CONSERVATION PROJECT REDD+ SUR DEL META.

BOSQUES DE PAZ, SUSTENTO DE VIDA

Document prepared by:

ALLCOT AG

Contact Information

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1 SUMMARY OF PROJECT BENEFITS

The REDD+ Sur del Meta project. Bosques de Paz, Sustento de Vida is located in the municipalities of Vista Hermosa, Puerto Rico, Puerto Concordia and Puerto Lleras in the department of Meta. The project is under validation process for VCS and is seeking for CCB label.

The project seeks to protect 40,661 hectares of natural forest from the advance of deforestation, which for the year 2017 (IDEAM, 2018) reported an increase in the country of 23% in relation to the previous year, having the department of Meta as the third in national deforestation. The causes of deforestation are directly related to the conversion of forest areas into clean or weeded pastures for extensive cattle ranching (SINCHI, 2016). Considering the low productivity of this type of use, an increase in deforestation is expected, generating larger livestock and agricultural areas, which will allow the subsistence of the families settled there.

Through the implementation of strategic actions, such as improving the productivity and sustainability of livestock, cacao, coffee and citrus, strengthening these production chains in the region, technical training and raising awareness of the role of conservation in the communities, youth, children, leaders, and women, a total of 7,798,102 tCO2 will be reduced over a minimum of 30-year period, with an annual average of 259,937 tCO2.

This will improve the living conditions of the families of the 985 members, a peasant population, a large percentage of whom are victims of the country's historical armed conflict. It will also strengthen their organizations (unions and community organizations) through training and technical support. All of this will result in an increase in forest governance, bringing direct and indirect benefits to the inhabitants of the four municipalities.

In terms of biodiversity, the area is recognized as a habitat and corridor for species of high conservation interest, such as the jaguar, or species at high risk of extinction, such as the giant otter, as well as other species of wild flora and fauna listed as endangered. In this sense, reducing the loss of their habitats contributes to reducing the risk of extinction of these species. The development of community monitoring plans will not only make it possible to follow up on the status and presence, but also to increase the value of this resource in the community collective.

1.1 Unique Project Benefits

Outcome or Impact Estimated by the End of Project Lifetime	Section Reference
1) Decrease in the number of hectares deforested	3.2
2) Capacity building for the improvement of production systems	4.2
3) Recovery of habitats for endangered species	5.2

1.2 Standardized Benefit Metrics

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
GHG emission reductions or removals	Net estimated emission removals in the project area, measured against the without-project scenario	NA	NA
	Net estimated emission reductions in the project area, measured against the without-project scenario	7,798,102 tCO_2 per year during 30 years	3.2
Forest[1] cover	For REDD[2] projects: Estimated number of hectares of reduced forest loss in the project area measured against the without-project scenario	21,798 ha	3.2
	For ARR[3] projects: Estimated number of hectares of forest cover increased in the project area measured against the without-project scenario	NA	NA
Improved land management	Number of hectares of existing production forest land in which IFM[4] practices are expected to occur as a result of project activities, measured against the without-project scenario	NA	NA
	Number of hectares of non-forest land in which improved land management practices are expected to occur as a result of project activities, measured against the without-project scenario	47,560 ha	3.3

[1] Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (*VCS Program Definitions*)

[2] Reduced emissions from deforestation and forest degradation (REDD) - Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (*VCS Program Definitions*)

[3] Afforestation, reforestation and revegetation (ARR) - Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (*VCS Program Definitions*)

[4] Improved forest management (IFM) - Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood and fuelwood (*VCS Program Definitions*)

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
Training	Total number of community members who are expected to have improved skills and/or knowledge resulting from training provided as part of project activities	Beginning at 70% of total partners, reaching all the population at the end.	4.3
	Number of female community members who are expected to have improved skills and/or knowledge resulting from training as part of project activities	Beginning with 40 % of women up to 331 registered.	4.3
Employment	Total number of people expected to be employed in project activities,[5] expressed as number of full-time employees[6]	20	4.2
	Number of women expected to be employed as a result of project activities, expressed as number of full-time employees	10	4.2
Livelihoods	Total number of people expected to have improved livelihoods[7] or income generated as a result of project activities	985 partners adhered to the project through agreements	4.1
	Number of women expected to have improved livelihoods or income generated as a result of project activities	298 women partners.	4.1
Health	Total number of people for whom health services are expected to improve as a result of project activities, measured against the without-project scenario	300 people	4.3
	Number of women for whom health services are expected to improve as a result of project activities, measured against the without-project scenario	100 women	4.3

[5] Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers and community members that are paid to carry out project-related work.
[6] Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region or economic territory (adapted from the UN System of National Accounts (1993) paragraphs 17.14[15.102];[17.28])
[7] Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. *The Sustainable Livelihood Approach to Poverty Reduction*. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
Education	Total number of people for whom access to, or quality of, education is expected to improve as result of project activities, measured against the without-project scenario	50% of partners Will beneficiate.	4.3
	Number of women and girls for whom access to, or quality of, education is expected to improve as result of project activities, measured against the without-project scenario	50% of women partners Will beneficiate	4.3
Water	Total number of people who are expected to experience increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	NA	
	Number of women who are expected to experience increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	NA	
Well-being	Total number of community members whose well-being[8] is expected to improve as a result of project activities	Total population on the area project.	4.3
	Number of women whose well-being is expected to improve as a result of project activities	All women who are part of the Project.	4.3
Biodiversity conservation	Expected change in the number of hectares managed significantly better by the project for biodiversity conservation,[9] measured against the without-project scenario	50.000 ha	5.2.1

[8] Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Livelihoods, Health, Education and Water), and may also include other benefits such as strengthened legal rights to resources, increased food security, conservation of access to areas of cultural significance, etc.

[9] Managed for biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation, e.g. enhancing the status of endangered species

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
	Expected number of globally Critically Endangered or Endangered species[10] benefiting from reduced threats as a result of project activities,[11] measured against the without-project scenario	3	5.2

[10] Per IUCN's Red List of Threatened Species
[11] In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

2 GENERAL

2.1 Project Goals, Design and Long-Term Viability

2.1.1 Project Proponent (G1.1)

Organization name	ALLCOT GROUP
Contact person	Alexis L. Leroy
Title	CEO
Address	Cra 9 # 80 -45, Bogotá, Colombia
Telephone	+57 3222098737
Email	all@allcot.com
	• *Other organizations included are detailed on the PDD for VCS of the project.*

2.1.2 Project Objectives (G1.2)

Reduce deforestation and thus conserve the forests, fauna and flora of the municipalities of Vista Hermosa, Puerto Rico, Puerto Concordia and Puerto Lleras in the department of Meta, through sustainable actions to support the food security of the population with the implementation of sustainable production systems (silvopastoral and agroforestry), technical assistance and added value to agricultural production, strengthening of commercial chains and actions related to the strengthening of Forest Governance of the partners of the project.

2.1.3 Physical Parameters (G1.3)

The reference region and project area are located in the department of Meta, more specifically in the municipalities of Puerto Rico, Vista Hermosa, Puerto Concordia and Puerto Lleras, this project is known as the REED+ PROJECT SOUTH OF META. The spatial location of the project is shown below.

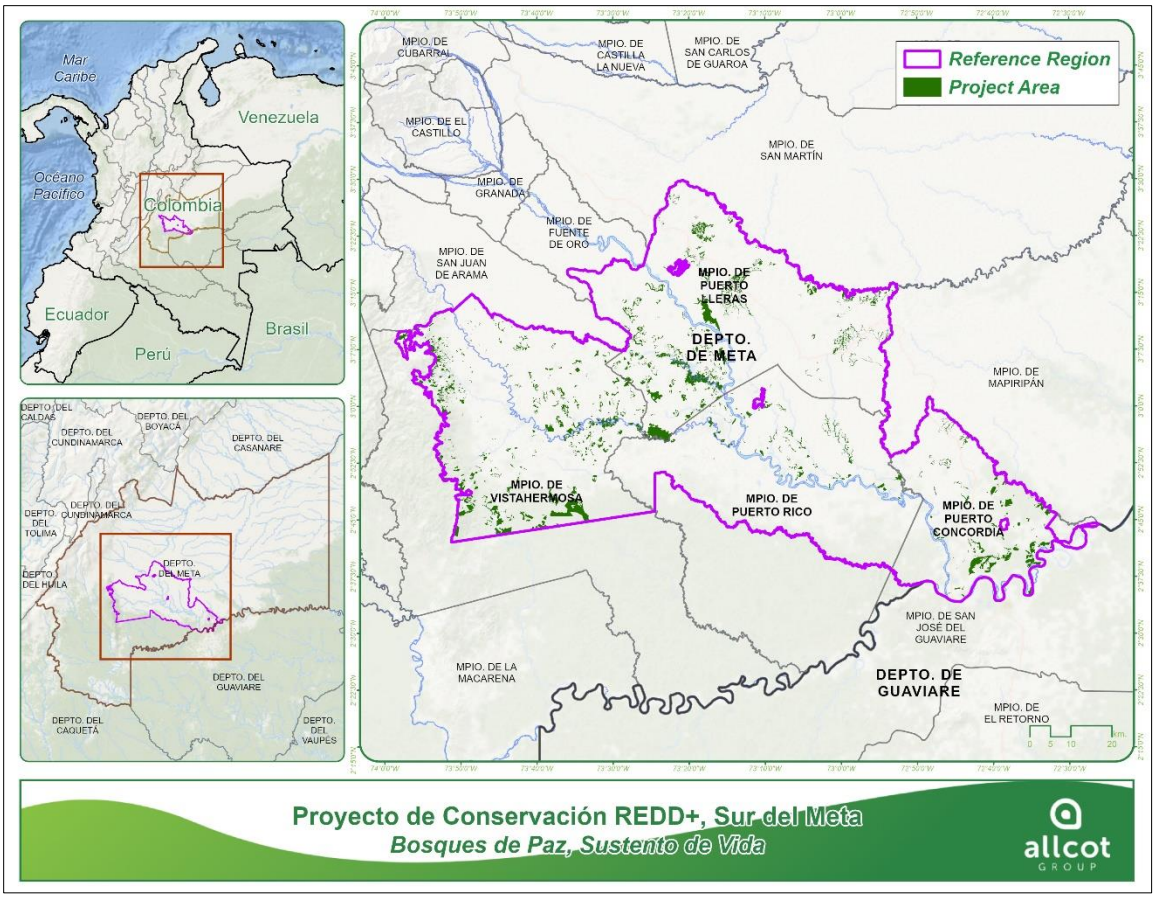


Figure 1. General location of the Project

Source: Allcot Colombia 2021

The following is a list of the project's flat coordinates in the Magna_Colombia_Bogotá coordinate system, which is part of the official coordinates systems for Colombia.

Table 1. Coordinates location

Coordinates	
North	878,618 m
South	776,006 m
East	1,182,561 m
West	1,004,312 m

Source: Allcot Colombia 2021

This zone corresponds to a spatial delimitation from which information will be obtained on rates, agents, drivers, patterns of land use and land cover change, on which a monitoring of the evolution of deforestation from 2005 to 2018 is made, and at the end an evaluation projected into the future.

