	802.189,2	11.195,9	1.221,1	132.026,7	56.739,2
14	2031	47.584,7	2.215,6	45.369,1	847.558,3	11.056,6	1.192,4	141.890,9	55.233,3
15	2032	46.195,6	2.180,5	44.015,1	891.573,4	10.918,9	1.164,4	151.645,4	53.769,6
16	2033	44.847,0	2.145,9	42.701,1	934.274,5	10.783,0	1.137,1	161.291,3	52.347,0
17	2034	43.537,7	2.111,9	41.425,9	975.700,4	10.648,8	1.110,4	170.829,8	50.964,3
18	2035	42.266,7	2.078,4	40.188,3	1.015.888,7	10.516,3	1.084,3	180.261,7	49.620,3
19	2036	41.032,8	2.045,5	38.987,4	1.054.876,0	10.385,3	1.058,8	189.588,3	48.313,9
20	2037	39.834,9	2.013,0	37.821,9	1.092.698,0	10.256,1	1.033,9	198.810,4	47.044,0
21	2038	38.672,0	1.981,1	36.690,9	1.129.388,9	10.128,4	1.009,7	207.929,1	45.809,7
22	2039	37.543,1	1.949,7	35.593,4	1.164.982,2	10.002,3	985,9	216.945,5	44.609,7
23	2040	36.447,1	1.918,8	34.528,3	1.199.510,5	9.877,8	962,8	225.860,6	43.443,3
24	2041	35.383,1	1.888,4	33.494,7	1.233.005,2	9.754,9	940,2	234.675,2	42.309,4
25	2042	34.350,1	1.858,5	32.491,7	1.265.496,8	9.633,4	918,1	243.390,6	41.207,0
26	2043	33.347,3	1.829,0	31.518,3	1.297.015,1	9.513,5	896,5	252.007,6	40.135,3
27	2044	32.373,8	1.800,0	30.573,8	1.327.588,9	9.395,1	875,5	260.527,2	39.093,4
28	2045	31.428,7	1.771,5	29.657,2	1.357.246,2	9.278,2	854,9	268.950,5	38.080,5
29	2046	30.511,2	1.743,4	28.767,8	1.386.014,0	9.162,7	834,8	277.278,3	37.095,6
30	2047	29.620,5	1.715,8	27.904,7	1.413.918,7	9.048,6	815,2	285.511,7	36.138,1
31	06-2048	16.774,2	985,0	15.789,2	1.429.707,9	5.212,6	464,4	290.259,9	20.537,5
Annual average (tCO ₂)				47.656				9.675	57.332
Total (tCO ₂)									1.719.967

6 BASELINE SCENARIO AND ADDITIONALITY

For the identification of the baseline scenario, the changes in the carbon stocks in the project boundaries were considered as criteria, establishing the most likely land use at the beginning of the project and according to the steps established by the methodological document for the AFOLU sector, PROCLIMA REDD+ projects version 2.2, procedure adapted from the "Combined Tool to Determine the Baseline Scenario and Demonstrate Additionality in Afforestation/Reforestation Activities – Clean Development Mechanism" (EB35 Report, Annex 19).

To identify the baseline scenario, the following steps are used:

6.1 STEP 0. REDD+ PROJECT START DATE

The start date of the project is June 30, 2018. Through the granting of ample and sufficient power by the Indigenous Reservation to the company Plan Ambiente S.A.S. to develop a forest carbon project that economically recognizes the actions of the community to conserve their forests voluntarily. Subsequently, they initiate actions that include less conversion of forests to other land uses, increased territorial control to avoid forest loss, participation in programs and plans of municipal and regional entities, and other actions to advance in the implementation of the Life Plan and the Safeguard Plan, as well as the structuring of the project to officially present the conservation initiative to the forest carbon mechanisms.

6.2 STEP 1. IDENTIFICATION OF LAND USE ALTERNATIVES

In accordance with the provisions of the Methodological Document of the AFOLU sector, ProClima REDD+ Projects, the identification and selection of alternatives for land use is carried out. Through participatory workshops held with the community of the El Tigre Indigenous Reserve, current uses and trends in land use in the absence of the project were identified and can be defined as baseline.

6.2.1 Sub-step 1. Identification of likely land use alternatives in project areas

The following alternative land-use scenarios were identified for the project taking into account the conditions present in the project area:

(a) Continuation of current land use:

Historically, activities have been carried out in the territory of the El Tigre indigenous reserve that represent a strong pressure on the natural and forest resources of the region. These pressures are due to land management practices that include deforestation for the development of agricultural and livestock systems, and for timber trading. Consequently, the trend of forest loss would continue in the future and the community's ability to control and manage the territory in a sustainable manner would continue to be undermined by conditions of low governance and few opportunities to generate income and provide well-being for the population.

Currently, the activities that take place in the territory include: i) subsistence agricultural and livestock activities focused on guaranteeing the food security of the indigenous community, where sugarcane, corn, cassava, chontaduro, soybeans, plantains, bananas, cocoa, coffee, yams, chili peppers, as well as harvesting activities are mainly produced; (ii) livestock activities for marketing; (iii) clearing of the forest for the marketing of timber and non-timber products.

(b) REDD+ projects without certification of emission reductions

The communities of the El Tigre Indigenous Reserve could implement the activities of the REDD+ project, without registering the project with a carbon market. The community has an interest in preserving its territory and protecting its culture, so the willingness to move forward with activities that contribute to avoiding forest loss is evident in the community.

REDD+ activities include efforts to maintain subsistence strategies that do not threaten the integrity of forests, to exercise a constant presence in the territory, and to exercise greater control over its natural resources to prevent the extraction of forest resources and reduce pressures on the forest, whether from external or internal actors in the reserve.

(c) Increase in the establishment of agricultural systems compared to the historical trend

The region of the department of Meta is conceived as an area of strategic importance for the development of forestry, aquaculture, agriculture and ecotourism activities. This department is also part of the eastern plains of the country, which is an area considered a world reservoir of hydrocarbons and gas (PND, 2014-2018). The National Development Plan 2018-2022 is strengthening the connection of this region through the development and adaptation of roads, and through the improvement of communications infrastructure. It is also promoting productive transformation and encouraging the process to involve proper management of natural resources, especially water resources. Finally, the continued deforestation of forests in the department of Meta is a concern for the national government, which recognizes the need to implement programs and projects that result in less pressure on the forests of this region of the country, but efforts to control this phenomenon so far are incipient and deforestation continues to increase in the project area and in the reference region.

Considering these elements, and analyzing the dynamics of forest loss in the project area, the third scenario is that current land-use activities continue, but there is an increase in

the historical trend observed in the establishment and expansion of agricultural activities by settlers and new immigrants. This situation can be confirmed in the deforestation trend observed in the project area and the reference region in 2017 compared to previous years. If the deforestation observed in that year continues, the forest cover of the project area would be lost faster than expected. The exponential increase in agricultural development would offer some job and income-generating opportunities to the members of the indigenous community, which, added to the low capacity of this community to control and restrict the entry of outsiders into the territory of the reservation, compromises the possibility of effectively combating the drivers of deforestation.

6.2.2 Substep 1b. Consistency of land use alternatives with applicable laws and regulations

The scenarios that have been proposed may occur in the future considering the historical conditions, land use, economic trends and current practices in the territory. Activities in these scenarios involve changes in land use and the conversion of forests to other land uses. Although there are laws that regulate the use of natural resources and the change of land use, it is also true that in the territory of the project it is evident that the national, regional and local government lacks the means and sufficient actions to fully enforce the laws and impose the parameters defined in them.

Scenario a: Continuation of current land use.

It involves the loss of forest to the expansion of grazing areas, the establishment of subsistence farming systems, and the commercialization of timber that have occurred historically. Although the expansion of the agricultural frontier and the extraction of forest resources have regulations that limit their development, in the project area and the reference region they have occurred consistently and it is observed that there is no systematic application of the existing regulatory framework. This scenario can then be maintained in the future and corresponds to the Baseline scenario.

Scenario b: REDD+ projects without emission reduction certification

It involves all the activities of the REDD+ project but without registering the project with a carbon market to certify emission reductions. All activities comply with and comply with the applicable national regulations, as explained in the section describing REDD+ activities.

Scenario c: Increase in the expansion of the agricultural frontier compared to the historical trend.

The activities that currently occur in the territory can continue to be carried out, and the exponential increase in livestock activities and the consequent expansion of the agricultural frontier is occurring in this region of the country, and consequently, this trend can be maintained in the future. The process of productive development and transformation of the region is also covered by the National Development Plan 2014-2018 (DNP, 2014 - 2018).

6.3 STEP 2. BARRIER ANALYSIS

6.3.1 Sub-step 2. Identification of barriers that would impede the implementation of the project

The following describes the barriers that may prevent the implementation of the REDD+ project, but that do not prevent the implementation of the land use alternatives considered in the scenarios that are proposed. These barriers prevent the REDD+ project from taking place, if the project is not registered on the carbon market.

- Investment barriers: In this region there are no sources of financing available for the development of the activities of the REDD+ project (establishment of sustainable production systems and economic alternatives to reduce pressure on forests, strengthening of governance and cultural identity of indigenous communities, monitoring of biodiversity). Indigenous communities do not have access to investment credits, and the government does not have sufficient resources to implement activities to ensure proper management of the territory and offer economic alternatives that do not involve deforestation and meet the basic needs of indigenous communities. The simple financial analysis of the El Tigre Project is attached to show that without the sale of the certificates, the REDD+ Project could not be implemented (see *ELTIGRE Financial Analysis v1* in the *PDD* folder). The results of the community surveys are also attached (see the *El Tigre Consolidation Surveys* file, located in the *Workshop 1* folder) as evidence of the difficulty in accessing government funds or financial institutions for the development of REDD+ activities.
- Institutional barriers: This barrier consists of the low capacity of the national government to enforce laws related to land-use change and the use of forest

resources. It is practically non-existent in the project area, which limits the possibility of exercising effective control of compliance with the regulatory framework. Likewise, historically it can be seen that the government's actions to control the advance of the agricultural frontier are insufficient and have not been successful to date. It is also true that the great efforts for the productive transformation of this region involve the productive sectors, private companies and other actors, but indigenous people are not part of the target population of these interventions. As evidence of this barrier, the *El Tigre Consolidation Surveys* file is attached, which shows that government absenteeism makes it impossible to implement the laws that protect Colombian forests at the local level. The National Development Plan (Annex 12.2 of the National Development Plan 2014-2018 Volume 2 internet), which is part of the documents in the folder *Agreements, Legal Representation, General Info. El Tigre*, is also an example of the productive approach implemented by the national government in the administrative jurisdiction where the reservation is located, and the scarce participation of indigenous peoples in regional productive development can be corroborated. The results of workshop 1 held with the communities (Annex 8.3 Taller_El_Tigre_Árbol_Problemas), which identify the absence of government support for the development of the activities of the reservation, are also provided as evidence.

- **Barriers of social conditions:** The social conflict that arises between the indigenous community and the settlers and external actors (e.g., armed groups outside the law) associated with immigration processes, illegal occupation of indigenous territory and the development of generalized illegal practices, are part of the situations that affect the implementation of actions that change the trend of historical land use. Settlers and other actors have the economic resources to invest in the establishment or expansion of productive systems that affect the forest. For indigenous people, this represents employment and income-generating opportunities. Although indigenous people have an interest in conserving their territory and the forests present, they see the need to allow and eventually participate in the development of activities that affect the forest. At the same time, the lack of technical capacities in the indigenous community and of solid productive partnership mechanisms limits the community's possibilities to control the activities that threaten the forests in its territory. As part of the evidence of social barriers, the results of workshop 1 also present a description of the relationship of indigenous people with settlers and their relationship to historical trends in deforestation. These primary sources of information were

combined with documents from studies carried out in the El Tigre Reservation and others that address deforestation in this region (Plan Safeguard Sikuaní_El Tigre 2013; Characterization of the Sikuaní people; PRELIMINARY STUDY RESGUARDO EL TIGRE - URT; Recent deforestation amazonia_2021_Cátedra R. BOTERO: these documents are located in the folder *Agreements, Legal Representation, General Info.*

6.3.2 Substep 2b. Demonstration that barriers would not prevent the implementation of at least one of the identified land-use alternatives

The matrix presented below summarizes the analysis to demonstrate that the identified barriers would not impede the future land-use scenarios proposed in step 1b.

Scenario	Barrier Type			Analysis and implementation of the scenario
	Investment	Institutional	Social	
A	No	No	No	The identified barriers do not affect the occurrence of this scenario, since the continuation of the trend in land use has occurred despite the existence of the conditions indicated as barriers.
B	Yes	No	No	The only barrier that prevents the development of REDD+ activities, without being a REDD+ project, is the lack of economic resources to implement them. Social and institutional barriers can be overcome if investment resources are available.
C	No	No	No	This scenario can also occur and the identified barriers would not affect it. Taking into account that historical land use activities are maintained and that the expansion of the agricultural frontier observed in the last year of the reference period significantly exceeds the annual average that had been occurring in previous years, then it is possible that the expansion of the agricultural frontier will continue at this accelerated pace without being affected by the aforementioned barriers.

Taking into account that scenario a and c may occur in the absence of the REDD+ project, and that according to the evidence, the projection on land use in the project area involves the continuation of the activities that have been presented historically, Scenario a-

Continuation of current land use is chosen as the baseline scenario and the most conservative scenario.

6.4 STEP 3. IMPACT OF PROJECT REGISTRATION

The barriers identified can be overcome through the benefits and incentives that derive from the registration of the project with the carbon market and the subsequent commercialization of the Verified Carbon Credits (CCV).

The indigenous community does not have access to bank credit or financial support from the government. It is also true that REDD+ activities do not offer a significant return and the focus of the project is on the conservation of territory and cultural identity. The activities of the REDD+ project can only be sustained and scaled up if resources are obtained through the sale of the CCVs. Recognising the reduction in emissions from deforestation and forest degradation associated with the project's interventions is a unique opportunity to generate the income necessary for the sustainability of the project.

Social and institutional barriers can be overcome as the community acquires greater management capacity and its territorial governance increases. The proceeds from the sale of the CCVs will be invested in activities aimed at achieving these conditions in the community. Strengthening the social fabric, cultural identity and improving the livelihoods of the indigenous community are tools to fight against the activities that threaten the forest in their territory and the weakness of the national government to offer the means and the necessary help to guarantee the sustainable development of this community.

To the extent that the project activities are implemented and the GHG emission reductions obtained are recognized, the CCVs can be sold and the community will be able to invest resources in activities that reduce the incidence of the identified barriers and contribute to the sustainable development of the community. Considering that the REDD+ project scenario does not correspond to the baseline scenario, it is correct to state that the project is additional.

7 CAUSES AND AGENTS OF DEFORESTATION AND/OR DEGRADATION

The identification of the causes and agents of deforestation and forest degradation in the project area is essential to: i) design the relevant actions and measures of the REDD+ project to mitigate deforestation and forest degradation and ii) delineate the reference region.

The spatial analysis of deforestation agents was carried out based on the Conceptual and Methodological Guidelines for the Characterization of Causes and Agents of Deforestation in Colombia (IDEAM, MADS and UN REDD, 2018). Deforestation and post-deforestation land use analyses were used as inputs, as well as field interviews with community members. It was identified that in spatial terms, deforestation activities are mainly located in: areas continuous to areas of agricultural production, near streams and rivers, near housing or in areas deep in the forest. The magnitude of forest loss in the reference area, the leakage area, and the project area are presented in Table 5.

As part of the analysis, it was also identified that the most relevant post-deforestation uses are the following: secondary or transitional vegetation (85%), clean pastures (10%), crops (1%) (El Tigre CLC Cover Changes Matrix files; CORINE LAND COVER EL TIGRE 2008 and CORINE LAND COVER EL TIGRE 2018). This information is the basis for understanding the historical background, current dynamics and possible future trends associated with deforestation and was incorporated into the information provided by the community and regional studies associated with deforestation dynamics to define the comprehensive strategy against deforestation within the framework of the El Tigre REDD+ Project.

The influence and relationship of the settlers with the members of the community is contemplated in the structuring of the project, in the definition of the boundaries of the project and is part of the basis for defining the comprehensive strategy against deforestation that is developed through REDD+ activities, all of which is described in the respective sections of the DDA and in the answers that precede this point. Currently, there are no settlers in the El Tigre reservation, as already clarified in answer 4. Its spatial location is limited to the leakage zone and its relationship with deforestation dynamics is addressed through the delimitation of the leakage area. The intervention model of the project contemplates the need to decouple the participation of community members in deforestation activities promoted by external agents (settlers), offering alternatives for sustenance, work, education and social investment. This model has been developed hand in hand with the community and is based on a principle of theory of change that starts from satisfying the immediate needs that lead to unwanted activities (deforestation) and proposing mechanisms in the short and medium term that ensure the sustainability of the favorable conditions of the change made (food, food, etc.). income and development expectations).

In the field visits carried out and accompanied by the Governor, leaders, captains and other members of the community of the El Tigre indigenous reservation, all aspects related to the conservation of the forests in the territory were identified, as well as the practices developed in the intervened soils, since this is what determines the characteristics of the relationship of the inhabitants with their environment. It was evidenced that there are internal agreements between the indigenous communities (of a verbal nature) aimed at improving the ecosystems of the territory. An example of this are the actions to strengthen ancestral practices, where they seek to maintain their uses and customs accompanied by a passive natural conservation and recovery mechanism (described in greater detail in answer 2, associated with the start date of the Project).

The area has seen a decline in the heyday of coca cultivation and an increase in cattle ranching practices, encouraged by oil companies and outside settlers. Peasant communities and armed actors participated in a regional economic development that boomed around marijuana (1975), coca in the 1980s and 1990s, and cattle ranching (to date). However, this behavior has diminished in recent years and the characteristics of soil management by indigenous people in the territory have turned to protection, as well as to a greater exercise of territorial control. In any case, the El Tigre REDD+ project recognizes, within the analysis of causes and agents of deforestation and degradation, the definition of the limits and of REDD+ activities, the direct and indirect relationship of indigenous communities with settlers whose spatial location begins outside the limits of the reserve.

7.1 SPATIAL AND TEMPORAL DIMENSIONS

The deforestation and degradation present in the reference region were characterized spatially and temporally. The analysis was also carried out for the project area, taking as a reference the same historical period of deforestation between 2008 and 2018. To analyze the degradation, the periods 2008-2014 and 2014-2018 were taken as a reference, as required by the Proclima methodology. The map showing the spatial and temporal analysis corresponds to Map 6 in section 5.1.

7.2 CONTEXT

7.2.1 Territorial context

The El Tigre Indigenous Reservation is located in the megadiverse region of the transition between the Colombian Amazon and Orinoquia in the department of Meta. These

territories are characterized by savannah areas and forest cover that, when occupied by the members of the community, requires the clearing of vegetation for the establishment of homes and crops for self-consumption. Although the project area is owned by the members of the Indigenous Reservation, there is also the presence of other actors such as settlers and actors outside the law. Settler and indigenous families tend to settle in different areas of the territory, indigenous people prefer to settle in areas with little intervention, while settlers tend to settle in more open or cleared areas. Historically, there has been conflict between the Sikuni community, who have seen their nomadic tradition restricted so as not to lose their territory to settlers and other actors. The interaction between indigenous peoples, settlers and groups on the fringes of the lay has been mediated mainly by the fear and limitations of indigenous people to defend their culture and territory. Settlers and external agents are usually the ones who have working capital and resources to invest in productive activities, and indigenous people benefit from the work opportunities (licit and illicit) offered by these groups in the territory.

Forests are generally forest reserves and are considered sacred sites. The most representative tree species of the community are the Palms, the Charcoal Burner, the Caimo, the Jigua, the Guasco and the Sande.

7.2.2 Socio-cultural context

"The Sikuni are original inhabitants of the plains of the Orinoco River Basin of Venezuela and Colombia and their ancestral territory is demarcated in the worldview transmitted through oral tradition that points out the places of origin of their world and culture." (Ministerio del Interior & Organización Nacional Indígena de Colombia, 2013)

According to the 2005 DANE Census, 4,966 people self-identified as belonging to the Sikuni people in the department of Meta were reported, corresponding to 25.1% of the total Sikuni population. As the largest indigenous people in the Orinoquía region, they have become a social force in the region.