The definition of the main drivers of deforestation and the historical behavior of deforestation from 2005 to 2018 made it possible to observe where this activity has been displaced and how it has been occurring in an area of the territory, where the conditions of the drivers and agents of

deforestation are the same, focused on issues of expansion of the agricultural frontier. The following are some of the biophysical characteristics delimited to the Project's Reference Region.

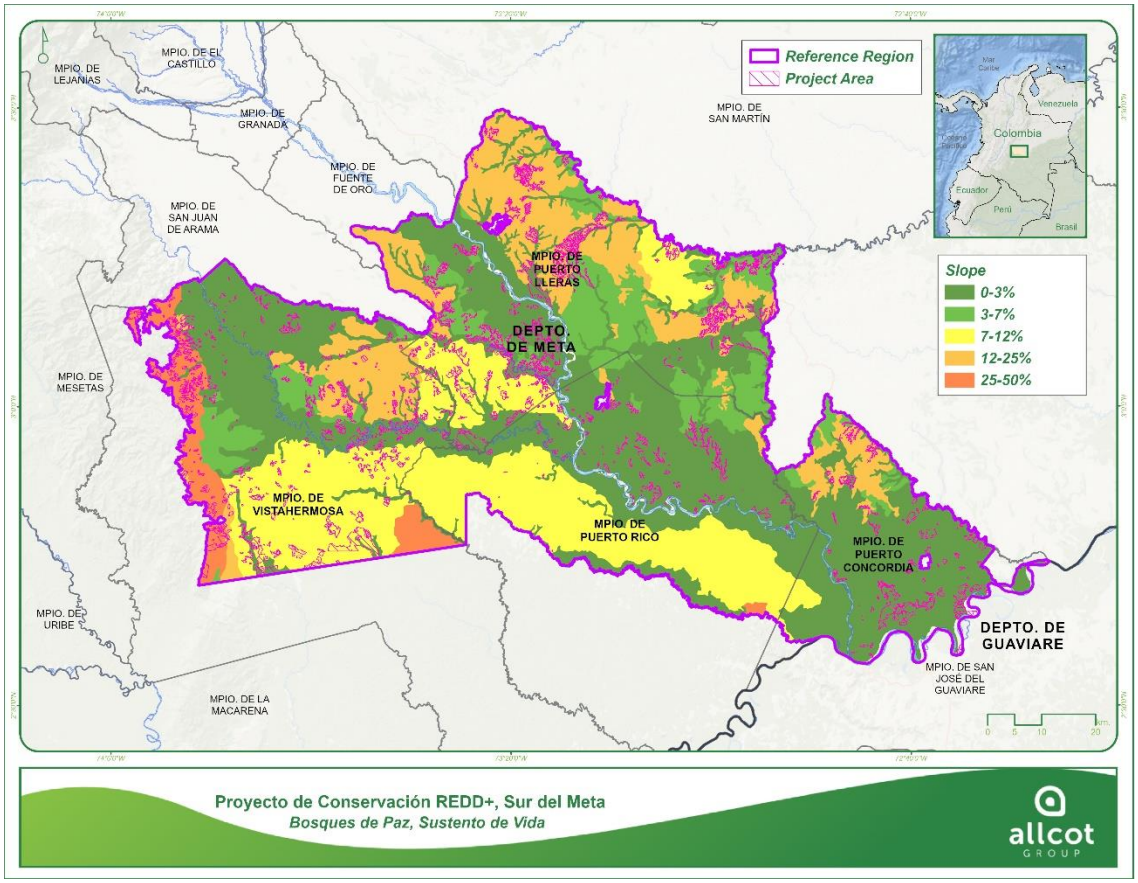


Figure 2. Slopes in the study area

Source: Allcot Colombia 2021

Slopes[12]: 46.9% (377,388 ha) of the Reference Region has slopes between 0-3%, described as level/almost level, which have characteristic processes and terrain conditions associated with non-negligible denudation, with favorable passable and workable conditions, traditionally used for agricultural activities and whose use is mainly difficult under dry or low humidity conditions. 22.8% of the Reference Region (183,635 ha) is located on slopes with a range of 7-12%, described as moderately steep, and characterized mainly by slopes susceptible to low velocity mass movements.

In third place, slopes in the range of 12-25% predominate in the Reference Region, with a predominance of 15.1% of the surface (121,458 ha), considered as strongly sloping or moderately undulating, present mainly towards the north towards the center, characterized by mass movements of all types and erosion, mainly in ruts. Regarding the remaining slope classes, 10.2% (82,205 ha) of the Reference Region has slopes between 3-7%, being slightly inclined slopes and with minimal effects caused mainly by water erosion. The 4.1% (32,654 ha) corresponds to slopes in the 25-50% range, located mainly towards the western zone, with the presence of intensive

[12] Soil Maps of the Colombian Territory at a scale of 1: 100,000. Department: Meta. https://gw-geoportal-test.igac.gov.co/gateway/geoportal/api/geoportal/opendata/resource/2d3da07e-19d9-4ef0-bdb8-2095a878e81c?apikey=f2664478-8877-4516-9d12-ed339d336c99

denudation processes and clear evidence of soil erosion. For the water bodies, identified as non-soil and with no associated slope range, the percentage of coverage is 0.9% (7,290 ha).

- Elevation[13]

Elevation measured in meters above sea level, for the Reference Region presents elevations less than 800 meters for 98% of the total area, the remaining percentage presents elevations between 800 and 1800 masl.

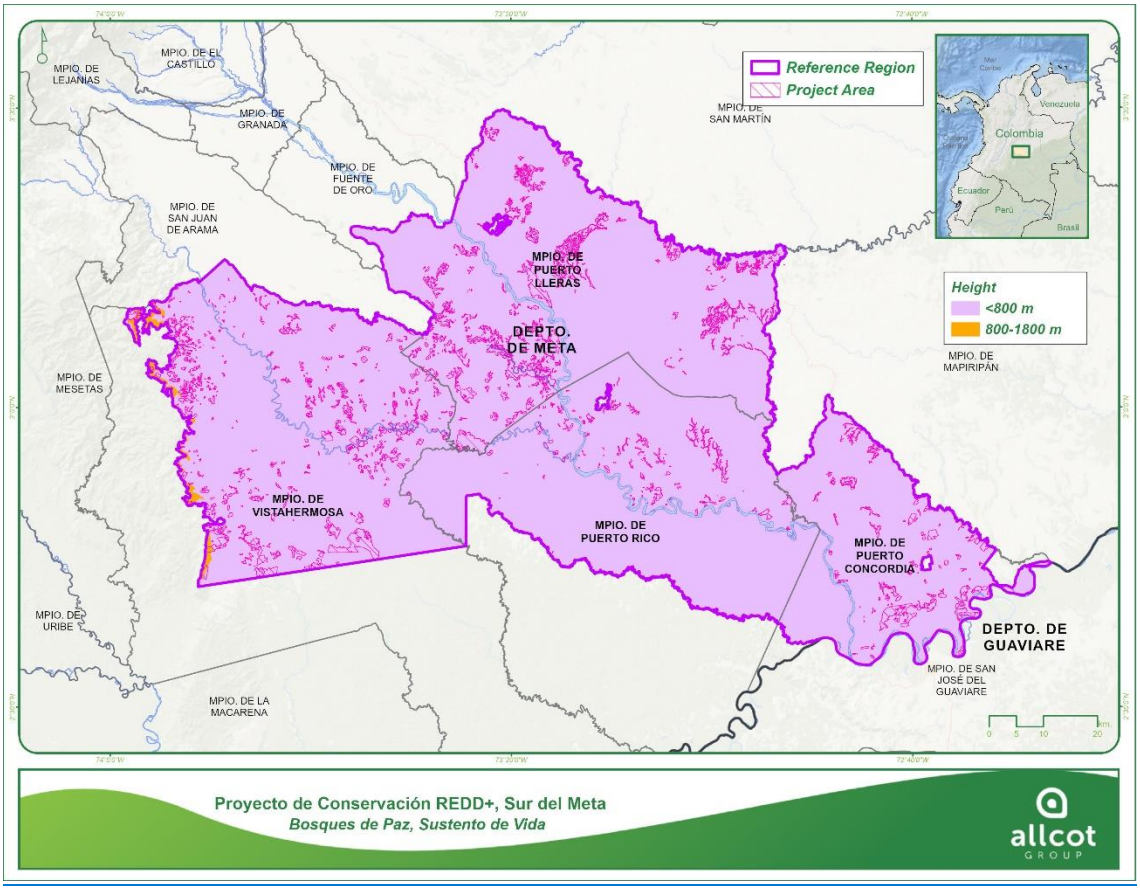


Figure 3. Elevation above sea level of the reference region

Source: Allcot Colombia 2021

- Precipitation[14]

Based on the average annual precipitation conditions in millimeters, the Reference Region has a predominance of precipitation for 99.7% of its territory in a range of 2500 to 3000 mm per year. Towards the northwestern zone of the Reference Region, 4.6% of its surface area has a precipitation range of 3000-4000 mm per year, and 0.3% has a precipitation range of 4000-5000 mm per year.

[13] 30-meter resolution elevation data from NASA's Shuttle Radar Topography Mission (SRTM). https://dwtkns.com/srtm30m/

[14] Multiannual Average Decadal Precipitation during the period 1981-2010. Downloaded from IDEAM. http://bart.ideam.gov.co/cneideam/Capasgeo/Precipitacion_Decadal_Promedio_Multianual_1981_2010.zip

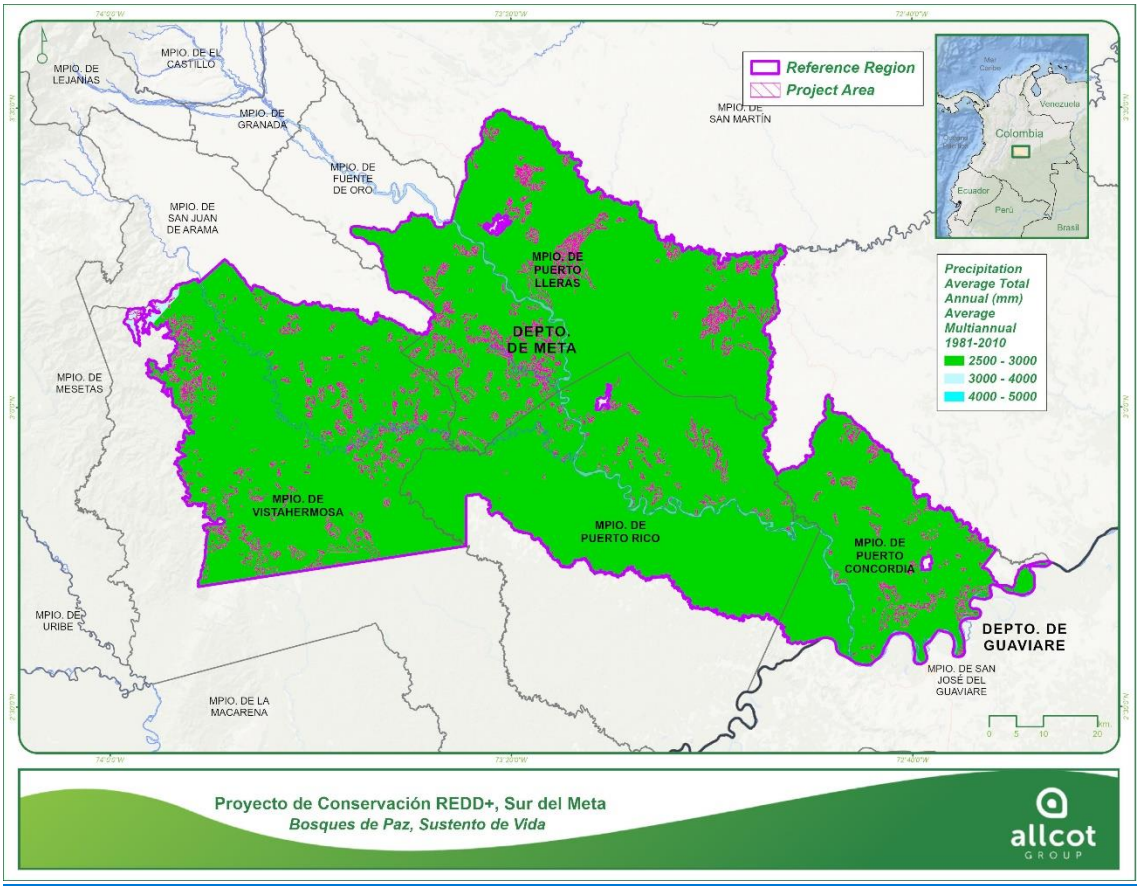


Figure 4. Precipitation on the reference region

Source: Allcot Colombia 2021

- Temperature[15]

Based on the average annual temperature conditions in degrees Celsius, the Reference Region has a predominance of temperature in 71.04% of its territory in a range of 24 to 26 °C. In the central and northeastern part of the Reference Region, 27.97% of its surface area has an average temperature range of 26 to 28 °C, and the remaining 0.99% of the surface area has a temperature range of 22 to 24°C, located in the western part of the region.

[15] Annual Average Multiannual Average Temperature 1981-2010 period. Downloaded from IDEAM. http://bart.ideam.gov.co/cneideam/Capasgeo/Temperatura_Media_Anual_Promedio_Multianual_1981_2010.zip

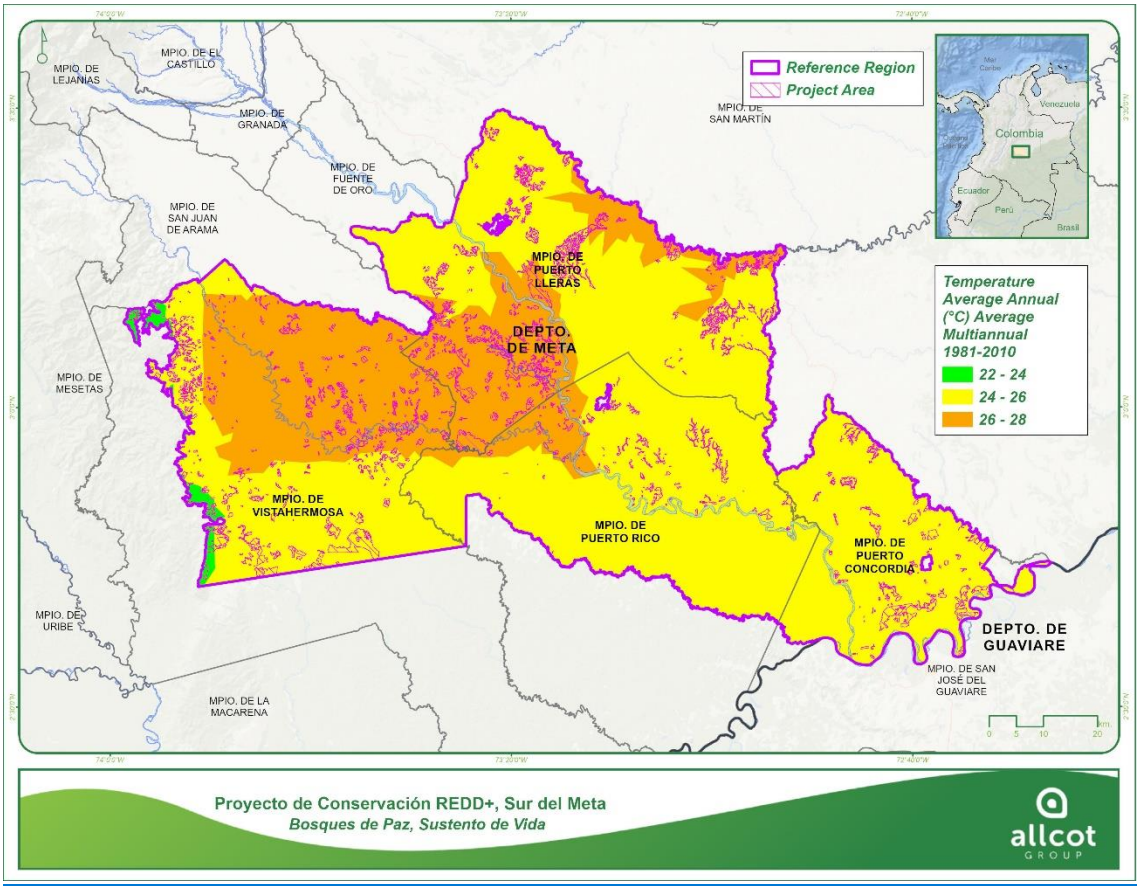


Figure 5. Temperature on the reference region

Source: Allcot Colombia 2021

- Climate

For the Project Area and Reference Region, according to the Caldas Lang Climate Classification[16], 95.65% of the surface area is predominantly Humid Warm Climate, followed by 2.75% of the surface area in Semi-humid Warm Climate towards the central-northern part of the Reference Region, and the remaining 1.6% towards the western part of the Reference Region in the foothills, with Humid Temperate and Super humid Temperate Climates.

[16] Caldas Lang Climate Classification developed by IDEAM 2012. Downloaded from Sistema de Información Ambiental de Colombia-SIAC. http://bart.ideam.gov.co/cneideam/Capasgeo/Clasificacion_Climatica_Caldas_Lang_2012.zip

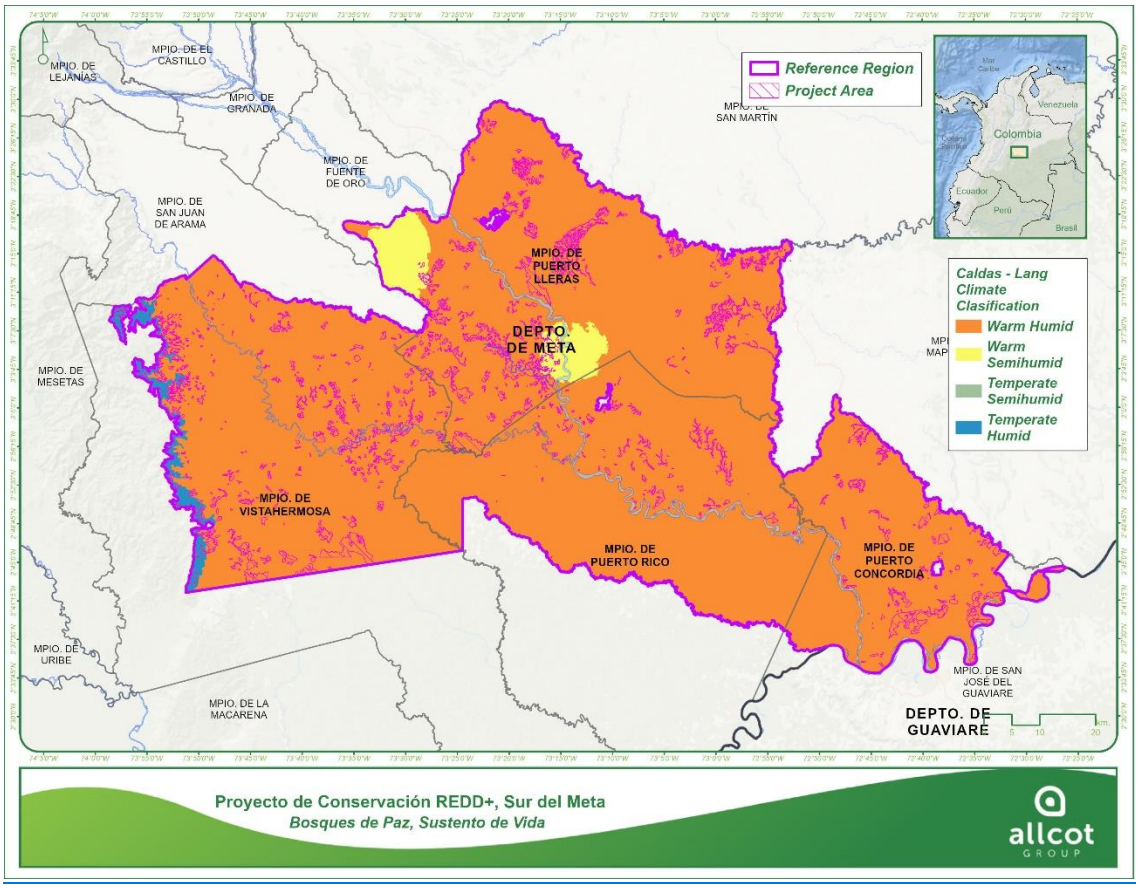


Figure 6. Caldas – Lang Climate Classification on reference region

Source: Allcot Colombia 2021

- Soils[17]

40.49% of the area of the Reference Region has Oxisol type soils, mostly distributed in the northern part, associated with rice, cocoa and rubber crops. In terms of dominance, entiesols follow, with 33.81% of the area of the Reference Region, which are weakly formed soils with low fertility and are not recommended for agricultural use, so there are large extensions of savannahs within the study area. Inceptisols dominate 15.57% of the area of the Reference Region,and are soils that are mostly used for forestry activities. Finally, Ultisols, with a dominance of 8.96% of the area of the Reference Region, correspond to acid soils, with high aluminum saturation, low organic carbon content and low exchange capacity; in general, they are of low fertility, mainly clayey in texture and develop preferably in climates with high temperature and humidity.

In relation to 1.17% of the area of the Reference Region, according to the source of information consulted, this percentage is associated with the class identified as No Soil, and may correspond to areas of rocky outcrops or bodies of water.