The following table presents some demographic indicators of the Sikuni people of the Orinoquia region.

Table 11 Demographic indicators of the Sikuni people

Indicators	Total		Men		Women	
	Value	%	Value	%	Value	%
Population	19.791	100%	10.118	51,1%	9.673	48,9%

Indicators	Total		Men		Women	
	Value	%	Value	%	Value	%
He speaks the language of his people	14.452	73,0%	4.416	51,3%	7.036	48,7%
Some studies	10.561	62,1%	5.608	53,1%	4.953	46,9%
Illiteracy	5.731	29,0%	2.738	47,8%	2.992	52,2%
Fasting Days	1.777	9,0%	909	51,2%	868	48,8%

Taken from: . Table prepared based on the 2005 DANE Census (Ministerio de Cultura, 2012)

Specifically, The El Tigre reserve, in the municipality of Puerto Gaitán, has an area of approximately 42,063 hectares and a population of 1,800 inhabitants, distributed in 14 communities. (Ministerio de Cultura, 2012)

The social structure of the Sikuani people practices endogamy as a mechanism of self-regulation and maintenance of clans, however lately this tradition has been lost. Each clan is associated with an animal of the region such as the newete (tiger), jüra (parrot), papaloü (monkey), namo (fox), metsaja (tapir), among others. The physical characteristics of these animals and their particular abilities are attributed to the people belonging to each clan. (Ministerio de Cultura, 2012)

The highest authority of the reservation is the Indigenous Assembly, made up of all persons registered, belonging to or recognized as members of the community. In its own right, the Indigenous Assembly meets ordinarily every year to, among other activities, elect the members of the Cabildo, i.e., the cacique, the governor, the captain, the treasurer, the secretary and the prosecutor. The Cabildo Indígena is the entity that officially represents the community and is elected by the Indigenous Assembly for a period of one year or for an indefinite period, since its validity before the community depends on its performance in the assigned tasks, its honesty and responsibility to others. This body is responsible for preserving public order within the community and enforcing the laws of the reservation, which are mandatory for all members. The cabildo is the interlocutor with the regional organization, the state institutions and is responsible for planning joint activities with the state.

The decisions of the reservation assembly are made in a democratic manner. This means that the decision supported by the majority of the captains' representatives is the one that is implemented for the safeguard. Decisions are not made with 100% approval, as it would be practically unfeasible to have this criterion to approve decisions at the level of the reservation. A clear example of this mechanism can be seen in the election of the governor and the other positions of the Indigenous Council, which is done in an assembly held every

year and the results that are observed by democratic means are firm, even if absenteeism is presented, being recognized by the Ministry of the Interior and the departmental and municipal authorities. This is how the self-governing structure of this community works, and this is recognized by the national government.

In the case of the El Tigre REDD+ Project, the calls for the workshops and the assembly were processed through the Governor of the Resguardo, where it was expressly requested that community leaders be summoned to develop the scheduled meetings (see files in the subfolder Evidence Calls, folder Workshops – Monitoring). Attendance at each of the events was always optional for all leaders and it was observed that 80% of the leaders participated in at least one of the events convened and an average simple majority in each of the workshops. People from the community also participated, as evidenced by the attendance lists of all events.

Kuwai Watsulubani is the greatest deity of the Sikuaní people. He guides the people through his intermediaries, the traditional doctors. To these, he teaches the prayers of healing, enhances their healing energy and directs their actions for the well-being of the people. Knowers are trained over periods of 3 to 5 years. Her singing is the bridge of communication with the higher powers, who transmit the knowledge about the healing plants and fills the doctor with strength and energy. Dreams are also a source of knowledge, because through them they establish new bonds with the deities. There are three types of traditional doctors: blowers, maraqueros, and herbalists. The Sikuaní people mainly use the seed of the yopo (*Anadenanthera Peregrina*) to see and cure diseases.

The communities of the Sikuaní people, including the El Tigre Indigenous Reserve, present difficulties in terms of territory, health, education, and food due to the lack of investment by the government in this region and the lack of institutionality.

Currently, the biggest socioeconomic problems faced by the community of the Indigenous Reservation have to do with:

- Lack of coverage from telecommunications companies
- Lack of investment by the State in infrastructure, since the few existing roads are in poor condition and there is no public transport.
- In addition to traditional medicine, there is no presence of health personnel or infrastructure
- Few job opportunities
- Insufficient investment in education (infrastructure and teachers)

- Non-existent basic sanitation infrastructure and high contamination of water bodies by waste disposal.

7.2.3 Economic context

According to the Sikuaní Safeguard Plan, economic activity in Meta is mainly focused on agriculture, livestock and trade. Likewise, in recent years there has been an increase in the large cultivation of African palm, rubber, sugarcane (for the production of ethanol), soybeans and corn as raw material for the production of animal concentrates, which in turn complements and promotes pig farming, poultry farming and fish farming. In the same way, there is a high presence of oil activity, which are located within or are neighbors of some indigenous territories. (Ministerio del Interior & Organización Nacional Indígena de Colombia, 2013)

In the territory of the El Tigre Indigenous Reserve, subsistence agriculture is practiced in the so-called topocheras and conucos. The first is the area dedicated exclusively to the cultivation of topocho (a variety of plantain typically from the plains), plantain and banana; The second is made up of a variety of products planted in a dispersed manner, among which cassava, corn, fruit trees (mango, soursop, guama, mamoncillo, lemon, chontaduro, chili), and where the cultivation of wild cassava is the main one. (Ministerio de Cultura, 2012)

To establish the conucos, they cut down small areas of forest and annually burn the land. Hunting is practiced throughout the year in the forests, where they find turkeys, redfish, loggerheads, deer, monkeys, chigüiros, borugas, guatiles, charapas, armadillos, matches and gures; In the waters they fish for cuchas, dentex, jachos, sardinatas, nicuros, capaz and bocachico. During the summer, a time of greatest abundance due to the low river, terecay and charapa turtle eggs are collected.

From the forests they obtain raw materials for the production of mats and basketry or for domestic use such as firewood for cooking and for the construction and improvement of houses, boats, roads and bridges.

The community's economic activity is limited to subsistence activities, as there are few opportunities and capacity to connect with regional and national markets. On the other hand, in the municipalities of Puerto Gaitán and Puerto Trujillo, cattle ranching activities are carried out for commercial purposes (mainly carried out by settlers), as well as there is a high incidence of oil activity in the region and the presence of illicit crops by groups outside the law.

7.2.4 Historical Context

The community of the El Tigre Indigenous Reserve, belonging to the Sikuaní people, is characterized by a history of nomadism that determined its extensive settlement pattern. The Sikuaní were an ethnic group quite reluctant to contact with the foreigners who arrived in the region since the seventeenth century, their nomadic condition allowed them to resist the attempts of reduction by the missionaries. However, they suffered incursions by the Portuguese and Dutch who were looking for slaves to trade in the Guianas or on the plantations of Brazil. (Ministerio de Cultura, 2012)

After independence and the establishment of the Republic, large cattle ranches and natural resource extraction companies were established in the Sikuaní territory. The territories began to have owners through herds, haciendas, estates and farms. Thus, the indigenous ancestral territories were invaded without any control and the environment began to be transformed according to the interests of the settlers. To deal with this situation, the Sikuaní people reacted by attacking farms and towns, to which the settlers responded by 'exterminating' the indigenous people. At that time, the term "guahibiar" was introduced to describe the widespread practice of hunting Indians, which continued in the plains until the mid-20th century. (Ministerio de Cultura, 2012)

Then, during the 20th century, due to the policies of the Agrarian Reform, the territories of the Sikuaní people were totally invaded as wastelands. The indigenous community was not recognized as having possession of the territory because it did not have permanent settlements (given its nomadic or semi-nomadic tradition). During this process, the settlers took over several of the territories of the indigenous community, which were reduced to small plots, and the indigenous owners were subjected to work as day laborers. At the same time, the Violence of the 1950s encouraged migration to the plains as a territory of refuge, causing the displacement of the region's indigenous people (Jiménez, s.a.). (Ministerio de Cultura, 2012)

From colonization onwards, these people have been victims of human rights violations and breaches of IHL, mainly due to the arrival of guerrillas and paramilitaries and the establishment of military bases in their territory, causing territorial conflicts by these armed groups.

Given this social conflict, the religious missions, the actions of armed groups outside the law, the presence of illicit crops and the presence of settlers in their territories, a cultural weakening has been generated despite the fact that the community has fought hard to keep its traditions alive and to maintain social cohesion as an indigenous people.

In the past, the Sikuaní people's form of settlement consisted of forming small intermittent population centers consistent with their permanent mobility. Currently, the Sikuaní settle sedentary in places with easy access to water sources where they carry out part of their daily internal life. Its current form of settlement is characterized by a group of houses of no more than twenty, in the center of which is located a large house that is used to carry out traditional activities and community meetings.

For the department of Meta, the massive displacement of families is due to factors such as the lack of opportunities, projects, the economy, the armed conflict and the danger of recruitment of young people by groups outside the law. Thus, the violence that has the insurgency, the security forces, and the paramilitaries as actors has implied the violation of indigenous communities' human rights (Ministerio del Interior & Organización Nacional Indígena de Colombia, 2013)

7.3 KEY ACTORS, INTERESTS AND MOTIVATIONS

The main drivers of deforestation identified in the reference region and in the project area are similar, including:

- Indigenous.
- Settlers.
- Actors on the fringes of the law

Community of the El Tigre Indigenous Reserve:

- Agricultural producer with traditional crops for self-consumption.
Interest: economic – self-consumption.
- Extraction of wood for self-consumption.
Interest: economic – self-consumption.

Settlers:

- Agricultural producer with crops (licit and illicit).
Interest: economic – accumulation of wealth in unregulated markets.
- Livestock producer with dual-purpose cattle for sale.
Interest: economic – subsistence and/or accumulation of wealth in regulated markets.

Armed Agents:

- Agricultural producer with coca crops (he grows coca crops as his main source of income).
Interest: economic – accumulation of wealth in unregulated markets.

Oil companies

- Exploration and extraction of resources in the territory of the Eastern Plains.
Interest: economic – accumulation of wealth in markets.

Regarding the direct causes of deforestation, the following are identified:

- Expansion of the agricultural frontier.
- Establishment of agricultural crops.
- Extraction of wood for self-consumption.

Table 12. Key actors, motivations and interests.

ACTOR	SCOPE	MOTIVATIONS AND INTEREST	LOCATION OF DEFORESTATION
Livestock producers with beef cattle for sale	Direct and indirect	Economic Interest for Wealth Accumulation in Unregulated Markets	Expansion of the production area Close to streams and rivers Near the house
Livestock producers with beef cattle for self-consumption	Direct	Economic interest for self-consumption	Expansion of the production area Close to streams and rivers Near the house
Livestock producers with dual-purpose livestock for self-consumption	Direct	Economic interest for self-consumption	Expansion of the production area Close to streams and rivers Near the house
Intermittent agricultural producers	Direct and indirect	Economic Interest for Wealth Accumulation in Unregulated Markets	Expansion of the production area

ACTOR	SCOPE	MOTIVATIONS AND INTEREST	LOCATION OF DEFORESTATION
		Subsistence economic interests	Close to streams and rivers Deep into the woods
Extractors for self-consumption	Direct	Subsistence economic interests	Close to streams and rivers Near the house

7.4 ECONOMIC ACTIVITIES AND THEIR IMPORTANCE

- Subsistence agricultural and livestock production:** The communities of the El Tigre Indigenous Reservation practice subsistence agriculture in topocheras and conucos (See section 7.2.3). This activity has generated an intensive use of gallery forests, which has meant a decrease in species and cover. The main crops are:
 - Plantain
 - Fruit species (mango, soursop, chontaduro, lemon, mamoncillo, guama)
 - Corn
 - Manioc
 - Dual-purpose livestock farming
- Fishing, gathering and hunting activities:** Subsistence activities that have been affected by the conflict over territory with settlers. This has caused the indigenous community to wait and be in search of new markets that incorporate new foods into their diet.
- Illicit crops:** Mainly coca crops. This activity has been carried out by actors outside the El Tigre Indigenous Reserve, mainly by illegal armed groups and by some settlers. This activity has resulted in the national government using fumigation strategies (aerial and manual) with great repercussions and effects on the territory.

Table 13. Summary of activities associated with deforestation and their importance.

Activity	Economic Importance	Socio-cultural significance
Subsistence crop and livestock production	Casualty	Loud
Agricultural production for surplus generation	Stocking	Casualty
Livestock production for sale	Loud	Casualty

Activity	Economic Importance	Socio-cultural significance
Extractors for self-consumption	Casualty	Stocking

7.5 DIRECT AND INDIRECT IMPACT

Then, according to the socialization workshops carried out with the community, the direct and indirect impact on the forest is identified, as a result of the different activities that are developed in the territory and in the project area.

Table 14 Impact on the forest

ACTIVITY	IMPACT	DESCRIPTION	ACTOR
Agricultural production for self-consumption	Direct	Direct impact on gallery forests. Loss of cover due to deforestation (for land) and soil burning	El Tigre Indigenous Community Settlers
Livestock production for self-consumption	Direct	Loss of cover for the establishment of land for livestock	El Tigre Indigenous Community Settlers
Agricultural production to generate surpluses	Direct	Direct impact on gallery forests. Loss of cover due to deforestation (for land)	Settlers
Livestock production for sale	Direct	The expansion of areas for cattle ranching is the main cause of deforestation in the area.	Settlers
Extraction of wood for self-consumption	Direct	Loss of coverage for subsistence resources (firewood). There are no large commercial timber harvesting activities	El Tigre Indigenous Community Settlers
Illicit crops	Direct	Removal of cover for the establishment of illicit crops. It brings as a side effect fumigation activities.	Armed Groups Settlers Indigenous

7.6 RELATIONSHIPS AND SYNERGIES

Elements that affect land use change:

Expansion of the agricultural frontier and establishment of crops for the generation of productive surpluses.

Actors:

Indigenous communities clear the territory for the establishment of traditional crops and livestock for their own consumption. The settlers, for their part, also clear forested areas for the establishment of cattle ranching and agriculture. In addition, the settlers are the main owners of the cattle present in the area and need to clear areas of forest to establish new grazing areas.

The establishment of small-scale crops to generate surpluses also leads to forest loss. The settlers participate in this activity mainly encouraged by the opportunity to market products and earn income for their livelihood.

The geographical location of the Reservation and the characteristics of the access roads represent a limitation to connect the territory with secondary cities and other points of commercialization of goods and services. The distances between these points are wide, the land roads are in poor condition and the main means of transport require fuel, which implies a high cost for the movement of goods. On the other hand, the high cost of fuel affects productive development and makes most agricultural initiatives in this region unviable. The supply of electricity in the territory is limited and in some areas non-existent, which means that there are no refrigeration systems and it is not possible to produce and distribute products that require maintaining low temperatures to maintain their quality. Likewise, the low availability of agricultural incentives (access to loans, low market prices, high cost of inputs, difficulty in accessing technical assistance programs, among others) and the absence of productive chains limit the opportunity to generate income and promote sustainable development for the communities of the Resguardo.

7.7 CHAIN OF DEFORESTATION AND DEGRADATION EVENTS

Table 15. Chain of deforestation and degradation events.

Underlying Cause	Agent Involved	Direct Cause
Communities have historically used subsistence production systems to meet food security requirements. Cover removal and burning techniques are employed.	Agricultural producers for self-consumption.	Agricultural production for self-consumption

Underlying Cause	Agent Involved	Direct Cause
Communities have historically used subsistence production systems to meet food security requirements.	Livestock producers with beef cattle for self-consumption.	Livestock production for self-consumption
Communities have historically required subsistence production systems to meet food security requirements.	Livestock producers with dual-purpose livestock.	Livestock production for self-consumption
Cattle ranching is a profitable economic alternative in the region. There is a market and the commercialization of the products derived from this activity is currently carried out by actors external to the indigenous community, therefore, it is an attractive activity for the population of this area. The availability of large tracts of land at low cost for this type of activity facilitates its development.	Livestock producers with beef cattle for sale.	Livestock production for sale
The low presence of the state in the territory facilitates the development of irregular activities. There is a market and the possibility of commercialization of products for illicit use and it is therefore attractive to the population of these areas. The low availability of cost-effective economic productive alternatives limits the possibilities of obtaining income in the communities.	Intermittent agricultural producers.	Agricultural production for the generation of surpluses.
Lack of education and policies for the conservation and proper management of resources, as well as the lack of sanitation and decontamination systems for soil and water bodies, lead to forest degradation.	Community	Lack of education and conservation and management policies

8 REDD+ ACTIVITIES

The activities of the project were agreed with the community and in accordance with the objectives and components of survival and survival stipulated by the Sikuaní Safeguarding Plan, and in the Life Plan, which takes into account the principles of autonomy, cultural identity and self-government, family and community organization and their vision of health, education and social welfare. Likewise, they respond to the concepts of worldview

of the territory, environment and nature of the community. The Safeguard Plan establishes strategic axes that the activities of the REDD+ project seek to strengthen in the short, medium and long term. that the Sikuani people include in their life plans. Within the framework of the development of these activities, it is hoped that they will help to overcome the shortcomings that the community presents in administrative and planning issues (Ministry of the Interior & National Indigenous Organization of Colombia, 2013)

These activities are formulated in order to provide development options that allow overcoming the problems of the territory, economy and food sovereignty of the community of the Indigenous Reservation of El Tigre, articulating different sources of financing and resources such as municipal, departmental and regional development plans, as well as those coming from private organizations. effectively integrating all actions aimed at contributing to the conservation of the territory and community development, under a single framework of action that corresponds to the REDD+ Project.

8.1 LOCATION OF THE AREAS TO BE INTERVENED IN PRODUCTION SYSTEMS

According to the community structuring exercises of the REDD+ project, through social mapping and the beneficiaries of the project, the potential areas of intervention for productive activities and forest recovery are established.

Participatory workshop number two (see Workshop 2 project folder, workshop II minutes dated March 12, 2021 and photographic record), is built by the community identifying the project activities, sustainable profitable alternatives (productive system); social investment (health, education and housing); governance and monitoring; additionally, they prioritize each activity and define on average the number of families that would benefit by linking them to the activities and in the different phases of progress of the REDD+ project. The location of the interventions will be carried out according to the spatial location of the people of the community and the areas that have been recently deforested will also be taken into account as priority places for the implementation of good productive practices.

The deforestation maps show the places that have been intervened in the reference period (2008-2018) and that are prioritized within the framework of the project for the process of establishing environmentally friendly production systems and restoration processes. In the coverage map, the land uses of the areas that were deforested in the reference period can be evidenced. In the evidence of Workshop 1, the file *Taller_El_Tigre_Mapeo* you can see

the location of the communities of the reservation that are beneficiaries of the project. As criteria for selecting sites for the establishment of new crops or carrying out productive improvements, the following variables are considered: places that currently have productive coverage, places close to the beneficiary populations, characteristics of the productive system, facilities for the management of the productive system, conditions of connectivity with forest areas. Taking these elements into consideration and the interest expressed by the members of the community to participate in the productive activities (see *El Tigre Consolidation Surveys* file), the specific areas destined for these activities will be defined in the second phase of implementation of the project.

8.2 CONTRIBUTION TO NATIONAL GOALS

In terms of land use, the Amazon Regional Land Use Planning Model (MOTRA) (MADS and DNP, 2019) guides the implementation of concrete actions that lead to the resolution of existing conflicts in this area of the country. The actions prioritized to the historical conflicts in the Amazon region correspond to the following: effective articulation of territorial planning instruments, recognition of the economic and social dynamics that affect the use and occupation of the territory, the importance of protecting the main ecological structure and reducing vulnerability to climate change. Strengthen territorial governance and the articulation of urban centres with rural areas. The El Tigre REDD+ Project bases its intervention strategy and the prioritization of activities taking into account these guidelines of regional territorial planning. Recognizing that by 2030 the country expects to be internationally recognized for resolving conflicts related to land use planning, the project contributes directly to the following achievements:

- Reduce forest loss
- Reduce deforestation to zero.
- Increase community and ecosystem resilience
- Stabilize the agricultural frontier within the territory.
- Strengthen the regional integration of the territory.