[17] Soil Maps of the Colombian Territory at a scale of 1: 100,000. Department: Meta. https://gw-geoportal-test.igac.gov.co/gateway/geoportal/api/geoportal/opendata/resource/2d3da07e-19d9-4ef0-bdb8-2095a878e81c?apikey=f2664478-8877-4516-9d12-ed339d336c99

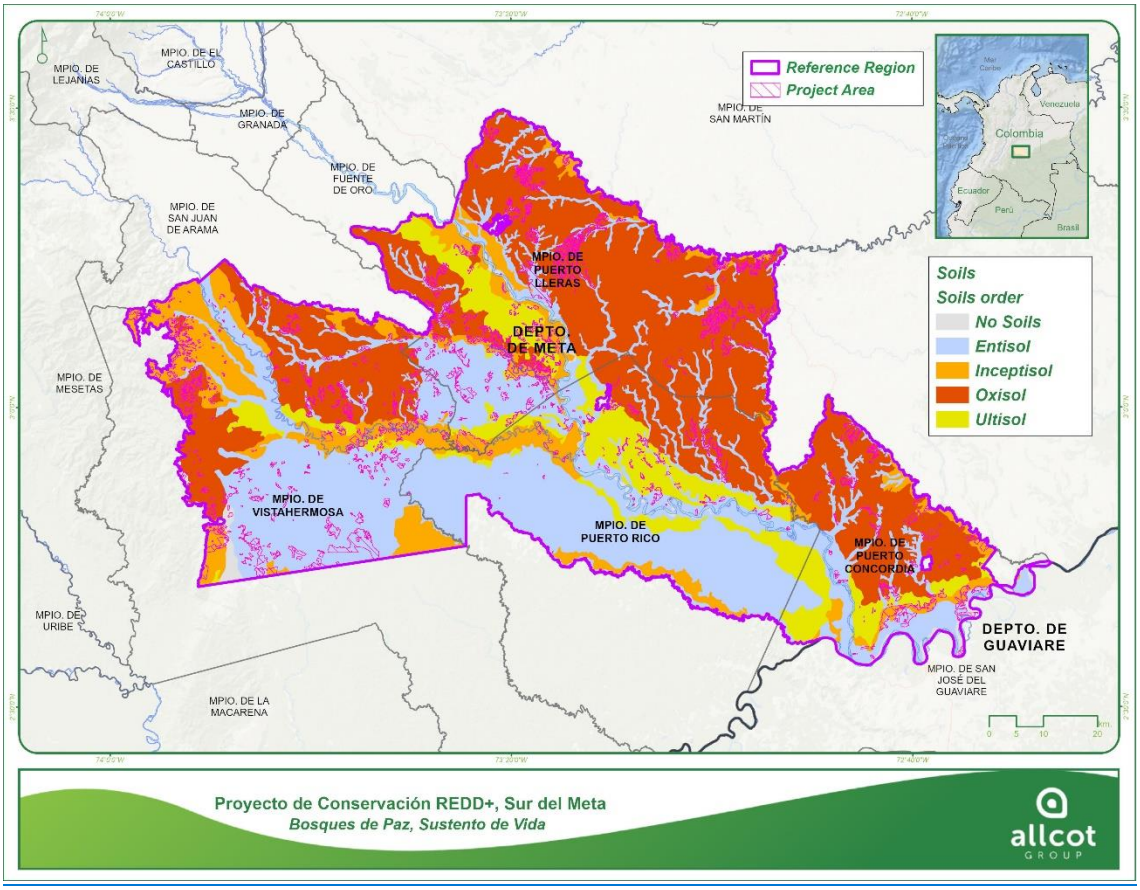


Figure 7. Soils on the reference region
Source: Allcot Colombia 2021

- Hydrography - hidrology[18]

The Ariari River flows in a northeast-southeast direction, crossing the central part of the Reference Region, this tributary is the main body of water in the study area; it is characterized by its yellowish waters in winter, which become lighter in summer. The Güejar River passes through the municipality of Vistahermosa and joins the Ariari River in the Reference Region, and then flows into the Guayabero River.

[18] IGAC's base mapping 2019. Escale 1:100.000. Simple and Double Drains. https://www.colombiaenmapas.gov.co/?e=-82.43784778320864,-0.17644239911865092,-71.23179309571162,9.90326984502256,4686&b=igac&u=0&t=23&servicio=205

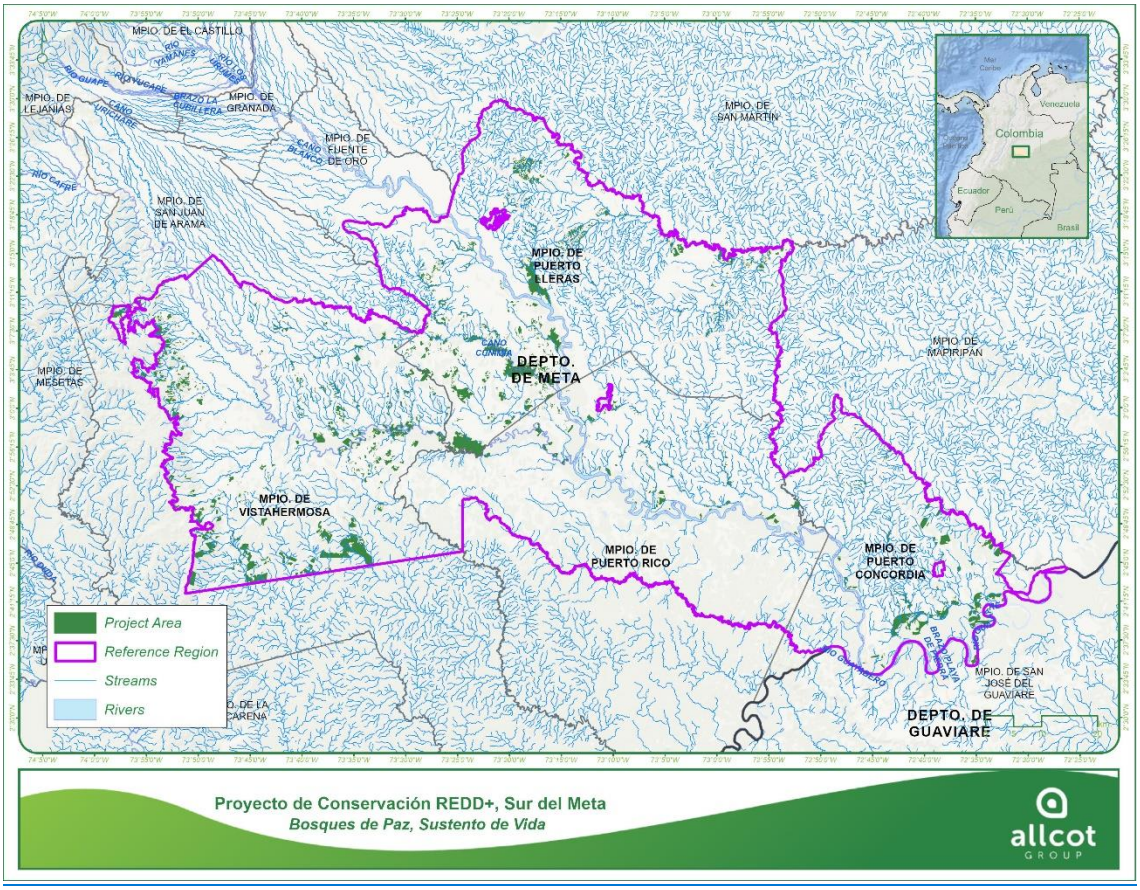


Figure 8. Hydrography on the reference region
Source: Allcot Colombia 2021

- Roads and access[19]

In the northwest-northeast direction is National Route 65, which crosses the Colombian national territory bordering the Eastern Cordillera, from Putumayo to Arauca near the Venezuelan border. In the Orinoquia Region and the foothills of the plains, it interconnects cities such as Villavicencio and Yopal. Within the Project's Reference Region is section two of National Route 65, known as the Troncal del Llano, interconnecting the municipalities of Puerto Concordia and Puerto Lleras. In terms of land transportation and access, there are other departmental and municipal roads, including the Granada-San Juan de Arama and Mesetas road, located in the northwest corner of the Reference Region.

In terms of fluvial accesses, as described above, there is the Ariari River, the area of the river that is located within the Reference Region corresponds to the Lower Ariari, mainly encompassing the municipalities of Puerto Lleras, Puerto Rico and Puerto Concordia, whose names are a notion of the port activities that are carried out around the river related to transportation and more recently to tourism, mainly recreational rafting.

[19] IGAC's base mapping 2019. Escale 1:100.000. Tracks, Simple and Double Drains. https://www.colombiaenmapas.gov.co/?e=-82.43784778320864,-0.17644239911865092,-71.23179309571162,9.90326984502256,4686&b=igac&u=0&t=23&servicio=205

In general, within the Reference Region, there are rural or minor roads and streams with a high percentage of coverage; however, their access is intermittent depending on the high rainfall seasons.

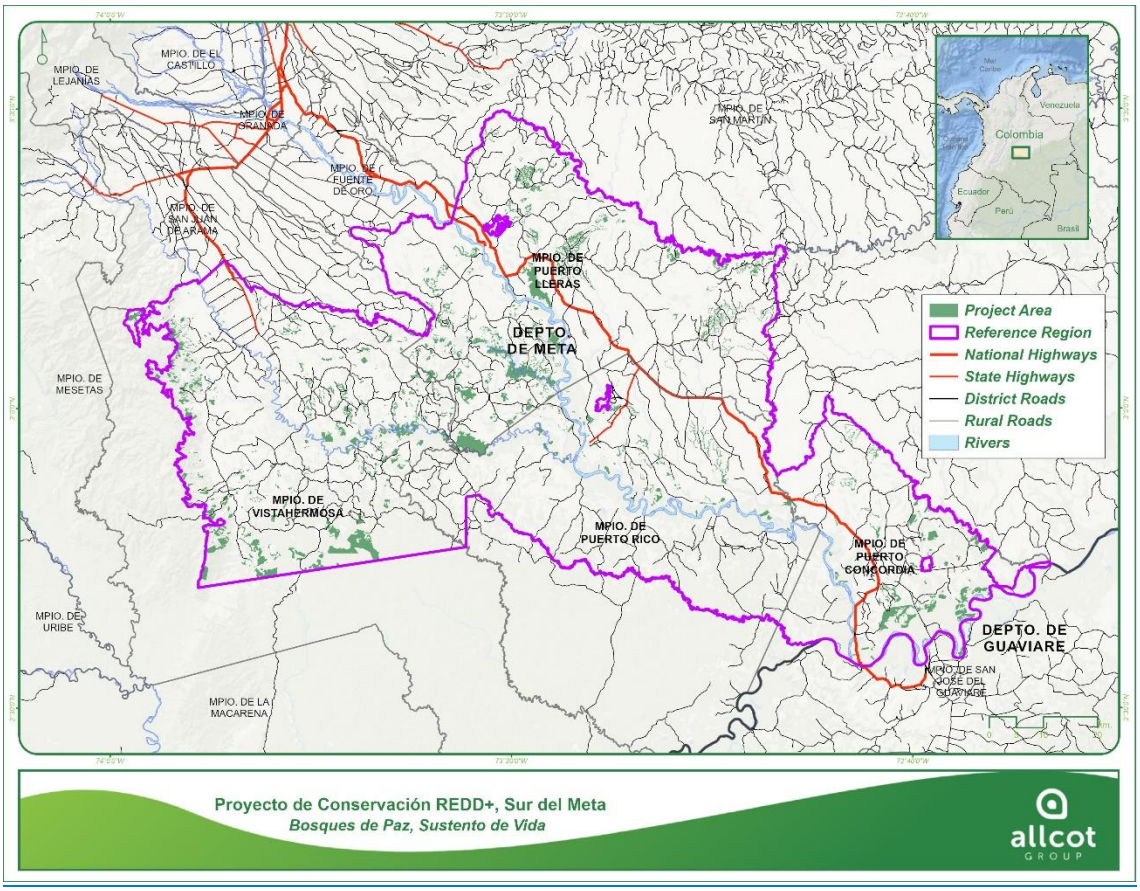


Figure 9. Roads and access in the reference region

Source: Allcot Colombia 2021

- Land Cover[20]:

  For the reference region of the Project, the land cover classes are aligned to level 2 of CORINE Land Cover, 10 cover types are found within the study area. Below are the areas for the year 2018.

[20] Visual Interpretation of Landsat 7 and Landsat 8 images from NASA. Downloaded from https://earthexplorer.usgs.gov/

Table 2 Land covers for the Reference Region a 2018

CODE	CORINE Land Cover Classes	AREA hectares
11	Urban fabric	515.1
21	Transient Crops	12,471
22	Permanent Crops	10,082
23	Pastures	206,066.9
24	Heterogeneous agricultural areas	11,795.6
31	Forest	259,278.3
32	Scrub and/or herbaceous associations	181,687.3
33	Open spaces with little or no vegetation	6,194.4
41	Inland wetlands	2,903.9
51	Inland Waters	9,634.6

Source: Allcot Colombia 2021

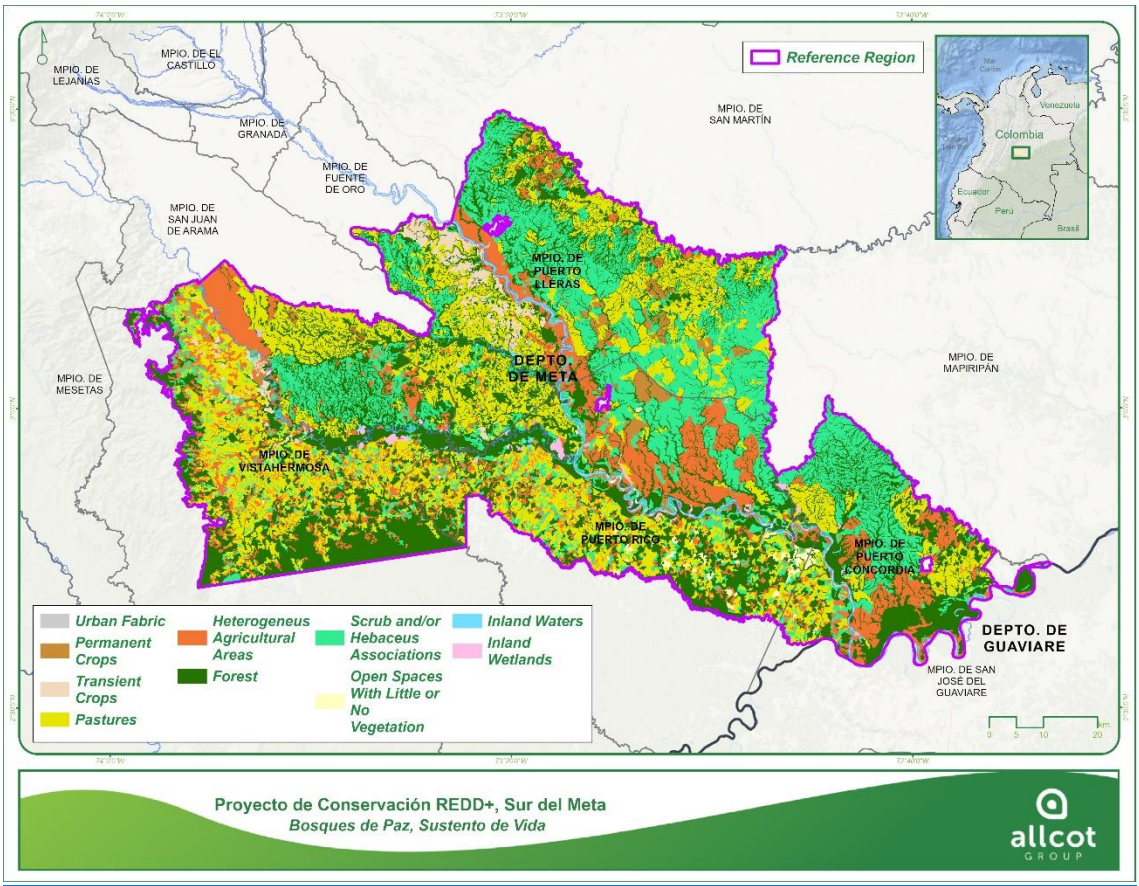


Figure 10. The land cover classes

Source: Allcot Colombia 2021

- Land uses[21]:

Using land covers, land use was determined, resulting in 9 land use classes within the Reference Region.

Table 3. Land Use Classess

COLOR CODE	LAN USE CLASSES	AREA Hectares
	Forest management	259,278.2
	Restoration and recovery	3,844.6
	Mixed farming	108,881.6
	Farming	29,467.8
	Livestock	349,771.9
	Lands at rest	37,982.3
	Special uses	2,349.8
	Settlements	515.1
	Use and/or conservation of water resources	12,538.6

Source: Allcot Colombia 2021

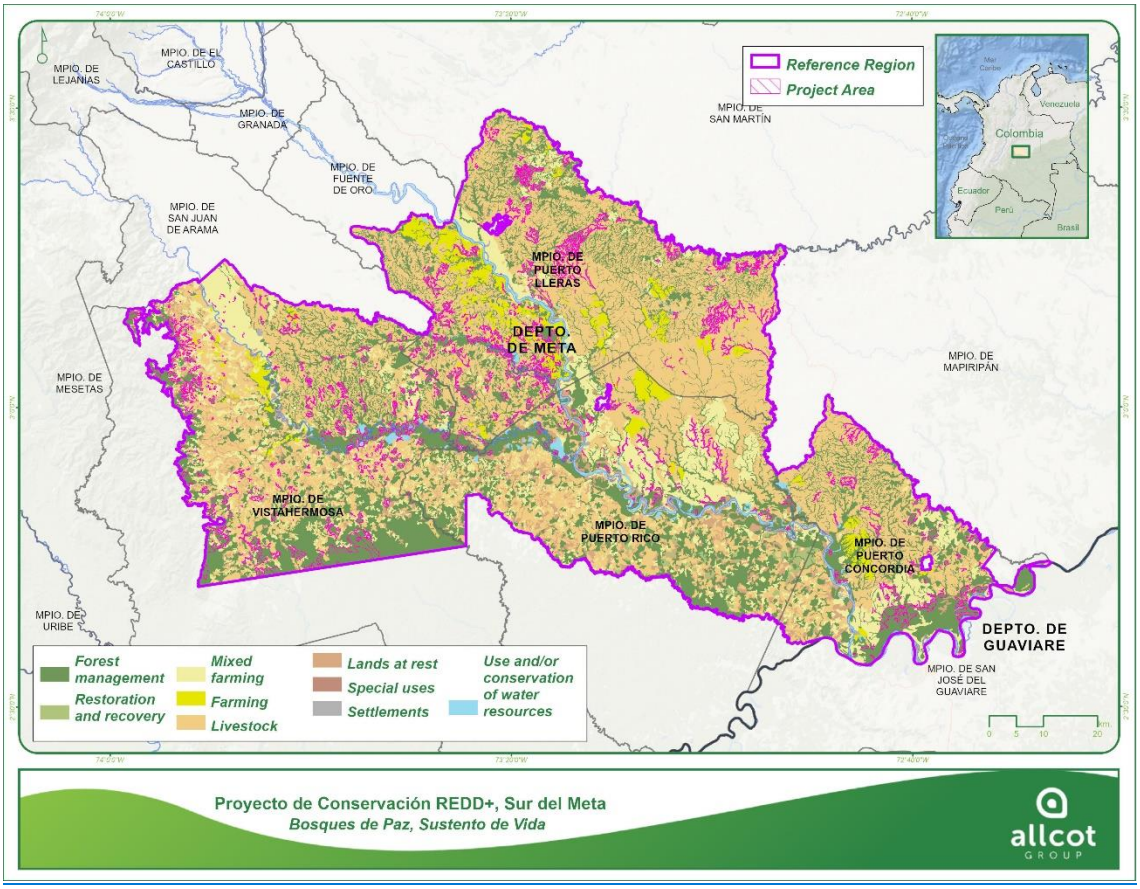


Figure 11. Land Use, 2018

Source: Allcot Colombia 2021

[21] Visual Interpretation of Landsat 7 and Landsat 8 images from NASA. Land use information generated by land use designation for each land cover class. Images Downloaded from https://earthexplorer.usgs.gov/

2.1.4 Social Parameters (G1.3)

The majority of the communities located in the project area are peasant families that migrated forcibly from the interior of the country over the last 50 years and settled in the Ariari River basin, in the area of influence of the Serranía de la Macarena.

This territory suffered the armed conflict with the extinct guerrilla of the Revolutionary Armed Forces of Colombia (FARC-EP) for 52 years, and after the signing of the "Final Agreement for the Termination of the Conflict and the Construction of a Stable and Lasting Peace" in 2016, it has become the scene of intense deforestation processes for land grabbing for extensive cattle ranching and illicit crops, and the emergence of new forms of territorial control by dissidents and new actors outside the law.

Most families participated in coca cultivation, which served as local currency for many years, and thanks to this income they were able to establish their estates, acquire cattle and cultivate subsistence crops.

With the peace process came some substitution projects that led to the replacement of coca crops with extensive cattle ranching. The lack of a comprehensive State presence in the territory has left the communities in a very difficult situation, exacerbated now by the crisis resulting from the pandemic and by the progressive loss and degradation of their forests and the impoverishment of cropland and pastureland.

The history of peasant colonization in the region has been marked by land use and tenure conflicts within protected areas, as well as land use conflicts. Understanding this will allow us to guide the project's actions towards the transformation of the causes of deforestation, which today are sustained and reproduced by the lack of real economic alternatives for the communities and the existence of cultural parameters rooted in five generations of peasants who grew up in the midst of conflict and illegality.

Regarding legal status, all reference region corresponds to areas inside the four municipalities that are not under any kind of protection figure (such as national or regional park) and being PA completely included inside the RR, it is logical to determine the pertinence and similarity of conditions.

One of the main issues in Colombia is the irregular land tenure, where people have legal rights, as legal tenures, but the legal documentation has not been fulfilled. The“Plan Integral De Desarrollo Agropecuario Y Rural Con Enfoque Territorial de Meta”[22] from the National Land Agency, declares that more than 75 % of the department has informality in tenure. The project presents 82.53 % of this informal tenure.

More specific studies such as “Lineamientos De Un Programa De Ordenamiento De La Propiedad Rural En La Zona De La Macarena” (Reyes. 2010)[23]shows for the rural area of Puerto Rico and Vista Hermosa 77% and 97% of illegal tenure for each one, similar to 85% and 97.5% in the project area. Puerto Lleras, according to its “Plan de Ordenamiento Social de la Propiedad Rural”[24] has 63.46 % of land under this figure and the Project Area for this municipality has 51.7%.

The types of tenure of the project partners are presented below:

[22] https://www.adr.gov.co/wp-content/uploads/2021/07/META-TOMO-1.pdf
[23] http://ccai-colombia.org/files/primarydocs/1010OrdenamientoLaMacarena.pdf
[24] https://www.ant.gov.co/wp-content/uploads/2019/12/POSPR_Puerto-Lleras-y-Res.pdf

Table 4 Project Area Land Tenure

TYPE	PERCENTAGE
Possesor	82,53%
Owner	17.47%

Source: Project partner database ALLCOT.