At the same time, the country has set ambitious targets for reducing domestic GHG emissions. Colombia updated the Nationally Determined Contribution (NDC) at the end of 2020 and included the goal of reducing projected emissions by 51% by 2030. A large part

of the national forests, particularly in the Amazon and the Pacific, are located in indigenous reserves and Afro-Colombian collective territories and their preservation depends on the defense of ways of life appropriate to the territory. The participation of indigenous peoples is essential to protect the forests, and the participation of peasant communities is essential to transform the country's agro-productive practices and rural development, to prevent the expansion of the agricultural frontier and to safeguard food security. The El Tigre REDD+ Project promotes the active participation of indigenous people in this direction, contributing directly to the country's goal of reducing the annual deforestation rate to 50,000 ha/year by 2030, tracing a trajectory of 155,000 ha/year in 2022, and 100,000 ha/year in 2025. The historical reference rate of deforestation in the project area is equivalent to approximately 412 ha/year, and it is expected that by 2030 the project's actions will maintain a maximum of 40 ha/year. This represents a reduction of 372 ha/year, equivalent to 0.67% of the national target for 2025 and 0.35% of the deforestation reduction target for 2030. Likewise, it is expected that during the first 10 years of implementation of the project, an emission reduction equivalent to 759,305 tCO₂ will be achieved, which corresponds to a reduction of approximately 80% of the emissions that would have been generated in the absence of the project, thus contributing to the national goal of reducing emissions by 51% of the emissions projected for 2030.

8.3 HIGH CONSERVATION VALUES – HCV

For the definition of the High Conservation Values(HCV) in the project area, the biological, ecological, social and cultural attributes that stand out for the goods and services they provide were identified. For the El Tigre Indigenous Reserve, the following Conservation Values are identified:

- **Species of fauna subject to conservation:** In the project area there are several species of high cultural and natural importance, which in turn are within one of the categories of threat. For the purposes of the project, the tapir has been defined as an umbrella species. This species can be observed in the indigenous reservation and is an indicator of the good conservation status of the ecosystem. This species also has high cultural importance as they are immersed in the beliefs, worldview and ritual practices of indigenous communities. The tapir also represents a highly prized food source for the indigenous people. For these reasons, the project's activities promote the protection of this species and actions will be developed for its conservation.

- Traditional medicine: the indigenous community has a cultural wealth built over years based on the relationship between man and his natural environment. Protecting the knowledge of traditional doctors and guiding the younger generations in procedures for ethnocultural healing is essential to preserve the identity and knowledge of the ethnic communities that inhabit this region. The recognition and promotion of internal cultural knowledge related to medicine and ethnobotany are structural elements of the people's identity. However, this knowledge is continually threatened by interaction with other cultures that offer alternative healing mechanisms and affect the interest of their members in maintaining and exercising their traditional practices.
- Traditional language of the communities: The traditional language of the community in the reservation belongs to the Sikuani linguistic family. Its conservation is essential for the communities, it contributes to the preservation of the national linguistic richness and its cultural importance.
- Traditional agricultural production systems for self-consumption: In some indigenous communities, also called chagras. It corresponds to a traditional system of agricultural production of the community living in the indigenous reserve, and is the basis of food. The chagras correspond to a system in which several transitory and perennial species (cassava, cocoa, sugar cane, pineapple, among others) are cultivated in a cyclical manner; additionally, livestock and minor species breeding. Given their cultural and food importance, the project aims to preserve and contribute to the continuity in the development of these production systems.

8.4 DESCRIPTION OF THE ACTIVITIES

Activities are prioritized in four main components: productive, social investment, governance, and monitoring and biodiversity.

Component	Description
Production	Develop economic alternatives compatible with nature conservation and community well-being.
Social Investment	Contribute to improving the living conditions of the communities that live in the Indigenous Reserve.
Governance	Strengthen territorial planning and mechanisms to guarantee food security for the communities that make up the Indigenous Reserve.

Monitoring and biodiversity	Contribute to the monitoring and conservation of the biodiversity present in the area of the Indigenous Reserve.
-----------------------------	--

The following tables detail the activities that represent the implementation of the REDD+ project:

Activity ID	Activity 1 (A-1)				
Description of REDD+ activity	Development of Project Document (PDD) to access carbon markets				
Relationship between activity and direct or underlying cause	Certification is required for the activities carried out by the community to reduce land use change through the conversion or degradation of forest cover. The document management of GHG emission reduction will allow the generation of income to generate a virtuous circle in the management of the territory, so that the conservation of the forest can be sustained in the long term, while achieving the development of the community and the protection of biodiversity				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axes 1, 2, 3, 5 and 6 proposed in the Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia, considering that it is aimed at the development of economic, social and cultural activities suitable for the generation of sustainable income. It also promotes the conservation of the territory, the biological and intellectual heritage associated with the natural resources of the territory. In addition, this activity responds to the principles of survival set out in the <i>Safeguard Plan</i> , respecting the autonomy and self-government of the Indigenous Reserve.				
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservations Approval at the General Assembly.				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Local Communities: Implementers • Project Manager (Environment Plan) • Carbo-Terra: Developers & Implementers 				
Implementation Timeline	From the second year of the project.				
Indicators for reporting progress					
Name	Indicator ID	Type	Goal	Unit of Measurement	Responsible for Measurement
# of people participating in meetings, surveys or workshops on problem tree and identification of drivers of deforestation and productive systems and governance management	A-1.1	Result	The processes of identification and prioritization of production systems are carried out in a participatory manner.	Number of people	Carbo-Terra

Activity ID	Activity 1 (A-1)				
# of legal support agreements for the development and implementation of the project, including carbon credit trading	A-1.2	Result	Development & Marketing Agreements	Agreements	Carbo-Terra
Registration of a project in an emission reduction certification program	A-1.3	Result	Project Registration	Registration	Carbo-Terra

Activity ID	Activity 2 (A-2)				
Description	Strengthen the capacities of the communities for the management of prioritized production systems and development of business plans to implement productive systems that contribute to the well-being of the community and the natural environment (e.g. cassava brava, sugarcane, fish farming, cocoa and environmentally sustainable livestock, reforestation, others such as watermelon, chontaduro, pineapple).				
Relationship with a direct or underlying cause	If households have profitable productive activities, forest felling is stopped. Defining and prioritizing viable productive systems for the community is a basis for achieving economic sustainability and offering income and maintenance alternatives that counteract the opportunity cost of displacing activities that involve deforestation. Involving the community in this exercise allows us to set expectations and increase the commitment of its members to the control of activities that threaten the forest. Areas will be defined for cultivation and conservation.				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axes 4 and 6 proposed in the Plan for the Safeguarding of the Sikuni Indigenous People of the Eastern Plains of Colombia, considering that it is aimed at access to technical assistance and the development of economic activities, and production alternatives that strengthen the food sovereignty of the community of the Indigenous Reservation				
Consultation mechanism to define REDD+ action	Raising awareness and informing about the project Community Engagement and Consultation Workshops Meetings with entities and programs				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> Local Communities: Implementers Carbo-Terra: Implementers Entities & Programs 				
Implementation Timeline	Annual				

Indicators for reporting progress					
Indicator ID	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 2.1	# of people participating in meetings, surveys	Result	The processes of identification and prioritization of	# of people	Carbo - Terra

	or workshops on production systems.		production systems are carried out in a participatory manner.		
A - 2.2	# of women participating in meetings, surveys or workshops on production systems.	Result	The processes of identification and prioritization of production systems are carried out in a participatory manner.	# of women	Carbo - Terra
A - 2.3	Productive activities identified	Product	Identify at least 1 productive activity to invest with the resources generated by the project	Identified Production Lines	Carbo - Terra
A 2.4	# Elaborate business plans	Product	At least one business plan is defined to be implemented	Number	Carbo-Terra

Activity ID	Activity 3 (A-3)
Description	Strengthen the technical capacities of the community for the management of production systems and business plans, including administrative, legal and financial aspects, as well as the strengthening of forest governance management
Relationship with a direct or underlying cause	If families strengthen their capacities in terms of administrative, financial and legal management of profitable productive activities and the scaffolding that this represents, added to a strengthening of forest governance, forest felling is stopped. To the extent that the technical and operational capacities of the community for the management of productive systems are strengthened, the probability of success and permanence increases. This strengthens members' confidence and capacity to fight the opportunities associated with activities involving deforestation.
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axes 3, 5 and 6 proposed in the Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia, considering that it is aimed at the development of activities to generate and strengthen capacities for the generation of sustainable income, also allowing them to consolidate sustainable productive alternatives that support food sovereignty. and that it is in harmony with its territory, environment, nature and cultural identity.
Consultation mechanism to define REDD+ action	Raising awareness and informing about the project Community Engagement and Consultation Workshops
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers. • Local Communities: Implementers • Technical and research entities offer technical support: SENA, SINCHI, NGO, Private Sector.

Implementation Timeline	From the fourth year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 3.1	# of people involved in trainings or training days.	Result	All families (at least one per family) involved in the development of production systems and business plans participate in training or training sessions.	# of people	Carbo - Terra SENA, Technical Institutions and Entities

Activity ID	Activity 4 (A-4)				
Description	Implement or improve prioritized production systems and food security systems (e.g., sugarcane, cocoa, cassava, sustainable livestock, reforestation, chagras, cachama ponds).				
Relationship with a direct or underlying cause	If households have profitable productive activities, forest felling is stopped. The establishment and improvement of prioritized production systems allows for a reduction in community dependence on livestock and the establishment of new grazing areas and crops to generate surpluses, which will reduce the pressure on forest cover. Areas will be defined for cultivation and conservation.				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axes 5 and 6 proposed in the Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia, considering that it is aimed at the development of economic, social and cultural activities suitable for the generation of sustainable income and access to fair markets. Likewise, the objectives of adaptation, mechanization and implementation of crops defined by the indigenous communities are met, also corresponding to the implementation of projects that are considered of interest by the communities and that do not significantly impact the territories.				
Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly.				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers. • Local Communities: Implementers • Technical and research entities offer technical support: SENA, SINCHI, NGO, Private Sector. 				
Implementation Timeline	From the fourth year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement

A - 4.1	# of hectares of sustainable production systems established/improved	Result	Management measures are implemented in production systems to conserve biodiversity	Area (Ha)	Indigenous Governor Carbo - Terra
---------	--	--------	--	-----------	-----------------------------------

Activity ID	Activity 5 (A - 5)				
Description	Maintain and monitor the implemented production systems.				
Relationship with a direct or underlying cause	If households have profitable productive activities, forest felling is stopped. By carrying out maintenance and monitoring activities, positive results and continuous improvement of the production activity are promoted. Successful productive activities contribute to halting the advance of forest-threatening activities and displacing the economic dependence of community members on them.				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axes 5 and 6 proposed in the Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia, considering that this activity represents the conservation of resources and opportunities for the community, in terms of its economic practices and its relationship with the territory.				
Consultation mechanism to define REDD+ action	Community Engagement and Consultation Workshops				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: implementers, • Local Communities: Implementers • Technical and research entities offer technical support: SENA, SINCHI, NGO, Private Sector. 				
Implementation Timeline	From the fourth year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 5.1	Total quantity of goods or services produced in production systems	Product	Production systems that offer goods or services are implemented	Units	Carbo-Terra Third-Party Reports Captaincy

Activity ID	Activity 6 (A-6)				
Description	Identify and prioritize the needs of communities in terms of social investment.				
Relationship with a direct or underlying cause	Resources are allocated to social investment activities that seek to improve the living conditions of communities. A higher degree of well-being of communities, thus reducing pressure on natural resources. Identifying social investment needs and planning how they				

	will be addressed by the project allows for an increase in the degree of community ownership and commitment to the project. Planning clearly defines the expected results and the expectations of the population. This helps mitigate the risk of the community seeking additional resources from activities that may involve deforestation, as it would compromise access to elements that are prioritized by all members				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 2 proposed in the Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia, considering that these strategies are oriented to proposals from a comprehensive vision for the search for the full and effective realization of the rights to cultural diversity and autonomy as a basis for the development of their own socio-cultural and health practices. respecting the value, protection, recovery and application of traditional Sikuani medicine and attending to the needs in relation to models of care and access to health services, basic sanitation, recreation and cultural practices.				
Consultation mechanism to define REDD+ action	Raising awareness and informing about the project Community Engagement and Consultation Workshops Participatory events with institutions and programs				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers • Local Communities: Implementers • Institutions & Programs 				
Implementation Timeline	From the first year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 6.1	# of people participating in meetings or workshops on social investment issues.	Result	The processes of identification and prioritization of social investment are carried out in a participatory manner.	# of people	Carbo - Terra Third-Party Reports
A - 6.2	# of women participating in meetings or workshops on social investment issues.	Result	The processes of identification and prioritization of social investment are carried out in a participatory manner.	# of women	Carbo - Terra Third-Party Reports
Activity ID	Activity 7 (A-7)				
Description	Improve transport conditions to facilitate the movement of people and elements in the shelter (e.g. vehicles, road adaptation).				

Relationship with a direct or underlying cause	Resources are allocated to social investment activities that seek to improve the living conditions of communities. Improving transportation conditions makes it possible to strengthen connectivity between communities, markets, population centers, among others. This contributes to reducing the cost of transporting goods, improving access to markets and can therefore boost the local and regional economy. In this way, the prices of goods and services that enter and leave the communities become more competitive, increasing the options for economically viable activities, which allows to shift to some extent the dependence on the activities that historically promote deforestation.				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axes 2, 5 and 6 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , considering that they are aimed at social and cultural stability and integrity, to the extent that it strengthens territorial control and connectivity of the territory and access to markets. as well as being a mechanism to improve social welfare.				
Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly. Meetings with Funding Entities and Programs				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers. • Local Communities: Implementers • Entities & Programs • Companies providing services and goods: technical and commercial support. 				
Implementation Timeline	From the first year onwards				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 7.1	# of activities/elements that facilitate the mobilization of people	Product	Improved mobilization of community members	# of vehicles # of suitable pathways	Carbo-Terra Third-Party Reports
A-7.2	# of people participating in meetings or workshops on transportation issues	Result	The processes of identification and prioritization of social investment are carried out in a participatory manner.	Number of people	Carbo-Terra Third-Party Reports
Activity ID	Activity 8 (A-8)				
Description	Improve and increase the educational infrastructure of the communities (including adaptation of classrooms, equipment and technological aids, dormitories).				

Relationship with a direct or underlying cause	Resources are allocated to social investment activities that seek to improve the living conditions of communities. The education of community members is essential to raise awareness and build criteria and knowledge that allow for the continuity of the protection of the territory and the indigenous culture, which strengthens the social fabric and serves as a barrier against possible extractive and unsustainable activities that may compromise the natural resources of the territory.
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 3 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , since it is aimed at comprehensive access to education (community, own and intercultural).
Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly. Meetings with institutions and programs
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers. • Local Communities: Implementers • Institutions & Programs • Companies providing services and goods: technical and commercial support.
Implementation Timeline	From the third year of the project.

Indicators for reporting progress

# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 8.1	# of educational facilities improved/built.	Product	Improve or construct educational facilities located on the reservation	# of insalation improvements	Carbo-Terra Third-Party Reports
A-8.2	# of people participating in meetings or workshops on education topics	Result	The processes of identification and prioritization of social investment are carried out in a participatory manner.	Number of people	Carbo-Terra Third-Party Reports

Activity ID	Activity 9 (A - 9)
Description	Provide facilities for community members to access formal education (literacy, baccalaureate (basic secondary), scholarship system for higher education).
Relationship with a direct or underlying cause	Resources are allocated to social investment activities that seek to improve the living conditions of communities. The education of community members is essential to raise awareness and build criteria and knowledge that allow for the continuity of the protection

	of the territory and the indigenous culture, which strengthens the social fabric and serves as a barrier against possible extractive and unsustainable activities that may compromise the natural resources of the territory.
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 3 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , since it is aimed at comprehensive access to education (community, own and intercultural).
Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly. Meetings with entities and programs
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers. • Local Communities: Implementers • Entities & Programs • Companies, NGOs and educational entities: technical and professional support.
Implementation Timeline	From the third year of the project

Indicators for reporting progress

# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 9.1	# people with access to formal education programmes or improved quality education as a result of project activities.	Result	The quality of education or access to formal education programmes for community members is improved.	# of people	Carbo-Terra Third-Party Reports
A - 9.2	# of women with access to formal education programmes or improved quality education as a result of project activities.	Result	The quality of education or access to formal education programmes for women in the communities is improved.	# of people	Carbo-Terra Third-Party Reports

Activity ID	Activity 10 (A - 10)
Description	Improve the mechanisms of medical care for the inhabitants of the indigenous reservation (e.g., build a health post, have medical supplies and a health promoter).
Relationship with a direct or underlying cause	Resources are allocated to social investment activities that seek to improve the living conditions of communities. Facilitating access to medical care and health services is essential to protect community members, promote healthy practices, and improve care for people at stages of life that are more vulnerable than others, such as children and the elderly.

	Having basic health care services contributes to the protection of the population, which increases awareness of the importance of the REDD+ project, which fights against the deterioration of the territory through a comprehensive approach.				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 2 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , since it is aimed at comprehensive access to health.				
Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly. Meetings with institutions and programs				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers. • Local Communities: Implementers • Institutions & Programs • Health care companies, Mayor's Office, Governor's Office, NGOs: technical and professional support. 				
Implementation Timeline	From the third year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 10.1	# of health posts located in or near the reservation.	Result	Infrastructure to provide health services to community members is improved.	# of new or improved health posts	Carbo-Terra Third-Party Reports Captaincy

Activity ID	Activity 11 (A - 11)
Description	Improve basic sanitation and housing conditions in the communities that are part of the reservation (e.g., drinking water, electrification (solar panels) or interconnection to the grid, comprehensive waste management).
Relationship with a direct or underlying cause	Resources are allocated to social investment activities that seek to improve the living conditions of communities. By improving housing and basic sanitation conditions, members' living conditions are enhanced. The difficulties faced by the community and the scarcity of resources to satisfy these types of basic elements are circumstances that facilitate their participation in activities that involve deforestation, as people are willing to do whatever it takes to improve their living conditions. By addressing these needs with project resources, the risk of adopting practices that result in forest loss is mitigated, and it is also observed that the interest of communities to participate in project activities increases, which contributes to the long-term permanence of the entire project

Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 2 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , since it is aimed at comprehensive access to health. Considering that these are aimed at the search for full realization, the right to territory (including housing sites), and the solution of phytosanitary problems. It is also aligned with the purpose of designing and agreeing on intersectoral plans and programs to meet basic needs, such as; electricity, sewerage, aqueduct, in the Sikuani communities of the region.				
Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly.				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Implementers. • Local Communities: Implementers • Private companies, Mayor's Office, Governor's Office, NGOs: equipment suppliers, technical and professional support. 				
Implementation Timeline	From the first year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 11.1	Water purification systems	Result	Access to safe drinking water and sanitation is improved	Installed Systems & Capacity	Carbo-Terra Third-Party Reports
A - 11.2	# of Improved/Built Homes	Result	Community members' homes are improved or built.	# of new or improved homes	Carbo Terra Third-Party Reports
A - 11.3	Electrification systems	Result	Access to electricity in the indigenous reservation is improved.	# Installed Systems	Carbo-Terra Third-Party Reports

Activity ID	Activity 12 (A - 12)
Description	Update the Life Plan of the indigenous communities living in the reservation in a participatory manner and socialize the results with all the actors involved (including the definition of the governance and management mechanism with other social groups).
Relationship with a direct or underlying cause	Establishment of a governance mechanism and a system of rules that regulate forest harvesting, conservation and recovery of the resource. It also seeks to define the investment priorities and development plan of the community of the Resguardo. The Indigenous Life Plan, which should be included in the Safeguarding Plan, is an instrument of governance and policy specific to indigenous communities, and represents a navigation chart for the future. It includes the characterization of the community, its interests, visions, needs, expected changes, among others. The construction of the Indigenous Life Plan makes it

	possible to define the approach and measures that will be implemented to improve territorial governance, protection of their culture, among which the mechanisms to control the activities that result in deforestation and degradation of the natural resources of their territories are highlighted.
Compliance with life plans or ethno-development plans	This activity was defined with the community and is part of the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , which seeks to ensure that each reservation has its own life plan to guarantee the survival and survival of the Sikuani people
Consultation mechanism to define REDD+ action	Raising awareness and informing about the project Community Engagement and Consultation Workshops Free, prior and informed consent
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Project implementer. • Indigenous reservation. Implementer • Ministry of the Interior: technical support • Puerto Gaitán Office of Indigenous Affairs. Technical support • Cormacarena (direct, accompany and advise the update).
Implementation Timeline	From the fourth year of the project

Indicators for reporting progress

# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 12.1	# of people participating in meetings or workshops on governance issues	Result	The process of building/updating the Life Plan is carried out in a participatory manner.	# of people	Carbo-Terra Captaincy
A - 12.2	# of women participating in meetings or workshops on governance issues	Result	The process of building/updating the Life Plan involves the participation of women from the communities.	# of women	Carbo-Terra Captaincy
A - 12.3	# of life plans drawn up or updated	Result	At least 1 Life Plan is prepared or updated	# of new or improved life plans	Carbo-Terra Captaincy

Activity ID	Activity 13 (A - 13)
Description	Construct a land use plan for the indigenous reservation
Relationship with a direct or underlying cause	Establishment of rules that regulate forest harvesting and promote the conservation and recovery of the resource. The Land Use Plan allows for the identification and planning of land uses in the area of the reserve. It defines the areas within the territory that will be used for conservation,

	production, settlements, among others. This instrument strengthens territorial governance and territorial planning, and contributes to the control of forest harvesting and degradation activities.				
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 5 proposed in the Plan for the <i>Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , considering that it is aimed at updating the studies and cadastral updating of the territories for the conservation and sustainable use of natural resources, including the design and implementation of management plans and conservation and use systems that guarantee the Permanence of natural resources. It could also support the implementation of precautionary measures and special protection over the territories of the Sikuani people, as well as those intended, preventing their titling to private individuals.				
Consultation mechanism to define REDD+ action	Socialization workshops with the members of the reservations and approval in General Assemblies of the indigenous reservations.				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> • Carbo-Terra: Project implementer. • Indigenous reservations. • Government entities (Mayor's Office, Governor's Office, CDA, among others): technical accompaniment. 				
Implementation Timeline	From the fourth year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 13.1	# of indigenous land use plans drawn up.	Product	At least 1 Land Use Plan is drawn up	# of land use plans	Carbo-Terra Captancy
A - 13.2	# of land use plans in implementation	Result	The implementation of at least 1 Land Use Plan begins	# of land use plans	Carbo-Terra Captancy

Activity ID	Activity 14 (A - 14)
Description	Strengthen capacities to maintain and improve traditional production systems, environmental management and conservation
Relationship with a direct or underlying cause	By strengthening the community's capacities in the sustainable management of the territory and its conservation, the pressure on forests is reduced. The community recognises other ways of managing the territory. To the extent that communities have the capacity to improve their environmental management and the conservation of the territory, they will be able to enjoy a healthier environment and contribute to the protection of natural resources and their territory.

Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 5 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , considering that it is aimed at the proper management of the territory, the environment and nature and their conservation.				
Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly.				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> Local Communities: Implementers Carbo-Terra: Implementers Other Indigenous Communities with Successful Experiences NGOs, companies and research centres; Technical Support 				
Implementation Timeline	From the fourth year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 14.1	# of trainings, meetings or training days.	Result	Strengthen the capacities of community members for environmental management and land conservation	# of people	Educational Institutions Captaincy

Activity ID	Activity 15 (A - 15)
Description	Consolidate the indigenous guard and forest ranger families and strengthen the capacities of community members to contribute to biodiversity monitoring and deforestation control
Relationship with a direct or underlying cause	Strengthening community capacities in sustainable management, governance and control reduces pressure on forests. The community recognizes the importance of forest conservation and seeks to care for and control them. The consolidation of groups of forest ranger families and the strengthening of the capacities of community members contributes to the control and administration of indigenous territory, provides the possibility of involving the population in biodiversity monitoring and follow-up activities, and leads to greater ownership of the protection of the reserve. All this favors the control and prevention of deforestation.
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 5 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , considering that they are oriented to the management of territorial affairs and their jurisdiction, as well as the legal and social security of the territory, including signage and delimitation and control of it. management of internal regulations and coordination with environmental and criminal authorities for the respective sanctions

Consultation mechanism to define REDD+ action	Participatory workshops with the members of the reserves and approval at the general assembly.				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> Local Communities: Implementers Carbo-Terra: Implementers Other Indigenous Communities with Successful Experiences: Technical Support. NGOs, companies and research centres; technical support. 				
Implementation Timeline	From the third year of the project				
Indicators for reporting progress					
# indicator	Name	Type	Goal	Unit of Measurement	Responsible for Measurement
A - 15.1	# of people participating in awareness-raising, meetings or training days.	Result	Strengthen the capacities of community members to monitor biodiversity and control deforestation	# of people	Educational Institutions Carbo - Terra Captaincy Entities or Programs
A - 15.2	# of women participating in awareness-raising, meetings or training days.	Result	Strengthen the capacities of women in communities to monitor biodiversity and control deforestation	# of women	Educational Institutions Carbo - Terra Captaincy Entities or Programs
A - 15.3	Document of constitution or formalization of the Group of Forest Ranger Families or the Indigenous Guard	Product	Formalize the group of rangers or the indigenous guard.	# of documents	Carbo-Terra Captaincy Entities or Programs

Activity ID	Activity 16 (A-16)
Description of REDD+ activity	Carry out the follow-up and monitoring of the forest in the indigenous reserve.
Relationship between activity and direct or underlying cause	Information on forest tracking and monitoring makes it possible to assess the impact of REDD+ activities on forest protection and wildlife conservation. This information is the basis for decision-making aimed at controlling deforestation, as well as verifying the results that are obtained over time.
Compliance with life plans or ethno-development plans	This activity is aligned with the prospective axis 5 proposed in the <i>Plan for the Safeguarding of the Sikuani Indigenous People of the Eastern Plains of Colombia</i> , considering that they are oriented to territorial rights and access to it and its jurisdiction, as well as its control. This could contribute to the maintenance of forests as territories of peace.

Activity ID	Activity 16 (A-16)				
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reserves and approval at the general assembly.				
Responsibility and Role of Actors Involved in Implementation	<ul style="list-style-type: none"> Local Communities: Implementers Carbo-Terra: Implementers NGOs, companies and research centres; technical support. 				
Implementation Timeline	From the first year of the project.				
Indicators for reporting progress					
Name	Indicator ID	Type	Goal	Unit of Measurement	Responsible for Measurement
# of hectares of forest standing	A-16.1	Impact	Conserve the forests present in indigenous reserves	Area (ha)	Carbo-Terra Representative of the Resguardos
# tonnes of CO ₂ e not emitted	A-16.2	Impact	Reduce CO ₂ e emissions	Emission reduction (tCO ₂ e)	Carbo-Terra
# of full-time people employed for community monitoring to be phased in	A-16.3	Impact	Employ community members in deforestation monitoring and follow-up activities	Number of people	Carbo-Terra Representative of the Resguardos

9 REDD+ SAFEGUARDS

REDD+ Safeguards are those measures aimed at preventing the impact on social, economic or environmental rights, and the occurrence of negative impacts due to the design and implementation of REDD+ activities. It also includes measures to improve the obtaining and distribution of benefits generated by REDD+ activities.

As a first element to address the issue of safeguards, an identification and recognition of the governance structure of the reservation was carried out. The self-governance structure of the Sikuaní community of the El Tigre Reservation is described in the document of the Sikuaní Safeguards Plan (see Safeguarding Plan Sikuaní_El Tigre 2013). The reservation is represented by the Indigenous Governor, who is elected by an assembly in which all the communities participate. When the elected person is appointed and takes possession of the office of Governor, he must take an oath of rigor, prior to the formalities of articles 96 and 122 of the Political Constitution of Colombia, where he promises to fulfill well and faithfully the duties that his office imposes on his loyal duty and understanding.

At the internal level of the reservation, the communities recognize the governor as the representative and highest position of authority, and each year he is elected by vote, as corroborated in the minutes of appointment of each period (see Minutes of appointment of Governor 2021_EL TIGRE). The Governor is one of the members of the Indigenous Council. The Cabildo Indígena represents the government of the collective territory that includes: the governor, vice governor, secretary, prosecutor, treasurer, sheriff and indigenous guard. This system of government was imposed from the moment the safeguards were created by INCORA with the issuance of the different titling resolutions.

Additionally, at the level of each community within the reservation, the authority of a member who is elected as Captain is recognized. Within community spaces, they organize and make decisions. The Captain of each of the communities is the one who guides, controls, accompanies all the members that make it up, ensures family cohesion and the well-being of all. The Captain of each community relates and interacts with the members of the Indigenous Cabildo who represent the government of the entire reservation, which is also in accordance with Law 89 of 1889 (as well as other national laws and regulations that were exclusionary, but that today are inclusive and recognize fundamental and collective rights).

The highest authority of the reservations is the Indigenous Assembly, made up of all persons registered, belonging to or recognized as members of the community. In its own right, the Indigenous Assembly meets ordinarily every year to, among other activities, elect the members of the Cabildo, i.e., the cacique, the governor, the captain, the treasurer, the secretary and the prosecutor. Legally, the Ministry of the Interior recognizes the Governor of the Indigenous Cabildo as the representative of the reservation.

The oral tradition is a characteristic component of the Sikuaní people and the mechanisms of internal control and decisions of impact for the reservation are defined in the autonomous spaces of the community (meetings and assemblies), which are fully functional and operative in daily life. Taking into account that the reservation does not currently have a written internal regulation, the updating of the Life Plan of these communities has been contemplated among the REDD+ activities, and if the communities consider it important to record in this document the specific responsibilities and functions of the self-government roles that currently govern the reservation, then the respective chapter will be included in the Life Plan.

Table 16. Compliance with REDD+ Safeguards

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
Institutional	A. Consistent with national forest programmes and international agreements	1. Correspondence with national legislation	The initiative is developed within the framework of the National Forestry Development Plan, the international conventions and agreements signed by Colombia in the field of: Forests, Biodiversity and Climate Change, as well as the national policies corresponding to these agreements. All proposed REDD+ Policies, Actions and Measures must be in correspondence with: • International agreements signed by Colombia. • National legislation (the Constitution, laws and decrees). • National policies, programs and projects.	Complies. The initiative complies with the provisions of the National Policy on REDD+ Projects and is part of the climate change management strategies and the forest governance instruments and environmental regulations, as indicated in the Regulatory Framework.

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
	B. Transparency and effectiveness of forest governance structures	2. Transformation and access to information	Stakeholders have access to transparent, accessible and timely information related to REDD+ actions on the platforms or media that are determined. If there are ethnic groups involved, and who do not speak Spanish well, it must be ensured that interpreters of their language are available in the consultation and information spaces, as well as adequate material that facilitates their understanding. Be clear about: <ul style="list-style-type: none"> • Which entity is in charge of formulating and implementing the measure. • What are the benefits that will be delivered to the communities in the territory. The commitments made by the parties involved in the implementation of the measures.	Complies. Within the framework of the development of the project, socialization workshops have been held with the communities, informing in appropriate language about the activities of the project and the implications and responsibilities. The relevant documents have been disseminated. There is a letter of commitment signed by the authorities of the Indigenous Reservation
		3. Accountability	Institutions and actors report on their management of REDD+ to stakeholders, institutions and the general public and include information on the implementation and respect of safeguards. Those in charge of implementing REDD+ activities should convene accountability spaces where the reports of their management are presented: what has been done, how, how much has been spent and how resources have been invested, what results there are. Information on the status of implementation of the Risk Reduction and Benefit-Building Safeguards should be included. The actors involved are committed to attending these information spaces. Accountability reports should be public and accessible to the various actors.	Cumple. Se expected that during the implementation of the project, those in charge on the part of the community and on the part of the implementers of the project, will present the corresponding reports and documents to make an adequate accountability as appropriate and according to the established implementation and monitoring plans
		4. Recognition of forest governance structures	REDD+ actions are developed in accordance with the existing forest governance structures established by the regulations and/or by establishing the necessary ones among the actors involved in the process (the strengthening or creation of a new structure can be a mechanism for implementing governance). In some cases where	Complies. There is an appropriate governance structure that takes into account the ethnic particularities, knowledge and traditions of the community. Forest governance, and the entire territory itself, lies in the forms of self-government and management of the El Tigre Indigenous Reserve, which has been explained in the

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
			several actors are involved, the establishment of new arrangements or articulation mechanisms for decision-making may be required. These can be forestry committees, monitoring committees, or enable spaces for dialogue within the framework of community action boards.	section of the summary, Coexistence with the territory and its forests is an intrinsic part of the traditional ethnic forms that characterize the community. Therefore, the forms of administration of the territory apply to the entire reservation, including its forested areas.
		5.Capacity building	The strengthening of the technical, legal and administrative governance capacities of the actors directly involved is guaranteed, so that the parties can make documented, analyzed and informed decisions. It is necessary to have programs that contribute to the strengthening of the capacities of the actors involved as required in each case:• Technical capacities: training in REDD+ issues, climate change, forest governance, sustainable forest management, conservation, monitoring, implementation of sustainable production models, among others.• Legal capacities: training in national legislation and international agreements related to these issues.• Administrative capacities: Training in tools for project monitoring, resource management and accountability	Complies. In the development of the workshops for structuring and defining the components of the REDD+ Project, the topics of climate change, REDD+, sustainable management, monitoring and sustainable production systems, among others, have been addressed. As part of the project planification exercise after the first sale of carbon certificates, capacity building is planned in each of the components of the project, which correspond to sustainable production systems, social investment, governance and monitoring, which involves administrative and legal issues for the proper implementation of the project. In this way, it contributes to the goal of achieving the sustainability of the results over time and once the project is finished.
Social & Cultural	C. Respect for traditional knowledge and rights of communities	6. Free, Prior and Informed Consent	When a measure or action directly affects or may directly affect one or more ethnic groups, the national provisions on free, prior and informed consultation and consent established in legislation and jurisprudence, as well as by the guidelines given by the Ministry of the Interior as the competent entity in this matter with the accompaniment of the control bodies, must be applied.	Complies. The project complies with the provisions of current regulations regarding consultation and relations with indigenous communities. The project was structured with the communities. The REDD+ activities and the theory of change respond to the prioritization of the interventions that the members expressed during the structuring days that took place in the territory. The project was approved in the framework of a community assembly, which is the highest decision-making body. The calls for the workshops and the assembly were processed through the Governor of the Reservation, where it was expressly requested that the

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
				<p>leaders of the community be summoned to develop the scheduled meetings (see files in the subfolder Evidences Calls, folder Workshops – Monitoring). Attendance at each of the events was always optional for all leaders and it was observed that 80% of the leaders participated in at least one of the events convened and an average absolute majority in each of the workshops. People from the community also participated, as evidenced by the attendance lists of all events.</p> <p>Regarding the Assembly to approve the REDD+ project, it was attended by the absolute majority (15 of the 24) the captains of the community. The Minutes of the Assembly are signed by the Governor, who also holds the position of Legal Representative. The Governor has the power to enter into contracts and to represent the Community. It is by virtue of this representativeness, defined and accepted by their forms of government, and accepted by the Ministry of the Interior, that contracts are advanced and minutes are signed. Attached is the certification of legal representation, which consists of the designation by the Assembly, the Act of Possession, and the certification of the Mayor's Office of Puerto Gaitán (See document Certificate of Possession of El Tigre for the Ministry in the folder Agreements, Legal Representation, general info El Tigre, subfolder Documents Rep. Legal Resguardo).</p>
		7. Respect for traditional knowledge	They are recognized, respected and promoted, in accordance with the provisions of national legislation and compliance with international conventions; traditional knowledge systems and the territorial visions of ethnic and local peoples and communities. For the development of any initiative to reduce deforestation, the different cultures	Complies. The project complies with the regulations of consultation and relations with indigenous communities. During the implementation of the project's activities, the culture, worldview, knowledge and capacities of the community participating in the project have been taken into account.

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
			that inhabit the territories must be taken into account, respecting their ways of understanding and relating to the environment, so that the traditions, uses and customs of the communities are not affected	
		8. Profit Sharing	The fair and equitable sharing and sharing of the benefits generated by policies, measures and actions to reduce deforestation for ethnic and local peoples and communities, and of all those benefits derived from traditional knowledge, innovations and practices for the conservation and sustainable use of forests, is guaranteed; its diversity and ecosystem services.	Complies. There is a mechanism for the distribution of income derived from project activities that ensures that it is done equitably among project participants.
		9. Territorial rights	The collective and individual territorial rights of ethnic and local peoples and communities are respected; its cultural, economic, and spiritual use and significance. To this end, it is necessary to know what are the forms of land tenure in the areas where REDD+ measures and actions are expected to be implemented and to make decisions accordingly.	Complies. The project is aligned with the regulations for consultation and relations with indigenous communities. The culture, knowledge and capacities of the communities are taken into account in the formulation and implementation of the project activities. In addition, it is recognized that the form of land tenure corresponds to collective property and that the area is titled in favor of the indigenous reservation proposed by the REDD+ project
	D. Full and effective participation	10. Participation	The right to full and effective participation of all stakeholders is respected to ensure governance and adequate decision-making on REDD+. The structures of participation of each interest group, especially the communities, must be recognized and respected, in accordance with national legislation and international conventions signed by Colombia.	Complies. All interested community representatives have been involved in the participation process for the formulation of the project, taking into account the applicable regulations and considering the organizational structure of the Resguardo
Environmental & Social	E. Conservation and Benefits	11. Conservation of forests and their biodiversity	REDD+ initiatives support forest conservation and the implementation of measures put in place to this end. REDD+ initiatives	Complies. The project seeks to conserve forests, so it is expected that it will allow the conservation of the biodiversity that is present.