According to the Ministry of Agriculture and Rural Development, the owners are those who have a public deed, a resolution from the Colombian Institute of Rural Development-Incoder or the Colombian Institute of Agrarian Reform-Incora or a judgment from a judge that was later registered before the Public Instruments Registry Offices. In other words, for a person to be an owner, they must meet two requirements: have a title and register it. Likewise, the possessors are the people who believe and act as owners of a property, and therefore use it, exploit it or even lease it to others, but do not have the property title and/or the registration of the title before the Registry Office of Public Instruments.

To demonstrate possession, the sales letter, the sales contract, the neighbors who have witnessed the time of possession of the property, as well as the receipts for payment of public services, property taxes, the lease contracts in which the possessor acts as lessor, or any other that serves to demonstrate the direct link with the property.

According to the FAO, the insecurity in land tenure is linked to its inappropriate use, which in turn causes environmental degradation. The lack of clear rights can reduce the incentive to apply resource protection measures in the long term. In the case of privately owned land, for example, tenant farmers with short-term contracts may not take necessary soil protection measures, plant trees, or improve pastures if they do not have the land time to make sufficient use of the resources. profits from your investments[25].

- ***Municipal figures***

  Some of the social development figures for the four municipalities where the project will be implemented are presented here.

  Puerto Concordia:_There are 21,442 inhabitants. The population increase has been constant in both rural and urban areas (DANE, 2020). The population concentration in rural areas is 50.58% and 49.42% in urban areas. The multidimensional poverty indexes for the municipality is 87.8%[26] Annex 2.1.6 Social Parameters. Informal employment in the municipality is 99.37%. Until approximately 15 years ago, the main source of income for the municipality was the production, processing, and commercialization of coca, and given the income generated by this activity, there was little interest in developing licit agricultural activities, except for cattle ranching under the extensive production system.

[25] https://www.fao.org
[26] According to National Department of Statistics DANE, In Colombia, a person is considered to be in a condition of multidimensional poverty if he or she has 33.3% of the deprivations as index.

The municipality of Puerto Concordia has low health coverage indexes for the existing systems, with 4.1% coverage of the subsidized system and 1.3% of the special system, 4.14% for the contributory system, and 13.8% for the uninsured population.

As part of the population, there is an indigenous reservation with a population of 266 people, equivalent to 1.2% of the total population of the municipality. This reservation is located outside of the project area and reference area.

Puerto Concordia has not published its municipal development plan, but it was one of the municipalities favored by Program Visión Amazonía[27] for the review and adjustment of the Land Use Planning Scheme (EOT).

Puerto Lleras: According to DANE (National Department of Statistics), Puerto Lleras had 10,354 inhabitants by 2020. The multidimensional poverty index for the municipality is 85.64% As indicated in the municipality's Development Plan, some rural areas have been experiencing land use conflicts associated with agricultural production, the expansion of the agricultural frontier, which has led to the clearing of native forests, the invasion of river banks and canals, as well as the construction of housing and the formation of population centers in areas of river flooding, which has led to the loss of native flora and fauna species.

Among the problems of the economic sector in the municipality are:

i. Low profitability and economic losses for rural producers because there is no compensatory balance between the sale of products and fair payment by intermediaries.
ii. Low income for rural families, no generation of new jobs, low economic dynamics in agriculture among small and medium-scale producers.
iii. Low installed capacity for administration and management among farmer associations and producers.
iv. Lack of infrastructure for agricultural production, provision of services and tourism products in the territory.

The National Planning Department reports low coverage in the provision of water and sewer services in the municipality of Puerto Lleras, indicating that 1/3 of the population has access to these services.

Solid waste collection is only provided in the urban center and in the Loma Linda sector, benefiting 22 households.

In the other population centers, the communities have opted to generate open dumps, which do not meet the requirements of the environmental authorities. Broadband coverage and access to ICTs is only 1.9%.

Puerto Rico:_According to the 2018 DANE census, the municipality has 11,433 people, 55.22% equivalent to 6,313 are located in the urban area and 44.78 % equivalent to 44.78 % are located in the rural part of the municipality, i.e. 5,120 people. Of this population, 6,222 people are male (54.8%) and 5,171 are female (45.2%). The age range from 0 to 19 years old represents 36% of

[27] Vision Amazonia is a program oriented to avoid deforestation, which proposes a model of sustainable development for the Amazon. This initiative empowers local populations and articulates economic and social sectors to improve the quality of life. It promotes biodiversity conservation and productivity that recognizes the limitations and opportunities of the region, recovers the indigenous practices of indigenous peoples for conservation, the sustainability of the territory and the strengthening of local institutions. https://visionamazonia.minambiente.gov.co/en/what-is-amazon-vision/

the population, followed by the 14 to 28 years old population (24%) and the elderly (10%). The multidimensional poverty index for the municipality is 77.85%

Public electricity service coverage is 96.49% in urban areas and 14.09% in rural areas. Gas coverage is 65.64% in urban areas and 0.26% in rural areas.

According to the Agency for Reincorporation and Normalization - ARN for 2019, 15 people were in the process of reintegration and 69 reincorporation for a total of 74 ex-combatants.

Main problems at the territorial level

1. Lack of ample and targeted urban housing.
2. Problems of land formalization and legalization.
3. Rural housing deficit
4. Deteriorated rural housing
5. Public services

The municipality of Puerto Rico has 42 educational centers. The urban area has one educational institution: IE Alicio Amador Alvira with three educational centers and 56 teachers. The rural sector has one educational institution with 39 schools and a total of 53 rural teachers. However, there have been school dropouts due to factors such as poor road conditions, lack of school transportation and long distances, lack of school meals, school dropouts due to child labor, and overflowing and flooding of pipes. There is also a lack of internet connectivity and some schools have damaged infrastructure.

Public water, sewer, and sanitation services are provided by Empresa de Servicios Públicos Departamental EDESASA ESP only in urban areas, with 663 water and sewer users and 740 sanitation users. The municipality does not have a water purification system. There is no public sewer service in rural areas. Septic tanks are used. There is inadequate solid waste disposal in the territory and low energy coverage.

According to the 2005 DANE census, the municipality of Puerto Rico has 251 ethnically recognized inhabitants. There are no reservations or community councils.

The main problems identified in the area of competitiveness, productive transformation and tourism are:

- Little added value to the raw material produced by farmers.
- Lack of technical assistance to rural producers.
- Lack of productive projects that involve rural women.
- High agricultural production costs and insecure marketing.

Vista Hermosa:_According to the DANE census (2005), the municipality of Vista Hermosa has 27,671 inhabitants, of which 10,407 inhabitants are located in the urban center (37.6%) and 17,264 in rural areas (62.4%), with 13,698 women (49.5%) and 13,973 men (49.5%).

Within the pyramidal structure, 49% of the population is under 24 years of age, which corresponds to 6,885 men and 6,677 women, 43% of the population corresponds to the 25-59 age range identifying 5,880 men and 5,892 women, finally, there is the population range between 60 to 80 and over with a proportion of men of 1,208 and women of 1,129 women which is equivalent to 8%. The multidimensional poverty index for the municipality is 77.0%

In relation to ethnic minorities, 45 indigenous people and 388 Afro-descendants were recognized according to the 2005 Census. However, none of the project partners belong to these ethnic groups.

The municipality has an educational staff of 195 teachers, of which 67 are from urban areas and 128 from rural areas. 25.8% of the municipality's enrolled students are victims of the armed conflict, 99% of whom are displaced; as of 2016, 50 children have disabilities. The educational centers have poor infrastructure, poor access to public services, and do not have legalized land.

The employment rate indicates that 85% of the population is engaged in some formal economic activity. The unemployment rate is 30% of the population.

The municipality has public water, sewer, and sanitation services in the Piñalito, Campo Alegre, and Puerto Lucas population centers. The towns of Piñalito, Campo Alegre, Maracaibo and Santo Domingo have collective infrastructure for collecting, transporting and disposing of wastewater. The company in charge of solid waste collection services is provided by the Public Services Unit, using a 12-ton compactor collection vehicle.