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
			developed in the country should not be detrimental to the conservation of forests and the biodiversity they support	Agroforestry productive activities will be carried out in deforested areas outside the project area. Within the project's activities, the development of productive activities (REDD+ Activity #3) contemplates the adoption of management measures in these productive systems that allow biodiversity to be conserved. The technical guidance and criteria for the development of the activities, which are described in the <i>El Tigre REDD+ Project Administration Mechanism document</i> , demonstrate that the Project does not have negative impacts on biodiversity
		12. Provision of environmental goods and services	REDD+ initiatives support the provision and enjoyment of ecosystem services. The implementation of REDD+ initiatives should not directly or indirectly affect the benefits provided by ecosystems, which are known as ecosystem services (supply, support, regulation and cultural) such as: water supply, soil, biodiversity, among others.	The project aims to protect the forests present in the territory of the reserve, as well as to implement management actions that contribute to the conservation of ecosystems and the services they provide at the local and regional level. In its planning and execution, the entire project is focused on the conservation of the territory and aimed at improving the quality and quantity of environmental services.
	F. Prevent risks of reversal	13. Environmental and Territorial Planning	REDD+ initiatives support the consolidation of territorial and environmental planning instruments provided for in legislation, with a focus on conservation and sustainable forest management. It is necessary that the REDD+ initiatives carried out in the country recognize, respect, adapt or strengthen the measures and instruments of territorial and environmental planning that are defined by national legislation. In the same way, it is ideal to encourage citizen participation in the formulation and adjustment of these instruments, in accordance with land uses. The specific forms of territorial planning of ethnic groups and local communities must also be	Complies. In the design and implementation of the project, the instruments of territorial and environmental planning of the indigenous community, applicable programs and plans have been taken into account. Within the framework of the strengthening of forest governance, the development of a Territorial Planning Plan is contemplated, taking into account the forms of management defined by the members of the Indigenous Reserve. The construction of this land use plan takes into account the worldview of the Sikuaní indigenous people and includes the presence of vital elements for the community

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
			<p>recognized, so that their permanence over time can be supported.</p>	<p>and its survival, and fundamentally integrates the knowledge and knowledge of the indigenous community, responding to its norms of Communitarianism and Collectivism and responding to the norms of consultation and participation established by its safeguards plan.</p>
		<p>14.Sectoral planning</p>	<p>Sectoral REDD+ actions are proposed on the basis of environmental and territorial planning instruments, as well as legislation related to the conservation of forests and their biodiversity. When a sector defines and implements REDD+ actions, they must be articulated with national legislation that protects forests, their conservation and the diversity they harbor</p>	<p>The project is articulated with the Municipal Development Plan, with its general approach to meet unmet basic needs and meet the Sustainable Development Goals, and with the 1.1. Public Health and Service Delivery, 1.2 on Environmental Health, 2.1 on Quality and Coverage of Initial, Preschool, Primary and Secondary Education, 3.1. Access to drinking water and basic sanitation services, 3.2 Access to housing solutions, 3.4 land use planning, 6.1. social and productive inclusion, 7.1. agricultural technology and innovation, 7.2 productive inclusion of small rural producers, 7.3 productive infrastructure and marketing, 7.3 productive use of rural territory, 10.1 productive consolidation of the electric power sector, 15.1 strengthening of environmental management and sustainable development, 15.2 conservation of biodiversity and its ecosystem services, 15.3 environmental education, 15.4 low-carbon development, 15.6 Territorial Environmental Planning. (<i>Puerto Gaitán Municipal Development Plan 2020 - 2023_Carpeta Workshops and Monitoreo_Subcarpeta Evidence Monitoring</i>).</p> <p>With regard to the Departmental Development Plan, the project supports Program 1 on strengthening agricultural, agro-industrial, forestry and agrotourism production chains, including food security, training and technical assistance, Program 2 on consolidation and access to electricity, including non-</p>

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
				<p>renewables, green and low-carbon growth, biodiversity conservation and ecosystem services, and the Use of Economic Instruments; and Program 5 on climate change planning and mitigation, Program 6 on environmental education, Dimension 2 of the plan on basic and secondary education, access to health services, better housing, access to drinking water and basic sanitation (<i>Development Plan 2020 – 2023_Meta – Monitoring Workshops Folder – Monitoring Evidence Subfolder</i>)</p> <p>Likewise, the project is aligned with the programs established by CORMACARENA in the 2016-2019 period related to the Administration of natural capital and the improvement of environmental governance and its project to strengthen the environment of the instruments of territorial planning, risk management and climate change; also related to the Management of the natural base of the Meta that enhances human well-being and green growth and its associated goals to support the implementation of planning instruments to ethnic groups, the project Implementation of technological and educational strategies for adaptation and mitigation to climate change, water and clean energy management and the project Recovery and conservation of areas to maintain the natural supply (<i>See Cormacarena Management Report 2016-2019_Caperta Workshops and Monitoreo_Subacarpeta Evidence Monitoring</i>).</p> <p>Similarly, the El Tigre REDD+ project is articulated with the 2020 – 2023 Institutional Action Plan we are life, we are from CORMACARENA and its operational actions in relation to objective 1; Ensure the conservation of strategic ecosystems, the</p>

Thematic	Cancun Safeguard	National Safeguard	Description	Compliance
				<p>sustainable management of water supply and adaptation to climate change and its management programs for the conservation, preservation of forests and associated biodiversity, territorial environmental planning. Likewise, with regard to objective 2: Promote the sustainable use of natural resources, in order to contribute to the economic diversification and social well-being of the population; Objective 3: Improve environmental education processes and guarantee citizen participation. (See MYP Document 2020-2023 CORMACARENA_Caperta Workshops and Monitoreo_Subacarpeta Evidence Monitoring).</p>
	<p>G. Avoiding Emission Displacement</p>	<p>15.Forest control and surveillance to prevent the displacement of emissions</p>	<p>REDD+ initiatives incorporate measures to reduce emissions displacement into their design and ensure timely monitoring and control when emissions displacement occurs. Community monitoring, articulated with early warning systems of deforestation, and the activation of protocols that allow for timely responses, can be decisive in ensuring that the problems associated with forest loss and degradation do not spread to other places.</p>	<p>Complies. One of the objectives of the project is to contribute to the monitoring and conservation of forests and biodiversity present in the territory through the development of targeted actions. Community participation has characterized the entire process of structuring the project, as well as the definition of REDD+ activities to curb deforestation. The project also defined a leakage area that recognizes the dynamics of mobilization of deforestation agents and monitoring mechanisms were established for the permanence of the project as well as the forest cover associated with the project boundaries.</p> <p>The project will be building capacities to improve forest monitoring and surveillance, which will also be complemented by the social control exercised by community members.</p>

10 REDUCTION OF GHG EMISSIONS FROM REDD+ ACTIVITIES

10.1 MANAGING UNCERTAINTY

The uncertainty of the project's reduction estimates is related to activity data and emission factors. The Proclima methodology stipulates that for the NREF values that are used, it is not necessary to perform the uncertainty estimation. The data of the activity of the REDD+ El Tigre project (deforestation and forest degradation) were calculated using information from the SMByC, following the methodological approach described in the Digital Image Processing Protocol for the Quantification of Deforestation in Colombia V.2 of the IDEAM (Galindo et al 2014). In the same way, emission factors (carbon content per reservoir) were taken from this study. For the El Tigre Project, the uncertainty values reported directly by IDEAM in the NREF document were used, which correspond to 9% activity data, aboveground biomass at 2.1% and soil organic carbon at 2% (Minambiente and IDEAM, 2019). Using the equation for the combination of the uncertainties of various emission sources proposed by the IPCC (2006), the uncertainty of the emission factor was calculated. Using the equation for combining uncertainties of a single emission source, also proposed by the IPCC (2006), the approximate error of the Project reductions was calculated.

A) Reference equation for combining uncertainties from various emission sources;

$$t = \frac{\sqrt{(A \times a)^2 + (B \times b)^2 + (C \times c)^2}}{T}$$

Where

t: Total uncertainty; T: Total associated greenhouse gas emissions. A=Category A emissions, a=uncertainty of Category A emissions, B=Category B emissions, b=uncertainty of Category B emissions, ... N=Category N emissions, n=uncertainty of Category N emissions

a.1) Uncertainty of the Emission Factor:

Orinoquia area biomass: = 148 tCO₂/ha/year

Organic carbon of orinoquia soil: 12 tCO₂/ha/year

Uncertainty Emission factor = $\text{Root}((148 \text{ tCO}_2/\text{ha/year} * 2.1\%)+(12 \text{ tCO}_2/\text{ha/year}*2\%))$

Uncertainty emission factor = 1.95%

a.2) Uncertainty of the activity data:

Activity data: 9%

B) Reference equation for combining uncertainties of an emission source;

$$U_{total} = \sqrt{U_1^2 + U_2^2 + \dots + U_n^2}$$

Where

Total U: Total uncertainty; U_1 = percentage of uncertainty at each of the sources of uncertainty.

b.1) Uncertainty of project reductions:

Uncertainty of Project Estimates = $\text{Root}((1.95)^2 + (9)^2)$

Uncertainty of Project Estimates = 9.2%

By combining the uncertainties of the activity data and the emission factors, it was assessed that the estimates of emission reductions have an uncertainty of 9.2%.

10.2 ACTIVITY DATA

10.2.1 Deforestation

- **Estimating the Deforestation Rate from the Historical Average**

To estimate the deforestation rate, an analysis of the change from forest to non-forest cover was made between at least two dates, in this case 2008 and 2018 were taken. In addition, gross deforestation was taken for estimation and forest losses after one or more dates without information were omitted in order not to overestimate the rates.

- **Annual historical deforestation in the reference region**

For the estimation of annual historical deforestation in the scenario without a REDD+ project, the following equation is used:

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

$$CSB_{lb} = \left(\frac{1}{2018 - 2008} \right) \times (20.783 - 14.766)$$

$$CSB_{año} = 601,6 \text{ ha}$$

Where:

CSB_{lb} = Annual change in forest cover in the no-project scenario (ha)

t_2 = Final year of the reference period

t_1 = Initial year of the reference period

A_1 = Forest area of the area under control at the initial time (ha)

A_2 = Forest area of the area under control at final time (ha)

- **Projected annual deforestation in the REDD+ project scenario**

For the estimation of projected annual deforestation in the scenario with the REDD+ project, the following equation is used:

$$CSB_{im} = CSB_{lb} * \% \text{ aumento por circunstancias nacionales} * (1 - \%DD)$$

$$CSB_{im} = 404,5 \times 44,59\% * (1 - 85\%) = 87,7ha$$

Where:

CSB_{im} = Annual change in forest area under the project scenario (ha)

CSB_{lb} = Annual change in forest cover in the no-project scenario (ha)

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

- **Historical annual deforestation in the leakage area**

To estimate deforestation in the leakage area, the following equation is used:

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

$$CSB_{lb,f} = \left(\frac{1}{2018 - 2008} \right) \times (10.317 - 8.695)$$

$$CSB_{f,año} = 162,1$$

Where:

$CSB_{lb,f}$ = Annual change in forest area in the leakage area, in the no-project scenario (ha)

t_2 = Final year of the reference period

t_1 = Initial year of the reference period

$A_{1lb,f}$ = Forest area of the leakage area at the beginning of the reference period (ha)

$A_{2lb,f}$ = Forest area of the leakage area at the end of the reference period (ha)

- **Projected annual deforestation in the leakage area in project scenario**

To estimate the annual deforestation in the leakage area, in the scenario with the REDD+ project, the following equation is used:

$$CSB_{im,f} = CSB_{lb,f} \times (1 + \%EF)$$

$$CSB_{im,f} = 91,8 \times (1 + 10\%)$$

$$CSB_{im,f} = 101,08 \text{ ha}$$

Where:

$CSB_{im,f}$ = Annual change in the area covered by forest in the leakage area, in the project scenario (ha)

$CSB_{lb,f}$ = Annual change in forest area in the leakage area, in the no-project scenario (ha)

$\%EF$ = Percentage increase in emissions in the area of leakage due to the implementation of REDD+ activities.

10.2.2 Degradation

To estimate degradation, variables that can be measurable in areas where extent, canopy cover, and minimum height remain above forest definition thresholds should be used. Changes in aboveground biomass present in different assigned forest cover classes should be determined by means of a fragmentation analysis.

- **Fragmentation Classes**

Table 17. Fragmentation classes in reference area.

Class	Area (ha)			
	Biomass year 2007	Year 2008	Year 2014	Year 2018
Nucleus		20.783	19.598,7	14.766,8
Perforated		481,3	481,3	1.748,8
Patch		5,4	5,4	230,8

- **Transitions Between Fragmentation Classes**

Table 18. Transition of fragmentation classes (ha) in reference area.

Class of 2008/Class of 2014	Perforated	Patch
Nucleus	481,3	
Perforated		5,4

Class of 2014/Class of 2018	Perforated	Patch
Nucleus	1.748	
Perforated		230,8

- **Annual historical degradation in the reference area to define the baseline**

For the estimation of the annual historical degradation in the project area in the scenario without a REDD+ project, the following equation is used:

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

$$DFP_{lb,año} = 258,7 \text{ ha}$$

Where:

- $DFP_{lb,año}$ = Annual historical primary degradation in the no-project scenario (ha)
- t_2 = Final year of the reference period
- t_1 = Initial year of the reference period
- $A_{núcleo.lb}$ = Area of the reference region in core class in the 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 final year of the reference period (ha)

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

$$DFS_{lb,año} = 29,3 \text{ ha}$$

Where:

- $DFS_{lb,año}$ = Annual historical secondary degradation in the no-project scenario (ha)
- t_2 = Final year of the reference period
- t_1 = Initial year of the reference period
- $A_{perforado.lb}$ = Area of the reference region in drilled class in the year of start of the reference period (ha)
- $A_{perforado-par.lb}$ = Area of the reference region that goes from drilled to patch in the final year of the reference period (ha)

- **Projected annual degradation in the project area in the REDD+ project scenario**

For the estimation of the projected degradation in the project area, the following equation is used:

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

$$DFP_{REDD+proy,año} = 174,4 \times (1 - 85\%)$$

$$DFP_{REDD+proy,año} = 26,1 \text{ ha}$$

Where:

$DFP_{REDD+proy,año}$ Annual primary degradation in the project area in the project scenario (ha)

DFP_{lb} = Annual historical primary degradation in the no-project scenario (ha)

$\%DFP$ = Projected decrease in degradation due to the implementation of REDD+ activities

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

$$DFS_{REDD+,proy,año} = 19,7 \times (1 - \%85)$$

$$DFS_{REDD+,proy,año} = 2,96 \text{ ha}$$

Where:

$DFS_{REDD+,proy,año}$ Secondary degradation in the project scenario (ha)

DFS_{lb} = Annual historical secondary degradation in the no-project scenario (ha)

$\%DFS$ = Projected decrease in degradation due to the implementation of REDD+ activities

- **Annual historical degradation in the area of leakage in the baseline scenario**

For the estimation of degradation in the leakage area, in the scenario without a REDD+ project, the following equations are used:

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

$$DFP_{lb,f,año} = 188,7 \text{ ha}$$

Where:

- $DFP_{lb,f,año}$ = Annual primary degradation in the leakage area (ha)
- t_2 = Final year of the reference period
- t_1 = Initial year of the reference period
- $A_{núcleo,lb,f}$ = Leakage area in core class in the year of the start of the reference period (ha)
- $A_{núcleo-par,lb,f}$ = Leakage area that transitions from core to patch in the final year of the reference period (ha)

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

$$DFS_{lb,f,año} = 12,2 \text{ ha}$$

Where:

- $DFS_{lb,f,año}$ = Annual secondary degradation in the leakage area (ha)
- t_2 = Final year of the reference period
- t_1 = Initial year of the reference period
- $A_{perforado,lb,f}$ = Leakage area in drilled class in the year of start of the reference period (ha)
- $A_{perforado-par,lb,f}$ = Leakage area going from drill to patch in the final year of the reference period (ha)

- **Projected annual degradation in the area of leaks in the REDD+ project scenario**

For the estimation of degradation in the scenario with the REDD+ project, in the leakage area, the following equations are used:

$$DFP_{f,año} = DFP_f \times (1 + \%Ef)$$

$$DFP_{f,año} = 207,63 \text{ ha}$$

Where:

$DFP_{f,año}$ = Annual primary degradation of the leakage area in the project scenario (ha)

DFP_f = Annual historical primary degradation of the leakage area in the no-project scenario (ha)

$\%EF$ = Percentage increase in emissions in the area of leakage due to the implementation of REDD+ activities.

$$DFS_{f,año} = DFS_f \times (1 + \%Ef)$$

$$DFS_{f,año} = 13,52 \text{ ha}$$

Where:

$DFS_{f,año}$ = Annual secondary degradation of the leakage area in the project scenario (ha)

DFS_f = Annual historical secondary degradation of the leakage area in the no-project scenario (ha)

$\%EF$ = Percentage increase in emissions in the area of leakage due to the implementation of REDD+ activities.

10.3 EMISSION FACTORS

10.3.1 Deforestation

- **Carbon Emission Factor in Total Biomass**

Aboveground and groundwater biomass are used to estimate total biomass.

$$CBF_{eq} = BT * FC * \frac{44}{12}$$

$$CBF_{eq} = 106,8 \times 0,47 \times \frac{44}{12}$$

$$CBF_{eq} = 184 \frac{tCO_2e}{ha}$$

Where:

CBF_{eq} = Carbon dioxide equivalent contained in total biomass; $tCO_2e \text{ ha}^{-1}$

BT = Total Biomass; $t \text{ ha}^{-1}$

FC = Dry matter carbon fraction (0.47)

- **Soil Carbon Emission Factor**

To estimate emissions from deforestation in the soil reservoir, a gross emission is assumed where the carbon content of the soil is emitted in equal proportions for 20 years after the deforestation event occurs.

$$COS_{eq} = \frac{COS}{20} * \frac{44}{12}$$

$$COS_{eq} = 12 \frac{tCO_2e}{ha}$$

Where:

COS_{eq} = Carbon dioxide equivalent contained in soils; $tCO_2e \text{ ha}^{-1}$

COS = Soil carbon content; $tC \text{ ha}^{-1}$

- **Total Carbon Emission Factor**

To estimate the total carbon emission factor, the carbon dioxide equivalent emission per deforested hectare is included, including the behavior of soil biomass and carbon, as follows:

$$CT_{eq} = CBF_{eq} + COS_{eq}$$

$$CT_{eq} = 196 \frac{tCO_2e}{ha}$$

Where:

CT_{eq} = Total carbon dioxide equivalent; tCO₂e ha⁻¹

CBF_{eq} = Carbon dioxide equivalent contained in total biomass; tCO₂e ha⁻¹

COS_{eq} = Carbon dioxide equivalent contained in soils; tCO₂e ha⁻¹

10.3.2 Degradation

The estimation of degradation emission factors is made from the average of the aboveground biomass for each fragmentation class and the differences in the mean of the aboveground biomass with respect to the transitions between the fragmentation classes.

Table 19 Aboveground biomass, groundwater biomass and soil organic carbon/year by fragmentation class.

Fragmentation Class	Average biomass by class (tCO ₂ e/ha)
Nucleus	184
Perforated	104,3
Patch	45

Table 20 Difference between aboveground biomass, groundwater biomass and soil organic carbon/year by type of fragmentation.

Transition ID	Transition Fragmentation Classes	Average difference in aboveground biomass (tCO ₂ /ha)
1	Core – patch	79,7
2	Perforated – patch	59,3

10.4 GHG EMISSIONS IN THE PERIOD OF ANALYSIS

10.4.1 Deforestation

The annual emission from deforestation in the baseline scenario is calculated from the following equation:

$$EA_{lb} = DA_{lb} \times CT_{eq} \times \%incremento \text{ por circunstancias nacionales}$$

$$EA_{lb} = 404,5 \times 196 \times 44,59\%$$

$$EA_{lb} = 114.649 \text{ tCO}_2e$$

Where:

- EA_{lb} = Annual emission in the baseline scenario (tCO₂/ha)
- DA_{lb} = Annual historical deforestation in the baseline scenario (ha)
- CT_{eq} = Carbon dioxide equivalent contained in soils (tCO₂e/ha)

The annual emission from deforestation in the project scenario is calculated from the following equation:

$$EA_{REDD+proy,año} = DA_{REDD+proy} \times CT_{eq}$$

$$EA_{REDD+proy,año} = 87,7 \times 196$$

$$EA_{REDD+proy,año} = 17.197,4 \text{ tCO}_2$$

Where:

- $EA_{REDD+proy,año}$ = Annual emission in the project scenario (tCO₂/ha)
- $DA_{REDD+proy}$ = Annual historical deforestation in the project scenario (ha)
- CT_{eq} = Total carbon dioxide equivalent (tCO₂e/ha)

The annual emission from deforestation in the leakage area is estimated from the following equation:

$$EA_{f,año} = DA_f \times CT_{eq}$$

$$EA_{f,año} = 150 \times 196$$

$$EA_{f,año} = 29.404 \text{ tCO}_2e$$

Where:

- $EA_{f,año}$ = Annual emission in the leakage area (tCO₂/ha)
 DA_f = Annual historical deforestation in the leakage area (ha)
 CT_{eq} = Total carbon dioxide equivalent (tCO_{2e}/ha)

10.4.2 Degradation

The annual degradation emission in the baseline scenario is calculated from the following equation:

$$EA_{d,lb,año} = (DFP_{lb,año} \times DCBT_{DP}) + (DFS_{lb,año} \times DCBT_{DS})$$

$$EA_{d,lb,año} = (174,4 \times 79,7) + (19,7 \times 59,3)$$

$$EA_{d,lb,año} = 15.070,2 \text{ tCO}_2e$$

Where:

- $EA_{d,lb,año}$ = Annual emission due to degradation in the baseline scenario (tCO₂/ha)
 $DFP_{lb,año}$ = Annual historical primary degradation at baseline (ha)
 $DFS_{lb,año}$ = Annual historical secondary degradation in the no-project scenario (ha)
 $DCBT_{DP}$ = Carbon dioxide equivalent contained in the difference total biomass per hectare in the case of primary degradation (tCO_{2e}/ha)
 $DCBT_{DS}$ = Carbon dioxide equivalent contained in the difference total biomass per hectare in the case of secondary degradation (tCO_{2e}/ha)