2.1.5 Project Zone Map (G1.4-7, G1.13, CM1.2, B1.2)

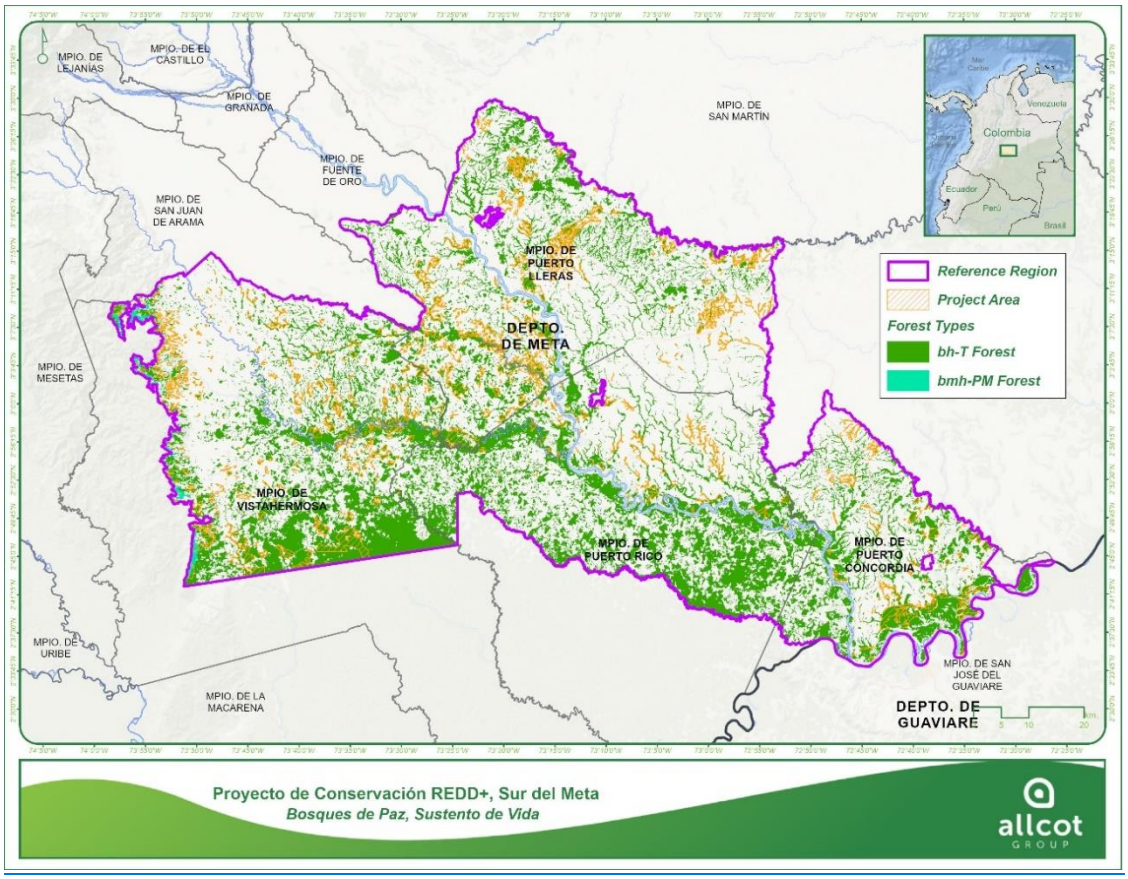


Figure 12. life zones in the project area

Source: Allcot Colombia 2021

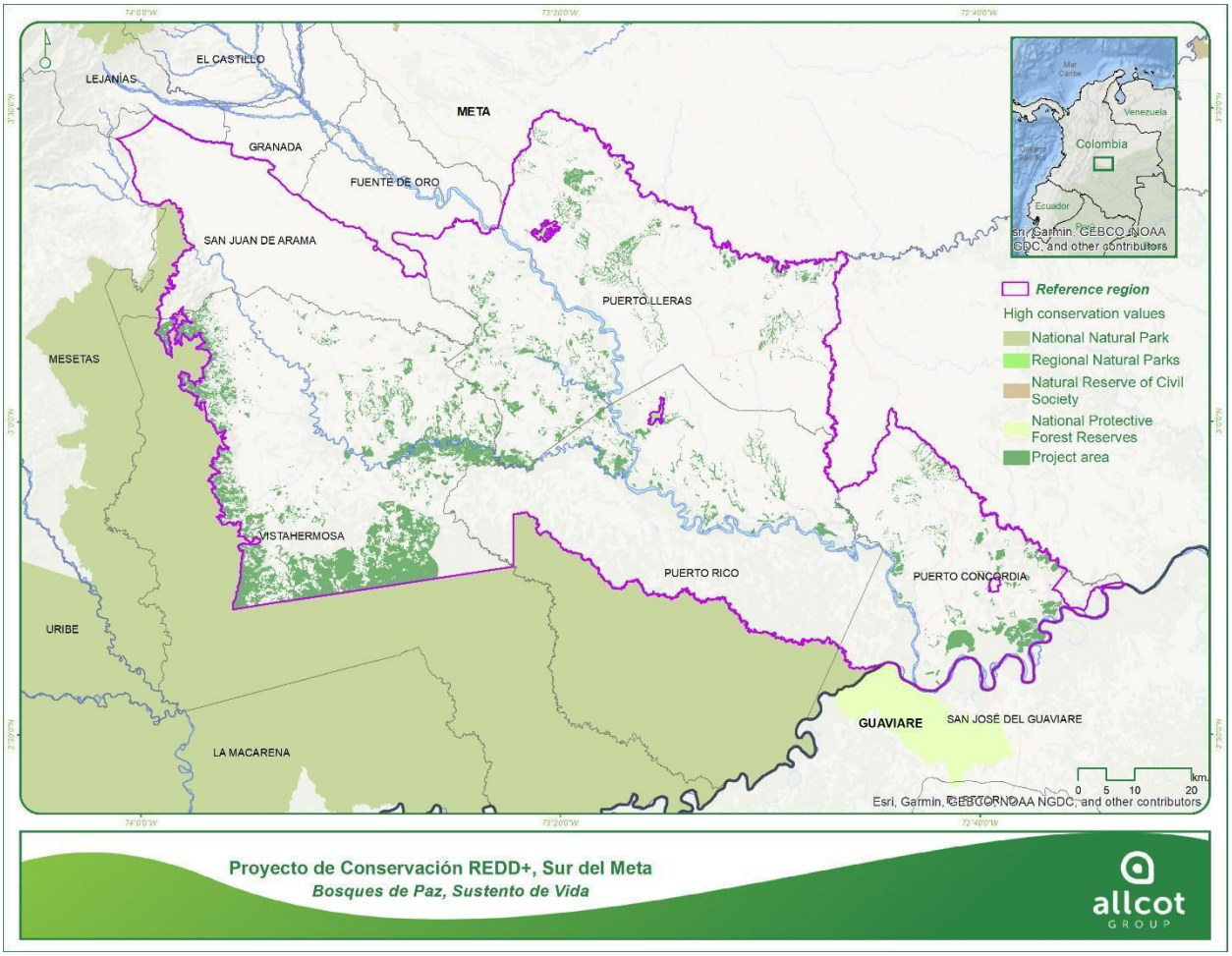


Figure 13. High conservation values

Source: Allcot Colombia 2021

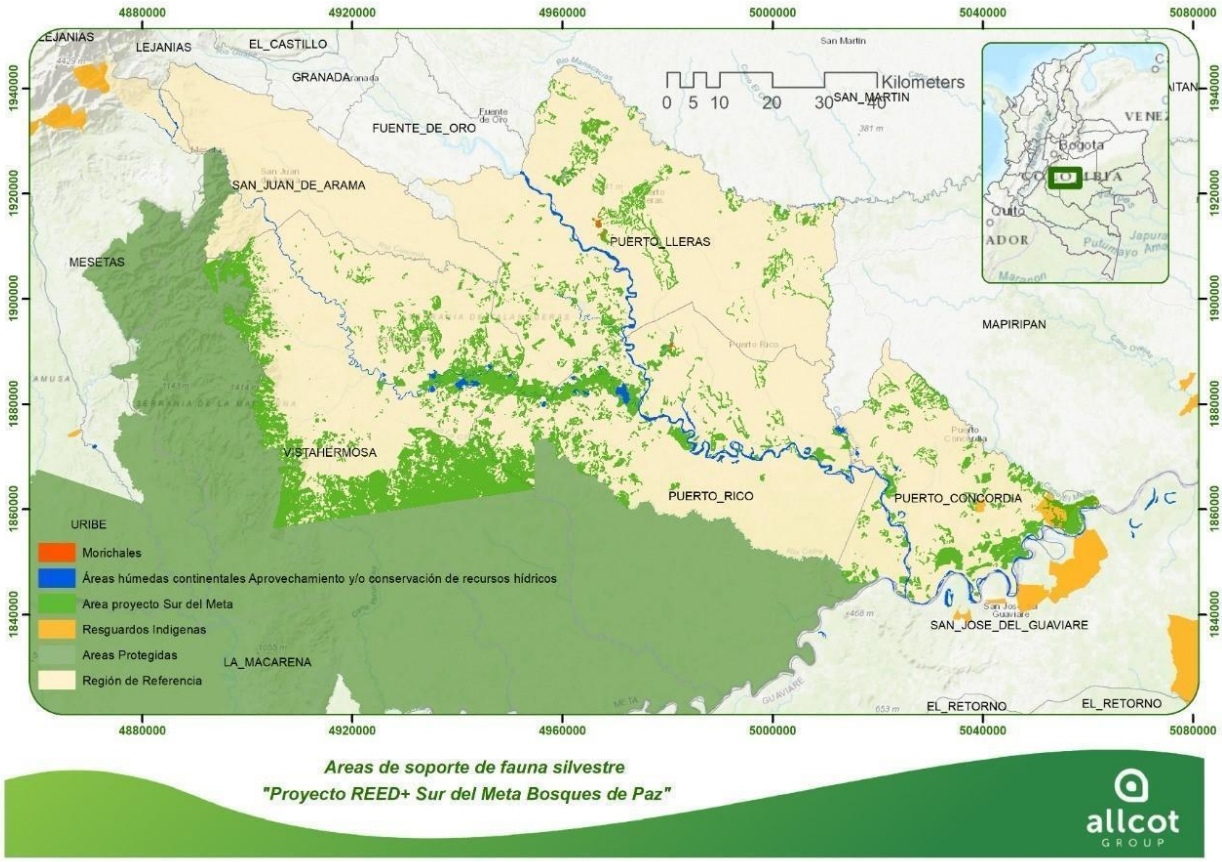


Figure 14. Other areas identified

Source: Allcot Colombia 2021

2.1.6 Stakeholder Identification (G1.5)

The stakeholder identification and analysis process was based on a stakeholder mapping and analysis tool developed by ALLCOT, which allows the process of characterizing the stakeholders that may affect or be affected by the project, taking into account variables such as their location, status, main requirements, expectations, degree of influence, level of interest, and phase of the project of greatest interest, resulting in a typology and elements to develop a communication strategy appropriate for each group. (Annex2.1.8_ 211103_CO_StakeholderMappingSurdelMeta).

Stakeholder analysis is an ongoing process, evolving as new stakeholders are introduced to the Project. As a grouped project, and according to the VCS Standard V.4.1 in its 3.5.9 and 3.5.15 items, new partners might be added into the project, as long as they fulfilled these conditions.

- The person, who wants to be part of the project must provide documentation on legal ownership of the land, according to the process described on the PD.
- The land must be inside the reference area, preferably on the leakage belt area, and by this fulfil the baseline used in the project, described on this *PD*
- The land must comply with the additionality based on financial and technology barriers.
- The new areas of forest (minimum 1 ha) will be using same measures and technologies as described on the PD monitoring plans.
- Committees will have the final decision on the inclusion, considering each candidate and their willingness to comply with the agreements.

- The new partner must sign the accession contract to the master agreement with any of the existent associations or CAB.
- New CABs or associations must have lands fulfilling the previous requirements or be presented by a group of minimum 1000 ha partners, that will sign under their contract.

The preliminary analysis identified the various stakeholder interests and the influence these groups may have on the project. The analysis helped to gradually improve the communication and engagement strategies of the various stakeholders at different stages of project development. The different types of interest groups grouped by their role within the project are described below.

- *Project leaders and partner organizations*

Among the stakeholders identified in the first place are the leaders promoting the project, since the initiative originated thanks to the manifest interest of two social leaders of the municipalities of Vista Hermosa and Puerto Rico, who had participated in 2014 and 2015 in institutional spaces where they learned about the REDD+ mechanism, and who were convincing the community to reduce deforestation, hoping to get a similar project: Mr. Alex Yamid Ramirez in Vista Hermosa and Mr. José Uirío Pachón in Puerto Rico. Given their interest and the fact that the State did not reach their territories with these projects, they saw in private companies an opportunity for financing and technical support for the development of a project within the framework of voluntary carbon markets.

It was thus thanks to these leaders that contact was made, since the beginning of 2018, with the first associations of peasant producers in the municipality of Vista Hermosa and with an association in Puerto Rico, with whom ALLCOT, after almost a year of negotiations, signed the first commercial agreements in December 2018.

In Puerto Rico with the National Association of Peasant Users (ANUC) and 39 Community Action Boards. In Vista Hermosa with the Association of Small and Medium Agricultural Farmers of the Güejar Sector (ASOPROGÜEJAR) and the Agroindustrial Association of Cocoa Growers of Vista Hermosa (AGROCAVIS).

In May 2019, the first outreach meetings were held with municipal authorities, mayors' offices, municipal councils and municipal councils, and subsequently, leaders of the social organizations identified in these two municipalities were contacted. In June 2020, contracts were formalized with one association and eight community action boards in Puerto Concordia, and four associations and eight boards in Puerto Lleras. Once they learned about the project's approach and progress, these organizations expressed their interest in participating and representing the families that decided to join the project.

Currently, 22 CAB remain as partners in Puerto Rico and 5 in Puerto Concordia.

In Puerto Concordia with the Association of Peasant Producers of the Lower Ariari (ASOCAMPROARIARI, by its acronym in Spanish) and the community action boards of the villages of Aguas Claras, El Salitre, La Florida, Lindenal, Palomas, Progreso, Santa Lucía and Chaparrito in Puerto Concordia. In Puerto Lleras with the El Hatico Dairy Association (ASOHATICO, by its acronym in Spanish), Association of peasant producers (ASOCAMPROVIC, by its acronym in Spanish), Association of Agricultural Producers of Cunimía (AGROCUM, by its acronym in Spanish), Association of Community Action Boards (ASOJUNTAS, by its acronym in Spanish) and the community action boards of the villages of Agualinda, Argentina, Canadá, Casibare, Chinata, El Cairo, Villa la Paz and El Caribe in Puerto Lleras.