The annual emission due to degradation in the project scenario is calculated from the following equation:

$$EA_{d,REDD+proy,año} = (DFP_{REDD+proy,año} \times DCBT_{DP}) + (DFS_{REDD+proy,año} \times DCBT_{DS})$$

$$EA_{d,REDD+proy,año} = (26,7 \times 79,7) + (2,96 \times 59,3)$$

$$EA_{d,REDD+proy,año} = 2.260,5 \text{ tCO}_2e$$

Where:

$EA_{d,REDD+proy,año}$	=	Annual emission due to degradation in the project scenario (tCO ₂ /ha)
$DFP_{REDD+proy,año}$	=	Annual historical primary degradation in the project scenario (ha)
$DFS_{REDD+proy,año}$	=	Annual historical secondary degradation in the project scenario (ha)
$DCBT_{DP}$	=	Carbon dioxide equivalent contained in the difference total biomass per hectare in the case of primary degradation (tCO ₂ e/ha)
$DCBT_{DS}$	=	Carbon dioxide equivalent contained in the difference total biomass per hectare in the case of secondary degradation (tCO ₂ e/ha)

The annual emission due to degradation in the leakage area in the project scenario is calculated from the following equation:

$$EA_{d,f,año} = (DFP_{f,año} \times DCBT_{DP}) + (DFS_{f,año} \times DCBT_{DS})$$

$$EA_{d,f,año} = (207,6 \times 79,7) + (13,5 \times 59,3)$$

$$EA_{d,f,año} = 17.342,4 \text{ tCO}_2e$$

Where:

$EA_{d,f,año}$	=	Annual emission due to degradation in the leakage area (tCO ₂ /ha)
$DFP_{f,año}$	=	Annual historical primary degradation in the leakage area (ha)
$DFS_{f,año}$	=	Annual historical secondary degradation in the leakage area (ha)

$DCBT_{DP}$ = Carbon dioxide equivalent contained in the difference total biomass per hectare in the case of primary degradation (tCO₂e/ha)

$DCBT_{DS}$ = Carbon dioxide equivalent contained in the difference total biomass per hectare in the case of secondary degradation (tCO₂e/ha)

10.5 REDUCTION OF GHG EMISSIONS EXPECTED WITH THE IMPLEMENTATION OF REDD+ ACTIVITIES

10.5.1 Deforestation

The reduction in emissions from avoided deforestation is estimated from the following equation:

$$RE_{DEF,REDD+proy} = (t_2 - t_1) \times (EA_{DEF,lb,año} - EA_{DEF,REDD+proy,año} - EA_{DEF,f,año})$$

$$RE_{DEF,REDD+proy} = (1.758.361 - 263.754 - 64.899)$$

$$RE_{DEF,REDD+proy} = 1.429.707 \text{ tCO}_2\text{e}$$

Where:

$RE_{DEF,REDD+proy}$	=	Reduction of emissions from deforestation avoided in the project scenario (tCO ₂ e)
t_2	=	Final year of the reference period
t_1	=	Initial year of the reference period
$EA_{DEF,lb,año}$	=	Annual emission from deforestation in the baseline scenario (tCO ₂ e)
$EA_{DEF,REDD+proy,año}$	=	Annual emission from deforestation in the project area (tCO ₂ e)
$EA_{DEF,f,año}$	=	Annual emission from deforestation in the leakage area (tCO ₂ e)

10.5.2 Degradation

The emission reductions from avoided degradation are estimated from the following equation:

$$RE_{DEG,REDD+proy} = (t_2 - t_1) \times (EA_{DEG,lb,año} - EA_{DEG,REDD+proy,año} - EA_{DEG,f,año})$$

$$RE_{DEG,REDD+proy} = (382.379 - 57.356 - 34.762)$$

$$RE_{DEG,REDD+proy} = 290.259 \text{ tCO}_2e$$

Where:

$RE_{DEG,REDD+proy}$	=	Reduction of emissions due to degradation avoided in the project scenario (tCO ₂ e)
t_2	=	Final year of the reference period
t_1	=	Initial year of the reference period
$EA_{DEG,lb,año}$	=	Annual emission of degradation in the baseline scenario (tCO ₂ e)
$EA_{DEG,REDD+proy,año}$	=	Annual emission of degradation in the project area (tCO ₂ e)
$EA_{DEG,f,año}$	=	Annual emission of degradation in the leakage area (tCO ₂ e)

11 MONITORING PLAN

The procedure for appropriate monitoring of project activities, compliance with safeguards and reduction of GHG emissions within the project scope is described below.

This monitoring plan provides for the collection of relevant information and data that allows:

- i. Verify that the conditions of applicability, listed in paragraph 2, have been met.
- ii. Verify changes in coal reserves in selected reservoirs;
- iii. Check for project emissions and leaks.

The collected data will be archived for at least a period of two years after the end of the last project period. It will include the data and parameters monitored, the methods used for their generation, their proper collection and archiving, and the processes related to sampling models and quality control.

11.1 MONITORING PROJECT BOUNDARIES

To monitor the project boundaries through Geographic Information Systems (GIS) tools, the total areas of the project must be georeferenced, including the reference region and the area of leaks during the development of the project and according to the minimum technical specifications for cartographic products.

The monitoring of the reduction of emissions from deforestation and degradation will be carried out for the geographical areas included in the project. Periodic verification of deforestation and degradation in the project area shall be carried out following the guidelines set out in section 10.5. Reduction of GHG emissions expected with the implementation of REDD+ activities.

11.2 MONITORING THE IMPLEMENTATION OF REDD+ ACTIVITIES

In accordance with the activities set out in section 8, the activities will be monitored, following the provisions of the following tables:

Activity ID	A-1
Indicator ID	A-1.1
Indicator Name	People participating in meetings, surveys or workshops on problem tree and the identification of drivers of deforestation and production systems and governance management
Type	Result
Goal	Workshops or meetings are held in a participatory manner.
SDGs to be met	SDG1 (Carbon Revenues and Productive Projects), SDG2 (Productive Projects), SDG8 (Productive Projects and Governance Activities), SDG13 (Emission Reductions), SDG15 (Forest Habitat Protection),
Unit of Measurement	Number of people
Monitoring Methodology	For the measurement and reporting of this indicator, the number of participants in the meetings, workshops or surveys carried out is taken into account
Monitoring Frequency	Annually

Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Surveys applied to community members.
Remarks	Available documentation must be used
Source of Funding	
Contribution to REDD+ objectives	Identification of relationships in the Theory of Change, based on the identification of deforestation problems, causes, agents, and potential solutions

Activity ID	A-1
Indicator ID	A-1.2
Indicator Name	Legal support agreements for the development and implementation of the project, including carbon credit trading
Type	Result
Goal	Monitor the agreements reached
SDGs to be met	SDG1 (Carbon Revenues and Productive Projects), SDG2 (Productive Projects), SDG8 (Productive Projects and Governance Activities), SDG13 (Emission Reductions), SDG15 (Forest Habitat Protection),
Unit of Measurement	Number of Agreements
Monitoring Methodology	For the measurement and reporting of this indicator, the signed agreements and the minutes or reports related to their subscription will be reviewed
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Agreements • Minutes of the Rapporteurship Meetings.
Remarks	Available documentation must be used
Source of Funding	
Contribution to REDD+ objectives	Legal basis for financing and implementation of REDD+ project activities

Activity ID	A-1
Indicator ID	A-1.3
Indicator Name	Registration of a project in an emission reduction certification program
Type	Result
Goal	Project Registration

SDGs to be met	SDG1 (Carbon Revenues and Productive Projects), SDG2 (Productive Projects), SDG8 (Productive Projects, and Governance Activities), SDG13 (Emission Reductions), SDG15 (Forest Habitat Protection),
Unit of Measurement	Registration
Monitoring Methodology	Registration Review on Registration Platform
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Registration number • Link to field on platform
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Registration allows the issuance of emission reduction certificates that can then be sold on the market to finance activities

Activity ID	A-2
Indicator ID	A-2.1
Indicator Name	People who participate in meetings, surveys or workshops on production systems
Type	Result
Goal	All the people involved in the development of production systems participate in training or training sessions.
SDGs to be met	SDG1 (productive projects), SDG2 (productive projects), SDG8 (productive projects), SDG13 (emission reduction), SDG15 (forest habitat protection)
Unit of Measurement	# of people
Monitoring Methodology	For the measurement and reporting of this indicator, the number of participants in the meetings, workshops or surveys carried out for the identification and prioritization of the production systems to be implemented or improved with the project is taken into account.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Third-Party Reporting
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Meeting Registration
Remarks	Use available information
Source of Funding	
Contribution to REDD+ objectives	Identification of priority productive activities that contribute to minimizing incentives for deforestation activities

--	--

Activity ID	A-2
Indicator ID	A-2.2
Indicator Name	Number of women participating in meetings, surveys or workshops on production systems
Type	Result
Goal	All women involved in the development of production systems participate in training or training sessions.
SDGs to be met	SDG ₁ (productive projects), SDG ₂ (productive projects), SDG ₅ (women's participation), SDG ₈ (productive projects), SDG ₁₃ (emission reduction), SDG ₁₅ (forest habitat protection)
Unit of Measurement	# of women
Monitoring Methodology	For the measurement and reporting of this indicator, the number of participants in the meetings, workshops or surveys carried out for the identification and prioritization of the promising production systems to be implemented with the project is taken into account.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Third-Party Reporting
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Rapporteurship
Remarks	Use available information
Source of Funding	
Contribution to REDD+ objectives	Identification of priority productive activities that contribute to minimizing incentives for deforestation activities by linking women in chagras systems

Activity ID	A-2
Indicator ID	A-2.3
Indicator Name	Productive activities identified
Type	Product
Goal	Productive activities are identified
SDGs to be met	SDG ₁ (productive projects), SDG ₂ (productive projects), SDG ₈ (productive projects), SDG ₁₃ (emission reduction), SDG ₁₅ (forest habitat protection)
Unit of Measurement	Is it fulfilled or not
Monitoring Methodology	For the measurement and reporting of this indicator, compliance or non-compliance with the identification of priority productive activities is considered

Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Third-Party Reporting
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> Workshop reports.
Remarks	From the fourth year onwards
Source of Funding	
Contribution to REDD+ objectives	Identification of productive activities to prioritize to achieve conservation objectives

Activity ID	A-2
Indicator ID	A-2.4
Indicator Name	# Elaborate business plans
Type	Product
Goal	At least one business plan is defined to be implemented
SDGs to be met	SDG1 (productive projects), SDG2 (productive projects), SDG8 (productive projects), SDG13 (emission reduction), SDG15 (forest habitat protection)
Unit of Measurement	Number
Monitoring Methodology	For the measurement and reporting of this indicator, the number of Business Plans prepared by the project implementer and the proponents is taken into account.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> Developed Business Plan Documents. Prioritized Business Plan Documents.
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Development of business plans to make investments in productive activities effective, minimizing risk and enhancing impact

Activity ID	A-3
Indicator ID	A-3.1.
Indicator Name	People involved in training or training days.
Type	Impact
Goal	All families (at least one representative per family) involved in the development of production systems and business plans participate in training or training sessions.
SDGs to be met	SDG1 (productive projects), SDG2 (productive projects), SDG8 (productive projects), SDG13 (emission reduction), SDG15 (forest habitat protection)

Unit of Measurement	Number of people
Monitoring Methodology	Number of family members attending training sessions for the management of production systems and business plans, including administrative, legal and financial aspects, as well as the strengthening of forest governance management and the value obtained is reported
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Third-Party Reports
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Lists of attendance at training workshops for the management of prioritized production systems. • Meeting minutes and photographic record of the training sessions for the management of the prioritized production systems.
Remarks	From the fourth year onwards
Source of Funding	
Contribution to REDD+ objectives	Generation of skills and knowledge to ensure the success of productive projects, based on the business plans developed

Activity ID	A-4
Indicator ID	A-4.1
Indicator Name	Hectares of sustainable production systems established or improved
Type	Result
Goal	Productive systems that favor the conservation of biodiversity are implemented or improved.
SDGs to be met	SDG1 (productive projects), SDG2 (productive projects), SDG8 (productive projects), SDG13 (emission reduction), SDG15 (forest habitat protection)
Unit of Measurement	Area (ha)
Monitoring Methodology	For the measurement and reporting of this indicator, the productive area that has been implemented or improved is identified and estimated.
Monitoring Frequency	Annually
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Captaincy • Third-Party Reports
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Visitation report. • Photographic record. • Satellite verification and measurement with GIS tools. • Other
Remarks	From the fourth year onwards
Source of Funding	

Contribution to REDD+ objectives	Achieve the objectives of generating income from productive activities, but seeking to prioritize the conservation of biodiversity, to guarantee pollinators, species corridors, and habitats
---	---

Activity ID	A-5
Indicator ID	A-5.1
Indicator Name	Total quantity of goods or services installed, improved, or produced in production systems
Type	Product
Goal	Productive systems that offer quantifiable goods or services to the community are implemented or improved
SDGs to be met	SDG1 (productive projects), SDG2 (productive projects), SDG8 (productive projects), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	Production Units
Monitoring Methodology	To measure and report this indicator, we start from the production obtained per unit of area of the production system established or improved. To do this, the quantities of products or services produced are recorded.
Monitoring Frequency	Annually
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Captaincy
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Production records obtained in production systems.
Remarks	From the fifth year onwards
Source of Funding	
Contribution to REDD+ objectives	Indicators of production of goods or services that contribute to the increase of local productive capacity to discourage activities that generate deforestation

Activity ID	A-6
Indicator ID	A-6.1
Indicator Name	People participating in meetings or workshops on social investment issues
Type	Result
Goal	The processes of identification and prioritization of social investment are carried out in a participatory manner.
SDGs to be met	SDG1 (social investment), SDG3 (investment in health), SDG4 (investment in education), SDG6 (investment in water and sanitation), SDG11 (investment in housing), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)

Unit of Measurement	# of people
Monitoring Methodology	Participant Registration Minutes Rapporteurships
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Rapporteurship
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Indicator of participation in the identification and promotion of social investment that helps to discourage activities that generate deforestation and forest degradation

Activity ID	A-6
Indicator ID	A-6.2
Indicator Name	Women participating in meetings or workshops on social investment issues.
Type	Result
Goal	The processes of identification and prioritization of social investment are carried out in a participatory manner.
SDGs to be met	SDG1 (social investment), SDG3 (investment in health), SDG4 (investment in education), SDG5 (women's participation), SDG6 (investment in water and sanitation), SDG11 (investment in housing), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of women
Monitoring Methodology	For the measurement and reporting of this indicator, the number of female participants who attend the meetings, workshops or surveys carried out for the identification and prioritization of social investment to be developed or improved with the project is taken into account.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Third-Party Reporting
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened.

	<ul style="list-style-type: none"> Rapporteurships
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Indicator of women's participation in the identification and promotion of social investment that helps discourage activities that generate deforestation and forest degradation

Activity ID	A-7
Indicator ID	A-7.1
Indicator Name	Activities/elements that facilitate the movement of people and goods
Type	Product
Goal	Improved mobilization of community members and assets
SDGs to be met	SDG1 (social investment), SDG3 (transport for health), SDG4 (investment in traditional medicine education), SDG6 (investment in water and sanitation), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of activities
Monitoring Methodology	The number of activities or acquisition of elements that favor the mobilization of people is identified.
Monitoring Frequency	Annual
Responsible for measurement	<ul style="list-style-type: none"> Carbo-Terra Captaincy
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> Photographic record Record of acquisitions made within the framework of the project Verification of the means of transport purchased
Remarks	From the third year onwards
Source of Funding	
Contribution to REDD+ objectives	Improvements in the mobility of people and goods to facilitate governance, the provision of social services, and productive and commercial capacity

Activity ID	A-7
Indicator ID	A-7.2
Indicator Name	# of people participating in meetings or workshops on transportation issues
Type	Result
Goal	The identification and prioritization processes are carried out in a participatory manner.
SDGs to be met	SDG1 (social investment), SDG3 (transport for health), SDG8 (transport for produce), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	Number
Monitoring Methodology	Participant Registration Minutes

	Rapporteurships
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Entities or programs that carry out activity
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Rapporteurship
Remarks	Available information will be used
Source of Funding	
Contribution to REDD+ objectives	Identification of investment priorities to improve aspects of transportation that contribute to improving productivity, governance, and social management

Activity ID	A-8
Indicator ID	A-8.1
Indicator Name	Upgraded/built educational facilities.
Type	Product
Goal	Improve or construct educational facilities located on reservations
SDGs to be met	SDG ₁ (social investment), SDG ₄ (investment in education), SDG ₁₃ (emission reduction), SDG ₁₅ (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of installations
Monitoring Methodology	It is verified on the basis of budget execution and records of construction or improvement activities of educational facilities within the framework of the project.
Monitoring Frequency	Annually
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Captaincy • Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Verification in on-site visits. • Photographic record. • Budget execution. • Records of maintenance and construction activities.
Remarks	From the third year onwards
Source of Funding	
Contribution to REDD+ objectives	Investment in educational facilities to discourage deforestation activities, improving social cohesion, and improving environmental education and territorial governance

Activity ID	A-8
Indicator ID	A-8.2
Indicator Name	# of people participating in meetings or workshops on education topics
Type	Result
Goal	The identification and prioritization processes are carried out in a participatory manner.
SDGs to be met	SDG1 (social investment), SDG4 (investment in education), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	Number
Monitoring Methodology	<ul style="list-style-type: none"> • Participant Registration • Minutes • Third-Party Reports
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Entities or programs that carry out activity
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic record and/or videos. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Rapporteurship
Remarks	Available information will be used
Source of Funding	
Contribution to REDD+ objectives	Identification of priorities in the field of education to improve local capacities for territorial management

Activity ID	A-9
Indicator ID	A-9.1
Indicator Name	# People with access to formal education programs or better quality education
Type	Result
Goal	The quality of education or access to formal education programmes for community members is improved.
SDGs to be met	SDG1 (social investment), SDG4 (investment in education), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of people
Monitoring Methodology	People who have access to formal education or a better quality of education are identified.
Monitoring Frequency	Annually
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Captaincy • Third-Party Reports

Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Execution of project resources. • Development of formal education programs. • Record of actions aimed at improving the education of the community. • Registration of beneficiaries of actions aimed at improving education in the community.
Remarks	From the third year onwards
Source of Funding	
Contribution to REDD+ objectives	Improve access to educational opportunities and formal instructional processes

Activity ID	A-9
Indicator ID	A-9.2
Indicator Name	# Women with access to formal education programs or better quality education
Type	Result
Goal	The quality of education or access to formal education programmes for women in the communities is improved.
SDGs to be met	SDG1 (social investment), SDG4 (investment in education), SDG5 (women's participation), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of women
Monitoring Methodology	The number of women who have access to formal education or to a better quality of education is quantified.
Monitoring Frequency	Annually
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Captaincy • Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Execution of project resources. • Development of formal education programs. • Record of actions aimed at improving the education of the community. • Registration of women beneficiaries of actions aimed at improving education in the community. • Third-Party Reports
Remarks	From the third year onwards
Source of Funding	
Contribution to REDD+ objectives	Improve women's access to educational opportunities and formal instruction processes

Activity ID	A-10
Indicator ID	A-10.1
Indicator Name	Health posts built/improved
Type	Result
Goal	Infrastructure to provide health services to community members is improved.
SDGs to be met	SDG1 (social investment), SDG3 (health), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of Health Posts
Monitoring Methodology	The execution of project resources and the investments made in the construction or adaptation of health posts are verified. The number of health posts built or improved is quantified.
Monitoring Frequency	Annually
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Captaincy • Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Execution of project resources. • Built and adequate health posts. • Third-Party Reports
Remarks	From the fourth year onwards
Source of Funding	
Contribution to REDD+ objectives	Improvements in the provision of health services generate social cohesion and discourage deforestation processes that could affect the provision of the service

Activity ID	A-11
Indicator ID	A-11.1
Indicator Name	Water purification systems
Type	Result
Goal	Access to safe drinking water or better water quality is improved.
SDGs to be met	SDG1 (social investment), SDG3 (Health for better health), SDG11 (better housing), SDG15 (protection of forest habitats as it discourages deforestation)
Unit of Measurement	Installed Systems & Capacity
Monitoring Methodology	The execution of project resources and the investments made in drinking water treatment systems are verified. It quantifies the number of people who have access to safe drinking water or improved water quality.
Monitoring Frequency	Annually

Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Execution of project resources. • Construction of drinking water treatment systems. • Third-Party Reports
Remarks	From the first year onwards
Source of Funding	
Contribution to REDD+ objectives	Improvements in the provision of water supply services of sufficient quality and quantity generate social cohesion, and discourage deforestation processes that could affect the provision of the service

Activity ID	A-11
Indicator ID	A-11.2
Indicator Name	# Improved/Built Homes
Type	Result
Goal	Community members' homes are improved or built.
SDGs to be met	SDG1 (social investment), SDG3 (Health for better health), SDG11 (better housing), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of Homes
Monitoring Methodology	The number of homes improved or built is quantified.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Project Resource Execution • Records of Home Improvement Activities • On-site visits • Third-Party Reports
Remarks	From the third year onwards
Source of Funding	
Contribution to REDD+ objectives	Housing Improvements Generate Better Living Conditions, Social Cohesion, and Encourage Deforestation Control Processes

Activity ID	A-11
Indicator ID	A-11.3
Indicator Name	# Upgraded/built electrification systems
Type	Result
Goal	Improved access to electricity and electrification systems

SDGs to be met	SDG ₁ (social investment), SDG ₃ (Health for better health), SDG ₇ (clean energy), SDG ₁₁ (better housing), SDG ₁₃ (emission reduction), SDG ₁₅ (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of systems installed
Monitoring Methodology	The number of systems that provide access to electricity is quantified.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Project Resource Execution • Records of Home Improvement Activities • On-site visits • Third-Party Reports
Remarks	From the first year onwards
Source of Funding	
Contribution to REDD+ objectives	Improvements in access to electricity generate better living conditions, social cohesion, and encourage deforestation control processes

Activity ID	A-12
Indicator ID	A-12.1
Indicator Name	People who participate in meetings or workshops on governance issues
Type	Result
Goal	The process of building/updating the Life Plan is carried out in a participatory manner.
SDGs to be met	SDG ₁ (social and productive investment), SDG ₂ (social and productive investment), SDG ₃ (investment in health), SDG ₄ (investment in education), SDG ₅ (women's participation), SDG ₆ (investment in water and sanitation), SDG ₈ (better employment and economic growth), SDG ₁₁ (investment in housing), SDG ₁₃ (emission reduction), SDG ₁₅ (protection of forest habitat as it discourages deforestation)
Unit of Measurement	Number
Monitoring Methodology	The number of participants in meetings or workshops related to governance issues is taken into account.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic and/or video records. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Reports

Remarks	
Source of Funding	
Contribution to REDD+ objectives	Strengthening territorial and forest governance processes

Activity ID	A-12
Indicator ID	A-12.2
Indicator Name	Women participating in meetings or workshops on governance issues
Type	Result
Goal	The process of building/updating the Life Plan involves the participation of women from the communities.
SDGs to be met	SDG1 (social and productive investment), SDG2 (social and productive investment), SDG3 (investment in health), SDG4 (investment in education), SDG5 (women's participation), SDG6 (investment in water and sanitation), SDG8 (better employment and economic growth), SDG11 (investment in housing), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of women
Monitoring Methodology	The number of women participating in meetings or workshops related to governance issues is taken into account.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Photographic and/or video records. • Attendance lists for workshops and meetings convened. • Minutes of meetings and workshops convened. • Reports
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Participation of women in conferences to strengthen territorial and forestry governance processes

Activity ID	A-12
Indicator ID	A-12.3
Indicator Name	Elaborated or updated life plans
Type	Product
Goal	At least 1 Life Plan is drawn up.
SDGs to be met	SDG1 (social and productive investment), SDG2 (social and productive investment), SDG3 (investment in health), SDG4 (investment in education), SDG5 (women's participation), SDG6 (investment in water

	and sanitation), SDG8 (better employment and economic growth), SDG11 (investment in housing), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of Life Plans
Monitoring Methodology	The number of life plans drawn up or updated is quantified.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Developed or updated Indigenous Life Plan document. • Attendance lists and minutes of the life plan construction days
Remarks	From the fourth year onwards
Source of Funding	
Contribution to REDD+ objectives	Updating life plans based on new realities and local capacities

Activity ID	A-13
Indicator ID	A-13.1
Indicator Name	Indigenous land use plans drawn up
Type	Product
Goal	At least one (i) Land Use Plan is prepared.
SDGs to be met	SDG13 (emission reduction), SDG15 (forest habitat protection as it discourages deforestation)
Unit of Measurement	# of management plans
Monitoring Methodology	The elaboration of the developed Territorial Planning Plans is verified.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Program or entities
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Documents of Land Use Plans. • Attendance lists for the construction days of the management plan. • Reports
Remarks	From the fourth year onwards
Source of Funding	
Contribution to REDD+ objectives	Land use planning processes at the territorial level allow for the generation of conservation priorities, and zoning of productive activities and guidelines for exercising territorial governance

Activity ID	A-13
--------------------	------

Indicator ID	A-13.2
Indicator Name	Land use plans under implementation
Type	Result
Goal	The implementation of at least 1 Land Use Plan begins.
SDGs to be met	SDG13 (emission reduction), SDG15 (forest habitat protection as it discourages deforestation)
Unit of Measurement	Number
Monitoring Methodology	For the reporting of this indicator, the number of Management Plans that are in implementation will be taken into account.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Programs or entities
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> Records of actions for the implementation of the Indigenous Life Plans. Photographic record and/or videos. Reports
Remarks	From the fourth year onwards
Source of Funding	
Contribution to REDD+ objectives	Implementation of plans provides feedback on planning processes and strengthens capacity for forest governance and deforestation control

Activity ID	A-14
Indicator ID	A-14.1
Indicator Name	Trainings, meetings or training sessions on environmental management and conservation
Type	Result
Goal	Strengthen the capacities of community members for environmental management and conservation of the territory
SDGs to be met	SDG6 (water resource management and sanitation), SDG13 (emission reduction), SDG15 (protection of forest habitats as it discourages deforestation)
Unit of Measurement	# of trainings, meetings or training days
Monitoring Methodology	The number of people in the community who attend training sessions, trainings or meetings for the management of traditional production systems is quantified.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Programs or entities
Indicator Result in the reporting period	

Documents to support the information	<ul style="list-style-type: none"> • Attendance lists for the conferences. • Minutes of the meeting and photographic record of the training sessions for the management of traditional production systems. • Photographic record and/or videos. • Reports
Remarks	From the fourth year onwards
Source of Funding	
Contribution to REDD+ objectives	Strengthening the capacities of members of the territory to achieve conservation objectives

Activity ID	A-15
Indicator ID	A-15.1
Indicator Name	People who participate in awareness-raising, meetings or training sessions on biodiversity and deforestation control.
Type	Result
Goal	Strengthen the capacities of community members to monitor biodiversity and control deforestation
SDGs to be met	SDG13 (emission reduction), SDG15 (forest habitat protection as it discourages deforestation)
Unit of Measurement	# of people
Monitoring Methodology	The number of attendees at awareness-raising sessions, training sessions or meetings on biodiversity monitoring and deforestation control is quantified.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Attendance lists for the seminars for the identification of the causes and agents of deforestation, management of natural resources, management of equipment and techniques for biodiversity monitoring, conflict resolution. • Minutes of the meeting and photographic record of the training sessions for the identification of the causes and agents of deforestation, management of natural resources, management of equipment and techniques for biodiversity monitoring, conflict resolution
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Generating awareness-raising processes on the importance of conserving forests and biodiversity

Activity ID	A-15
Indicator ID	A-15.2
Indicator Name	Women participating in awareness-raising, meetings or training sessions
Type	Result
Goal	Strengthen the capacities of women in communities to monitor biodiversity and control deforestation
SDGs to be met	SDG5 (women's participation), SDG13 (emission reduction), SDG15 (protection of forest habitat as it discourages deforestation)
Unit of Measurement	# of women
Monitoring Methodology	The number of women who attend awareness-raising days, training or meetings on biodiversity monitoring and deforestation control is identified.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> Attendance lists for the seminars for the identification of the causes and agents of deforestation, management of natural resources, management of equipment and techniques for biodiversity monitoring, conflict resolution. Minutes of the meeting and photographic record of the training sessions for the identification of the causes and agents of deforestation, management of natural resources, management of equipment and techniques for biodiversity monitoring, conflict resolution
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Active participation of women in awareness-raising processes on the importance of conserving forests and biodiversity

Activity ID	A-15
Indicator ID	A-15.3
Indicator Name	Document of constitution or formalization of the Group of Forest Ranger Families or the Indigenous Guard
Type	Product
Goal	Formalize the group of rangers or the indigenous guard.
SDGs to be met	SDG13 (emission reduction), SDG15 (forest habitat protection as it discourages deforestation)
Unit of Measurement	Number
Monitoring Methodology	Number of documents for the constitution and formalization of the Group of Forest Ranger and/or Indigenous Guard Families.
Monitoring Frequency	Annual

Responsible for measurement	Carbo-Terra Entities or Programs
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Documents formalizing and constituting the Group of Forest Ranger and/or Indigenous Guard Families. • Meeting Minutes. • Reports
Remarks	From the third year onwards
Source of Funding	
Contribution to REDD+ objectives	Establishment of forest monitoring groups to discourage forest degradation, to detect threats of deforestation, and to promote environmental education processes

Activity ID	A-16
Indicator ID	A-16.1
Indicator Name	# of hectares of forest standing
Type	Impact
Goal	Monitoring the progress of deforestation
SDGs to be met	SDG13 (emission reduction), SDG15 (forest habitat protection as it discourages deforestation)
Unit of Measurement	Number
Monitoring Methodology	Evaluation of forest and non-forest maps according to PROCLIMA methodology
Monitoring Frequency	Annual
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Delegate responsible on behalf of the safeguards
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Deforestation analysis from maps • Calculations of deforestation and deforestation rates
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Deforestation Monitoring Through Remote Sensing

Activity ID	A-16
Indicator ID	A-16.2
Indicator Name	# of tonnes of CO ₂ e not emitted
Type	Impact
Goal	Reduce Carbon Emissions
SDGs to be met	SDG13 (emission reduction), SDG15 (forest habitat protection as it discourages deforestation)
Unit of Measurement	Tonnes (tCO ₂ e)

Monitoring Methodology	To measure and report this indicator, the area of standing forest present in the territory of the indigenous reserves is identified and estimated using Geographic Information Systems and satellite images from remote sensors. Subsequently, the applicable emission factor is applied
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Use of IDEAM Non-Forest Maps (SMByC) • Use of NREF Emission Factors • Calculation Supports
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Deforestation monitoring through remote sensing using emission factors to estimate tons of carbon emitted or not emitted

Activity ID	A-16
Indicator ID	A-16.3
Indicator Name	# of full-time employees by project activities
Type	Impact
Goal	Employ community members in biodiversity monitoring and follow-up activities
SDGs to be met	SDG13 (emission reduction), SDG15 (forest habitat protection as it discourages deforestation)
Unit of Measurement	Number
Monitoring Methodology	Number of people employed full-time by project activities related to the monitoring component.
Monitoring Frequency	Annual
Responsible for measurement	<ul style="list-style-type: none"> • Carbo-Terra • Delegate responsible on behalf of the safeguards
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Contracts entered into with members of the community. • Payment records.
Remarks	
Source of Funding	
Contribution to REDD+ objectives	Indicator of Community Participation in Deforestation Monitoring Processes

11.3 MONITORING REDD+ SAFEGUARDS

Based on compliance with the REDD+ Safeguards (Section 9), the following monitoring is established:

ID Safeguard	Safeguard 1
Indicator ID	SVG - 1
Indicator Name	Correspondence with national legislation
Type	Result
Goal	100%
Unit of Measurement	Percentage
Monitoring Methodology	The verification of the current regulations is carried out and it is verified that the proposed activities comply with them. The following equation will be used to monitor and report this indicator: $\frac{\# \text{ de actividades que cumplen la normatividad}}{\# \text{ de actividades totales}} \times 100\%$
Monitoring Frequency	Annually or when a change in project activities is proposed
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Analysis of legal correspondence by project activities. • Attendance lists, meeting minutes, photographic record, and recordings of community meetings. • Records.
Remarks	

ID Safeguard	Safeguard 2
Indicator ID	SVG - 2
Indicator Name	Transformation and access to information
Type	Result
Goal	100% of the documents in appropriate language and according to the appropriate means for access and understanding by the community.
Unit of Measurement	Percentage (%) of documents available
Monitoring Methodology	Access to information in community-appropriate language and media will be verified. The number of community leaders who have access to the developed documents will be verified. The following equation will be used to monitor this safeguard and report this indicator: $\frac{\# \text{ de líderes de la comunidad con acceso a información}}{\# \text{ de líderes totales de la comunidad}} * 100\%$
Monitoring Frequency	Annual
Responsible for the measurement	Carbo-Terra
Indicator Result in the Reporting Period	
Documents for Support the information	<ul style="list-style-type: none"> • Documents generated, including minutes and reports of workshops, interviews, and surveys • Workshop Attendance Lists
Remarks	

ID Safeguard	Safeguard -3
Indicator ID	SVG-3
Indicator Name	Accountability
Type	Product
Goal	Submit an accountability report within 6 months of the verification process.
Unit of Measurement	Number
Monitoring Methodology	The generation of accountability reports by the project implementer will be taken into account. Reporting and accountability sessions will be held with stakeholders each time audits of project activities are carried out.
Monitoring Frequency	Within 6 months of the verification processes or audits of the project activities.
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Meeting minutes, attendance list and photographic record. • Reports.
Remarks	

ID Safeguard	Safeguard 4
Indicator ID	SVG - 4
Indicator Name	Recognition of forest governance structures
Type	Impact
Goal	Guarantee the recognition of the forest governance structures determined by law and those established by the authorities of the Resguardo in such a way that they take into account the ethnic particularities, knowledge and traditions of the indigenous reservation participating in the project.
Unit of Measurement	Number (#) of recognized governance structures
Monitoring Methodology	The number of recognized community governance structures is identified.
Monitoring Frequency	Annual
Responsible for the measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents for Support the information	<ul style="list-style-type: none"> • Surveys • Documented Forest Governance Structures
Remarks	

ID Safeguard	Safeguard -5
Indicator ID	SVG-5

Indicator Name	Capacity building
Type	Result
Goal	Increase the technical, legal and administrative capacities of members of indigenous reservations
Unit of Measurement	Number (#) of working days
Monitoring Methodology	Thematic training sessions (technical, legal and administrative) will be held, and tests will be applied at the end of the training sessions in order to evaluate the adoption of knowledge by community members, and the results obtained will be reported.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra Community Members
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Minutes and reports of the conferences held. • Attendance lists, • questionnaires conducted with the community, • Photographic record
Remarks	From the third year onwards.

ID Safeguard	Safeguard 6
Indicator ID	SVG - 6
Indicator Name	Free, Prior and Informed Consent
Type	Result
Goal	Guarantee that consultation spaces are held in accordance with the national provisions on consultation and free, prior and informed consent established in legislation and jurisprudence, as well as with the guidelines given by the Ministry of the Interior and the control bodies for relations with indigenous communities.
Unit of Measurement	Number (#) of consultation sessions or documents and free, prior and informed consent
Monitoring Methodology	Conferences and documents will be held to demonstrate the consent of the members of the community and the number of activities carried out will be reported.
Monitoring Frequency	Annual
Responsible for the measurement	Carbo-Terra
Indicator Result in the Reporting Period	
Documents for Support the information	<ul style="list-style-type: none"> • Minutes and reports of the conferences held. • Attendance lists, • Documents • Audio-visual recording

Remarks	
---------	--

6.

ID Safeguard	Safeguard -7
Indicator ID	SVG-7
Indicator Name	Respect for traditional knowledge
Type	Result
Goal	Ensure that the ways of understanding and relating to the environment of the communities have been taken into consideration and respected, so that the traditions, uses and customs of the communities are not affected.
Unit of Measurement	# of consultation days/meetings
Monitoring Methodology	The number of days of consultation with community members related to the project's activities is quantified.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	Evidence of relationship and consultation with the communities (minutes of meetings, lists of participants, audiovisual record)
Remarks	

ID Safeguard	Safeguard -8
Indicator ID	SVG-8
Indicator Name	Profit Sharing
Type	Impact
Goal	Ensure the equitable distribution of the benefits derived from the implementation of the policies, measures and actions of the project.
Unit of Measurement	Coin
Monitoring Methodology	Considering that there is a mechanism for the distribution of resources derived from the commercialization of carbon certificates agreed with the communities, a record will be kept of the resources received by the indigenous reservations.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra, Captaincy
Indicator Result in the reporting period	
Documents to support the information	Resource Distribution Agreement defined and signed. Financial support or economic transactions.
Remarks	From the moment the project's carbon certificates are marketed, this indicator will be reported.

7.

ID Safeguard	Safeguard -9
Indicator ID	SVG-9
Indicator Name	Territorial rights
Type	Result
Goal	Guarantee respect for the collective and individual territorial rights of the community of the El Tigre indigenous reserve; its cultural, economic, and spiritual use and significance.
Unit of Measurement	Compliance or non-compliance
Monitoring Methodology	The regulations issued on territorial rights for the reservation are reviewed and their respect is verified.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	Complies
Documents to support the information	Meetings, workshops Records.

8.

ID Safeguard	SVG-10
Indicator ID	SVG-10
Indicator Name	Participation
Type	Result
Goal	Ensure the full and effective participation of stakeholders to ensure governance and adequate decision-making on REDD+
Unit of Measurement	Compliance or non-compliance
Monitoring Methodology	The participation of community members in the development of all phases of the project will be verified to ensure the exercise of their free participation and governance.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	Evidence of relationship, participation and consultation with the communities (minutes of meetings, lists of participants, photographic record)
Remarks	

ID Safeguard	SVG-11
Indicator ID	SVG-11
Indicator Name	Conservation of forests and their biodiversity
Type	Impact
Goal	Ensure that the project does not undermine the conservation of forests and the biodiversity they support.
Unit of Measurement	Compliance or non-compliance

Monitoring Methodology	It will be reviewed that the project activities do not affect the area of stable forest present in the project area, through the use of remote sensing and field verification, and that toxic substances are not dumped or used.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Generation of cartographic products • On-site observations
Remarks	

9.

ID Safeguard	Safeguard -12
Indicator ID	SVG-12
Indicator Name	Provision of environmental goods and services
Type	Impact
Goal	The activities do not directly or indirectly affect ecosystem services such as carbon storage, water regulation, food provision, among others.
Unit of Measurement	Compliance or non-compliance
Monitoring Methodology	The forest cover present in the territory of the indigenous reservation will be monitored and the development of activities will be carried out to ensure that no activities that affect biodiversity are implemented.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Generation of cartographic products • Project activity reports. • On-site observations
Remarks	

10.

ID Safeguard	SVG-13
Indicator ID	SVG-13
Indicator Name	Environmental and territorial planning
Type	Result
Goal	Consolidate the instruments of territorial and environmental planning under a focus on conservation and sustainable management of the forest, recognizing the forms of management of the indigenous reservation.
Unit of Measurement	Number
Monitoring Methodology	The Environmental and Territorial Planning Plans will be constructed in accordance with the forms of planning of the indigenous

	reservation participating in the project. The implementation of these plans will also be monitored.
Monitoring Frequency	Annual
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	Developed Land Use Plan Documents
Remarks	These activities will be developed within the framework of the project from the fourth year onwards.

ID Safeguard	Safeguard -15
Indicator ID	SVG-15
Indicator Name	Forest control and surveillance to prevent the displacement of emissions
Type	Result
Goal	Carry out monitoring actions to detect the displacement of emissions.
Unit of Measurement	Number (#)
Monitoring Methodology	GHG emissions in the project's leakage area that are above the baseline are quantified.
Monitoring Frequency	Annually
Responsible for measurement	Carbo-Terra
Indicator Result in the reporting period	
Documents to support the information	<ul style="list-style-type: none"> • Satellite imagery. • Analysis of coverage change.
Remarks	

11.4 MONITORING THE PERMANENCE OF THE REDD+ PROJECT

The following table presents the risks of non-permanence identified, as well as the level of risk, the associated mitigation measures, the monitoring indicators and the reporting procedure in case any of these situations occur.

Table 21 Permanence risk analysis.

Risk	Level of Risk	Mitigation Measures	Monitoring Indicators	Reporting Procedure	Monitoring Frequency
Fires	Low	<ul style="list-style-type: none"> - Visual detection of fires during tours conducted by community members. - Interpretation of satellite images. - 15% buffer. - Define a mechanism for communication and request for support with entities that deal with emergencies (Cormacarena, Firefighters, Army, National Unit for Disaster Risk Management - UNGRD). 	<ul style="list-style-type: none"> M.1. # of fires detected M.2. # of hectares affected by fires 	<ol style="list-style-type: none"> 1. Inform the Captain of the Reservation of the detection of a fire, its location and approximate extent. 2. Record the information of the fire in a document: People who detected the fire, Date of Occurrence, Location, Extent, Duration of the event. 3. Report of the event to CARBO-TERRA and local emergency response institutions (Cormacarena, UNGRD, Fire Department, etc.). 4. Estimation of the affected area by means of satellite images and field verification (if possible). 	Annual
Floods	Low	<ul style="list-style-type: none"> - Visual detection of flooding during displacements of community members. - Interpretation of satellite images. - 15% buffer. - Define a mechanism for communication and request for support with entities that deal with emergencies (Cormacarena, Firefighters, Army, National Unit for Disaster Risk Management - UNGRD). 	<ul style="list-style-type: none"> M.3# of hectares affected by flooding 	<ol style="list-style-type: none"> 1. Inform the Captain of the Reservation of the detection of a flood, its location and approximate extent. 2. Record the flood information in a document: People who detected the event, Date of Occurrence, Location, Extent. 3. Report the event to CARBO-TERRA and local emergency response institutions (Cormacarena, UNGRD, Fire Department, etc.), if necessary. 4. Estimation of the affected area by means of satellite imagery and field verification (only if possible). 	Annual
Land tenure disputes	Low	<ul style="list-style-type: none"> - 15% buffer. 	<ul style="list-style-type: none"> M.4 # of hectares disputed 	<ol style="list-style-type: none"> 1. The Captain of the Indigenous Reservation shall identify the actors who wish to claim the rights to 	Annual

Risk	Level of Risk	Mitigation Measures	Monitoring Indicators	Reporting Procedure	Monitoring Frequency
			over land tenure	the lands titled as territory of the Indigenous Reservation. 2. Report to the Ministry of the Interior, to the indigenous liaisons of the local mayor's offices and the respective governor's office, and to CARBO-TERRA the intention of a third party to claim the rights to the titling of the land. 3. Attend to regular procedures and channels for settling land tenure disputes.	
Non-appropriation of project activities	Middle	<ul style="list-style-type: none"> - Implementation of the activities defined and agreed with the community, according to the stages that are defined. - Monitoring of progress and expected results at each stage. - Definition and implementation of improvement actions to address the problems of appropriation of the activities identified. - Provide constant support to the actors involved in the project. - Buffer 15% of the project's emission reductions. 	M.5. # of REDD+ activities that cannot be implemented due to low ownership by project actors.	<ul style="list-style-type: none"> 1. Review the results obtained from the activities and implementation stages and identify problems of ownership by the project actors. 2. Quantify the hectares of forest deforested and estimate the CO₂ emissions associated with the non-appropriation of project activities. 3. Discount the emissions generated from the 15% buffer during the corresponding REDD+ activity monitoring period. 	Annual

11.5 MONITORING PROJECT EMISSIONS

During the implementation of the project, activity data and emission factors will be monitored in accordance with the provisions of section 10.3. The project's emissions will be estimated following the procedure and equations presented in section 10.5.

11.5.1 Activity Data

- **Annual deforestation in the project area**

The estimate of deforestation in the project area in the monitoring period is estimated with the equation:

$$CSB_{proy,año} = \left(\frac{1}{t_2 - t_1} \right) * (A_{REDD+proy,1} - A_{REDD+proy,2})$$

Where:

$CSB_{proy,año}$ Annual change in the area covered by forest in the project area;
= has

t_2 = Final year of the monitoring period

t_1 = Year of start of the monitoring period

$A_{REDD+proy,1}$ Forest area in the project area at the start of the monitoring period; has
=

$A_{REDD+proy,2}$ Forest area in the project area at the end of the monitoring period; has
=

- **Annual deforestation in the leakage area**

The estimate of deforestation in the leakage area in the monitoring period is estimated with the equation:

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

Where:

$CSB_{f,año}$ = Annual change in the area covered by forest in the area of leakage; has

t_2 = Final year of the monitoring period

t_1 = Year of start of the monitoring period

$A_{f,1}$ = Forest area in the leakage area at the start of the monitoring period; has

$A_{f,2}$ = Forest area in the leakage area at the end of the monitoring period; has

- **Annual degradation in the project area**

It is estimated with the following equations:

$$DFP_{REDD+proy,año} = \left(\frac{1}{t_2 - t_1} \right) \times (A_{núcleo} - A_{núcleo-parche})$$

Where:

$DFP_{REDD+proy,año}$	=	Annual primary degradation in the project area (ha)
t_2	=	Final year of the monitoring period
t_1	=	Initial year of the monitoring period
$A_{núcleo}$	=	Project area in core class at the start of the monitoring period (ha)
$A_{núcleo-parche}$	=	Project area that changes from kernel to patch at the end of the monitoring period (ha)

$$DFS_{REDD+proy,año} = \left(\frac{1}{t_2 - t_1} \right) \times (A_{perforado} - A_{perforado-parche})$$

Where:

$DFS_{REDD+proy,año}$	=	Annual secondary degradation in the project area (ha)
t_2	=	Final year of the monitoring period
t_1	=	Initial year of the monitoring period
$A_{núcleo}$	=	Project area in drilled class at the start of the monitoring period (ha)
$A_{núcleo-parche}$	=	Project area that changes from drill to patch at the end of the monitoring period (ha)

- **Annual degradation in the leakage area**

The estimate of annual degradation in the leakage area is estimated with the following equations:

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

Where:

- $DFP_{f,año}$ = Annual primary degradation in the leakage area; has
 t_1 = Year of start of the monitoring period
 t_2 = Final year of the monitoring period
 $Core,f$ = Leakage area in core class year in the year of the start of the monitoring period; has
 $Anuc-patch,f$ = Leakage area that transitions from core to patch in the final year of the monitoring period; has

$$DFS_{f,año} = \left(\frac{1}{t_2 - t_1} \right) * (A_{perforado,f} - A_{perforado-parche,f})$$

Where:

- $DFS_{f,año}$ = Annual secondary degradation in the leakage area; has
 t_1 = Year of start of the monitoring period
 t_2 = Final year of the monitoring period
 $Perforated,f$ = Leakage area in drilled class year of start of the monitoring period; has
 $Aperforated-patch,f$ = Leakage area that goes from drilled to patch in the final year of the monitoring period; has

11.5.2 GHG emissions in the period of analysis

- **Deforestation**

The annual emission from deforestation in the project area is calculated following the equation:

$$EA_{REDD+proy,año} = DEF_{REDD+proy,año} \times tCO_{2eq}$$

Where:

$EA_{REDD+proy,año}$ = Annual emission in the project area; tCO₂ ha⁻¹

$DEF_{REDD+proy,año}$ = Annual deforestation in the project area; has

tCO_{2eq} = Total carbon dioxide equivalent; tCO_{2e} ha⁻¹

The annual emission from deforestation in the leakage area is calculated following the equation

$$EA_{f,año} = (DEF_{f,año} \times tCO_{2eq}) - EA_{lb,f,año}$$

Where:

$EA_{f,año}$ = Annual emission in the leakage area; tCO₂ ha⁻¹

$DEF_{f,año}$ = Annual deforestation in the leakage area; has

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}

- **Degradation**

The annual degradation emission in the project area is calculated following the equation:

$$EA_{REDD+proy,año} = (DFP_{REDD+proy,año} \times DTBCO_{2eq,1}) + (DFS_{REDD+proy,año} \times DTBCO_{2eq,2})$$

Where:

$EA_{REDD+proy,año}$	=	Annual emission in the project area for the monitored period (tCO ₂ /ha)
$DFP_{REDD+proy,año}$	=	Annual primary degradation in the project area (ha)
$DTBCO_{2eq,1}$	=	Carbon dioxide equivalent contained in the difference total biomass per hectare in the primary degradation class (tCO _{2e} /ha)
$DFS_{REDD+proy,año}$	=	Annual secondary degradation in the project area (ha)
$DTBCO_{2eq,2}$	=	Carbon dioxide equivalent contained in the difference total biomass per hectare in secondary degradation class (tCO _{2e} /ha)

The annual emission from deforestation in the leakage area is calculated from the following equation:

$$EA_{f,año} = (DFP_{f,año} \times DTBCO_{2eq,1}) + (DFS_{f,año} \times DTBCO_{2eq,2})$$

Where:

$EA_{f,año}$	=	Annual emission in the leakage area for the monitored period (tCO ₂ /ha)
$DFP_{f,año}$	=	Annual primary degradation in the leakage area (ha)
$DTBCO_{2eq,1}$	=	Carbon dioxide equivalent contained in the difference total biomass per hectare in the primary degradation class (tCO _{2e} /ha)
$DFS_{f,año}$	=	Annual secondary degradation in the leakage area (ha)
$DTBCO_{2eq,2}$	=	Carbon dioxide equivalent contained in the difference total biomass per hectare in secondary degradation class (tCO _{2e} /ha)

11.5.3 Quantification of the project's emission reductions

- **Deforestation**

The reduction in emissions from deforestation avoided in the monitoring period is estimated according to the equation:

$$RE_{DEF,REDD+proy} = (t_2 - t_1) \times (EA_{DEF,lb,año} - EA_{DEF,REDD+proy,año} - EA_{DEF,f,año})$$

Where:

$RE_{DEF,REDD+proy}$	=	Reduction of emissions from deforestation avoided in the project scenario (tCO ₂ e)
t_2	=	Final year of the reference period
t_1	=	Initial year of the reference period
$EA_{DEF,lb,año}$	=	Annual emission from deforestation in the baseline scenario (tCO ₂ e)
$EA_{DEF,REDD+proy,año}$	=	Annual emission from deforestation in the project area (tCO ₂ e)
$EA_{DEF,f,año}$	=	Annual emission from deforestation in the leakage area (tCO ₂ e)

- **Degradation**

The degradation emission reduction avoided in the validation phase is estimated according to the equation:

$$RE_{DEG,REDD+proy} = (t_2 - t_1) \times (EA_{DEG,lb,año} - EA_{DEG,REDD+proy,año} - EA_{DEG,f,año})$$

Where:

$RE_{DEG,REDD+proy}$	=	Reduction of emissions due to avoided degradation; Tco2e
t_2	=	Final year of the reference period
t_1	=	Year of start of the reference period
$EA_{DEG,lb,año}$	=	Annual emission of degradation in the baseline scenario; Tco2e
$EA_{DEG,REDD+proy,año}$	=	Annual emission of degradation in the scenario with project; Tco2e
$EA_{DEG,f,año}$	=	Annual emission of degradation in the leakage area (tCO ₂ e)

11.5.4 Total project emissions reduction

The total reduction in emissions from avoided deforestation and degradation is estimated from the following equation:

$$RE_{tot+proy} = RE_{DEF,REDD+proy} + RE_{DEG,REDD+proy}$$

Where:

$$\begin{aligned}
 RE_{tot+proy} &= \text{Reduction of total emissions from deforestation and degradation avoided in the project scenario (tCO}_2\text{e)} \\
 RE_{DEF,REDD+proy} &= \text{Reduction of emissions from deforestation avoided in the project scenario (tCO}_2\text{e)} \\
 RE_{DEG,REDD+proy} &= \text{Reduction of emissions due to degradation avoided in the project scenario (tCO}_2\text{e)}
 \end{aligned}$$

11.6 QUALITY CONTROL AND QUALITY ASSURANCE PROCEDURES

The document called "QC-QA *El Tigre Procedure*" presents the procedure to be carried out to ensure the quality of the information and that the estimates of GHG emissions reflect the characteristics of the project, in an accurate, consistent, complete and transparent manner.

12 RISK MANAGEMENT

The risk assessment was carried out for the social, environmental and financial dimensions. The following is an assessment of the risks identified, considering their likelihood and impact:

Table 22. Probability and impact matrix.

Qualification (Probability x Impact)	Classification	
	Value	Level
9	3	High
6	3	High
4	2	Middle
3	2	Middle
2	1	Low
1	1	Low

Table 23. Project Risk Analysis.

Dimension	Risk	Probability	Impact	Qualification	Classification
Social	Weakening of the governance structures defined by the indigenous reservation	1	3	3	Middle
	Community dissatisfaction with the implementation of the REDD+ project	1	3	3	Middle
	Economic dependence on the income generated by the commercialization of the CCVs	1	2	2	Low
	Cultural changes (e.g. loss of traditional IR practices)	1	1	2	Low
Environmental	Extreme weather events (e.g. floods, mass removal events, etc.)	1	2	2	Low
	Displacement of deforestation and degradation actions by project implementation	2	2	2	Middle
	Fires of anthropic origin	2	2	4	Middle
	Pests and diseases in production systems	1	2	2	Low
Financial	The project breaks even after more than 5 years	1	2	2	Low
	Change in the market prices of CCVs	1	3	3	Middle
	Annual Budget Deficit	1	3	3	Middle
	Delays in the implementation of project activities due	1	2	2	Low

Dimension	Risk	Probability	Impact	Qualification	Classification
	to poor budget programming				
	The project secures a financing percentage of less than 50%	1	3	3	Middle
	Financial viability of the project	1	2	2	Low

Below are the mitigation measures defined to mitigate the identified risks:

Table 24. Risk mitigation measures.

Risk	Mitigation measures
Weakening of the governance structures defined by the indigenous reservation	Implementation of the Governance component, whose actions are aimed at strengthening governance structures
Community dissatisfaction with the implementation of the REDD+ project	Operation of the PQR Care Mechanism
Economic dependence on the income generated by the commercialization of the CCVs	The development of a component of productive activities makes it possible to avoid economic dependency
Cultural changes (e.g. loss of traditional IR practices)	Implementation of activities aimed at strengthening traditional practices and knowledge transfer (Activity 14)
Extreme weather events (e.g. floods, mass removal events, etc.)	<ul style="list-style-type: none"> Project Area Monitoring Development of passive restoration actions
Displacement of deforestation and degradation actions by project implementation	<ul style="list-style-type: none"> Monitoring of vegetation cover in the leakage area defined for the project
Fires of anthropic origin	<ul style="list-style-type: none"> Project Area Monitoring Early Warning and Detection System
Pests and diseases in production systems	Technical assistance for the management of production systems
The project breaks even after more than 5 years	The project reaches break-even point before the fifth year of implementation according to the constructed financial model
Change in the market prices of CCVs	Regulated prices for the management of the carbon tax
Annual Budget Deficit	Within the framework of the implementation of the project, it was defined that the Annual Investment Plan is prepared annually, the ceiling of which must not exceed the available budget amount

Risk	Mitigation measures
Delays in the implementation of project activities due to poor budget programming	Within the framework of the implementation of the project, it was defined that the Annual Investment Plan is prepared annually, the ceiling of which must not exceed the available budget amount
The project secures a financing percentage of less than 50%	The project has secured more than 85% of the required financing
Financial viability of the project	The project has positive financial indicators and a sustainable cash flow for its implementation period (NPV>0 and IRR>12%)

REFERENCES

- Calderón-Sáenz, E. (2006). *Red Book of Plants of Colombia. Volume 3: Orchids. Part One.* Bogotá: Instituto Alexander von Humboldt.
- Cárdenas L., D., & Salinas, N. R. (2007). *Red Book of Plants of Colombia. Volume 4. Threatened timber species: Part One.* Bogotá: Instituto Amazónico de Investigaciones Científicas SINCHI.
- FAO. (2019, May 31). *The largest collective restitution process in Colombia so far will be carried out in favor of the indigenous peoples of the southeast of the country.* Retrieved from FAO: <http://www.fao.org/colombia/noticias/detail-events/en/c/1196369/>
- Forero, Y. (2016). *USEFUL PLANTS OF THE BASINS OF THE TILLAVÁ AND PLANAS RIVERS IN THE MUNICIPALITY OF PUERTO GAITÁN, META.* Retrieved from <https://repository.udistrital.edu.co/bitstream/handle/11349/4980/ForeroRia%C3%BDioJullyAndrea2016.pdf?sequence=1&isAllowed=y>
- Gaia Amazonas. (2019, January 14). *The chagra: source of food, integral system and foundation of life.* Retrieved from Gaia Amazonas: https://www.gaiaamazonas.org/noticias/2019-01-14_la-chagra-fuente-de-alimento-sistema-integral-y-fundamento-de-vida/#:~:text=A%20cada%20pueblo%20ind%C3%ADgena%20le,la%20coca%20y%20oel%20tabaco.
- García, J., & Torres, S. (2016). *SURVEY AND ANALYSIS OF INFORMATION FOR THE ELABORATION OF CARTOGRAPHY OF THE GEOLOGY, GEOMORPHOLOGY AND SOILS COMPONENTS, WITHIN THE FRAMEWORK OF THE FORMULATION OF THE FOREST MANAGEMENT PLAN FOR THE TILLAVÁ AND PLANAS BASINS, OF THE MUNICIPALITY OF PUERTO GAITÁN.* Obtained from UNIVERSIDAD DISTRITAL FRANCISCO JOSÉ DE CALDAS : <https://repository.udistrital.edu.co/bitstream/handle/11349/2563/Garc%C3%ADArjuelaJhonatanAndr%C3%A9s2016.pdf?sequence=1>
- IDEAM. (2014a). *Monitoring the area covered by natural forest.* Retrieved from IDEAM: <http://www.ideam.gov.co/web/ecosistemas/superficie-cubierta-por-bosque->

natural?p_p_id=110_INSTANCE_dqBGLv6hKQrD&p_p_lifecycle=o&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_pos=1&p_p_col_count=2&_110_INSTANCE_dqBGLv6hKQrD_struts_action=%2Fdo

Martinez, C. (2018). *CHARACTERIZATION OF THE AVIFAUNA ASSOCIATED WITH RIPARIAN VEGETATION IN A LANDSCAPE WITH HIGH INTERVENTION IN THE MUNICIPALITY OF PUERTO GAITÁN META - COLOMBIAN ORINOQUÍA*. Obtained from Universidad Militar Nueva Granada: <https://core.ac.uk/download/pdf/286063532.pdf>

Ministry of Culture. (2012). *Characterization of the Sikuani People*.

Ministry of the Interior & National Indigenous Organization of Colombia. (2013). *SIKUANI SAFEGUARDING PLAN*. Retrieved from https://www.mininterior.gov.co/sites/default/files/p.s_sikuani_onic.pdf

Ministry of the Interior & National Indigenous Organization of Colombia. (2013). *SIKUANI SAFEGUARDING PLAN*. Retrieved from https://www.mininterior.gov.co/sites/default/files/p.s_sikuani_onic.pdf

Mojica, J. I., Usma Oviedo, J. S., Álvarez León, R., & Lasso, C. A. (2012). *Red Book of Freshwater Fish of Colombia 2012*. Bogotá D.C., Cundinamarca, Colombia: Alexander von Humboldt Biological Resources Research Institute.

Morales-Betancourt, M. A., Lasso, C. A., Páez, V. P., & Bock, B. C. (2015). *Red Book of Reptiles of Colombia (2015)*. Bogotá D.C., Cundinamarca, Colombia: Alexander von Humboldt Biological Resources Research Institute.

Renjifo, L. M., Amaya-Villarreal, Á. M., Burbano-Girón, J., & Velásquez-Tibatá, J. (2016). *Red Book of Birds in Colombia*. Bogotá: Pontificia Universidad Javeriana.

SINCHI. (2009). *Food Security in Indigenous Communities in the Amazon: Yesterday and Today*. Retrieved from SINCHI: <https://sinchi.org.co/files/publicaciones/publicaciones/pdf/Seguridad%2oalimentaria%2oWeb.pdf>