In the four municipalities, local teams were formed with members of the same organizations and project partners to support the socialization process, linking families and geo-referencing of properties.

- *Public national, regional and local institutions*

Among the key institutional actors are the regulatory bodies, such as the Ministry of the Environment and Sustainable Development at the national level and the Corporación Autónoma Regional para el Desarrollo Sostenible de La Macarena Cormacarena, the regional environmental authority.

The Ministry of Environment and Sustainable Development, as the regulatory entity, defines the environmental and climate change policy in Colombia and establishes the administrative procedures to develop climate change mitigation projects in the country.

Cormacarena, as the environmental authority in the Department of Meta, is responsible for the administration and control of renewable natural resources and is also in charge of promoting scientific research and technology transfer, subject to the special regime provided for in the aforementioned Law and its bylaws, and is mainly empowered to promote the conservation and sustainable use of renewable natural resources and the environment. Cormacarena, as environmental authority, leads the Green Business Node, the Climate Change Node and the Forestry Board in the department of Meta.

On the other hand, IDEAM is the institution in charge of managing the National Registry for the Reduction of Greenhouse Gas Emissions-RENARE- according to the guidelines of the Ministry of Environment and Sustainable Development, as established in both Law 1931 of 2018, and Resolution 1447 of 2018.

- *Territorial entities*

Territorial entities are governors' offices at the departmental level and mayors' offices at the municipal level.

- *Other social organizations*

In addition to the project's partner organizations, there are other social organizations present in the territory, such as the various associations of community action boards that exist in all the municipalities, and numerous associations of cattle ranchers and cocoa and fruit growers that, like the project's partner organizations, originated in alternative development programs, indigenous communities. In the medium term, these organizations could become allies of the project to consolidate productive linkages.

Allcot signed agreements with some local organizations to generate a trust process taking into account the experience, the capacities developed by these over the years and the social recognition, this will allow the interaction with the partners in the territory. The partner organizations by municipality are presented below.

Table 5 Associations that act on behalf of the member families of the project

MUNICIPALITY	ASSOCIATION
Vista Hermosa	ASOPROGÜEJAR Association of small and medium agricultural farmers of the sector of the Güejar
	AGROCAVIS Agroindustrial Association of cocoa farmers of Vista Hermosa, Meta
Puerto Concordia	ASOCAMPROARIARI Association of peasant producers of the Bajo ariary
Puerto Rico	ANUC National Association of Peasant Users
	ASOFRAPRICOM Association of agrotourism farms of Puerto Rico Meta
Puerto Lleras	ASOHATICO Dairy the Hático
	ASOCAMPROVIC Association of Peasant Defenders of the Environment, Agriculture and Livestock of the Alto San Vicente
	AGROCUM Association of Agricultural Producers of Cunimía
	ASOJUNTAS Association of Community Action Boards of Puerto Lleras

Community action boards that are members of the project in the municipalities of Puerto Rico, Puerto Concordia and Puerto Lleras

Table 6. Community action boards that are members of the project

N°	PUERTO RICO	PUERTO CONCORDIA	PUERTO LLERAS
1	JAC Bajo Fundadores	JAC Vereda Aguas Claras	JAC Agualinda
2	JAC Caño Alfa	JAC Vereda El Salitre	JAC Argentina
3	JAC Caño Blanco	JAC Vereda La Florida	JAC Canadá
4	JAC Bocas de Caño Danta	JAC Vereda Lindenal	JAC Casibare
5	JAC El Oasis	JAC Vereda Progreso	JAC Chinata
6	JAC Islas de Caño Negro		JAC El Cairo
7	JAC La Argelia		JAC Villa La Paz
8	JAC La Lindosa		JAC El Caribe
9	JAC La Pradera		
10	JAC La Rivera		
11	JAC La Sultana		
12	JAC La Venada		
13	JAC Las Colinas		
14	JAC Miravalles		

N°	PUERTO RICO	PUERTO CONCORDIA	PUERTO LLERAS
15	JAC Puerto Chispas		
16	JAC Puerto Toledo		
17	JAC San Pedro		
18	JAC San Rafael		
19	JAC Santa Lucía		
20	JAC Sausalito		
21	JAC El Darien		
22	JAC El Jordán		

The partner linking process began in December 2018 and runs between 2019 and 2020, closing on October 31, 2020. Over time, information was delivered to the adherent partners regarding the contract, project, climate change, market of carbon, distribution of benefits, sustainable actions among other topics.

In the Annex2.1.8_ 211103_CO_StakeholderMappingSurdelMeta a detailed description of the interest groups is presented

2.1.7 Stakeholder Descriptions (G1.6, G1.13)

Stakeholder Identify communities and any community groups within them, any cross-cutting community groups, and list other stakeholders.	Rights, Interest and Overall Relevance to the Project
Farmers, ownership and land tenure	The central actors of the project are the families of the owners and landowners, who are committed to the conservation of their forests. Their role is that of participating partners. The participating partners were identified and linked to the project since the different moments of socialization and participation of the actors were carried out hand in hand with the social organizations with which commercial agreements were signed. The main rights of this group of actors are freedom of expression, participation, access to information, access to natural resources, work, safety and health at work, food, access to land, conservation and preservation of the environment. , water, social rights. security, health, housing, education – training, culture, consultation, women's participation rights, access to health and social security services, education, among others, and standard of living linked to social safeguards.

Productive associations and community action boards	Representing the landowners are nine (9) associations and 38 Community Action Boards CAB (JAC, in Spanish) that have signed commercial contracts with ALLCOT. They are partner organizations for implementing the project. The community action boards are civic, social and community organizations for social management, non-profit, of a solidary nature, with legal status and their own assets, voluntarily integrated by the residents of a place that join efforts and resources to procure an integral, sustainable and sustainable development based on the exercise of participatory democracy. (Art. 8, Law 743 of 2002). The main rights of this group of actors are freedom of expression, participation, access to information, access to natural resources, work, safety and health at work, food, access to land, conservation and preservation of the environment., water, social rights. security, health, housing, education – training, culture, consultation, women's participation rights, access to health and social security services, education, among others, and standard of living linked to social safeguards.
Territorial entities	The territorial entities, the mayors' offices of four municipalities and the governor's office of Meta, within the framework of their competencies, define territorial planning and therefore regulate land use. In addition, by executing public policies in their territories through development plans, they can be co-financiers of community initiatives within the framework of the REDD+ project.The main rights that this group of actors seeks to safeguard are freedom of expression, participation, access to information, conservation and preservation of the environment. access to water, social rights. security, health, housing, education – training, culture, consultation, participation rights of women, access to health services and social security, education, among others, and standard of living.
Environmental national system entities	The regional environmental authority (Cormacarena) defines the environmental determinants for land use planning and implements programs and projects aimed at conservation and sustainable development in the region of La Macarena and the entire department of Meta. Initially it was identified as a strategic actor, especially for its goals associated with the promotion and strengthening of green businesses, with which synergies could be made in sustainable productive projects, but given the contradictions that became evident in the territory and the criticism that the local population has towards this corporation, the decision of the project's partner farmers to maintain the relationship with this entity, mainly for compliance with regulations and norms, is respected.The main rights that this group of actors seeks to safeguard are freedom of expression, participation, access to information, conservation and preservation of the environment, access to water, social rights, education – training, culture, consultation, participation rights of women, and improvement

	of quality of life.
Indigenous communities	Only two indigenous reservations are located within the four municipalities where the project is located, Resguardo La Sal and Naexil Put. The first one does not have project areas within 10 km and is not considered an interested party, but will be monitored. In the case of the Naexil Put reservation of the Jiw Ethnic Group, it has a property called Luna Roja in the village of Florida (385 ha + 1,140 m2), with 217 registered people, grouped into 25 families. It is outside the reference region, but is separated by the Guayabero River from some of the project areas. These communities depends on small agriculture, fishing and hunting. They have suffered violence and displacement by illegal actors. The indigenous communities did not participate in the meetings to publicize the project, although an invitation was sent through the Mayor's Office. Since the project seeks to work with the peasant population, there are no inclusion efforts.

Given the articulation with peasants, ranchers, property, land tenure and productive associations and community action boards, specific project contracts were signed where duties and rights are established, the work with each group is detailed below.

- ***Farmers, ownership and land tenure***

Initially (2017-2019), peasant landowners or landowners in the municipalities of Vista Hermosa and Puerto Rico were identified and involved, where the first agreements were signed with the social organizations that represent them before ALLCOT. Subsequently, the partners of the municipalities of Puerto Concordia and Puerto Lleras were linked, also through conservation agreements and adherence to the contracts signed with the representative organizations in each municipality.

In addition to the participating partners, there are those owners and possessors who for one reason or another did not want to be involved and who may have some kind of indisposition towards the project. Their primary interest will be to follow up on the implementation to check the progress of the project and eventually they will want to join in the future if things go well. Keeping these stakeholders informed is very important to avoid possible misinformation or defamation about the project or its promoters.

- ***Productive associations and community action boards***

The linking of the JACs was done according to the will of their presidents to represent the owners and possessors, and according to the number of members per vereda. In the villages where few families joined, or where the owners expressed their disagreement with the JAC, the affiliation was done through an association.

ANUC is a third degree association, of private law, non-profit, with the character of a confederation through which the peasants of Colombia are aggregated and the different organizational forms integrated by them are confederated.

The general objective of ANUC is "to organize, train and represent the peasants of Colombia and act as their valid interlocutor, as an advisory and consulting body before the government and society to manage, defend and claim their economic, political, social and cultural rights, ensuring full respect and compliance with the guarantees granted by the constitution and the law".

In Puerto Rico, ANUC proposed to also involve the Community Action Boards as representatives of the landowners and landholders who were not interested in joining through the Association, in order to achieve greater territorial representation and broaden the social and forest base of the project. Thus, commercial contracts were signed with 39 community action boards in the municipality of Puerto Rico.

In Vista Hermosa, Agrocavis is a second-tier organization that brings together eight productive associations in the municipality and several presidents of communal action boards in the municipality participate in its board of directors. This association was created in 2018 with a cocoa marketing initiative and achieved its consolidation thanks to the Colombia en Paz project with which it was finally formalized as an association of associations.

Asoproguejar, for its part, was created in 1998 with the objective of substituting illicit crops within the framework of the Alternative Development Plan. Its first project involved banana crops, then dual-purpose cattle raising. For public order reasons, the organization suspended its work in 2002-2003. They then formed a board of directors and continued to develop projects up to the present. Its area of influence is the right bank of the Güejar River and it has more than 80 members.

The Asociación de campesinos productores del bajo Ariari (ASOCAMPROARIARI) is a first level organization that has been rated as one of the best organizations in the municipality of Puerto Concordia, in 2014 they were ranked as the 3rd best organization in the department of Meta. It has approximately 500 affiliates, they have managed and executed projects since 2012: productive alliances in cocoa for 61 beneficiaries 122 hectares 800 million approximately; in 2013 a project to strengthen cocoa farmers (delivery of scythe and back motor to each beneficiary), among others, they have also managed credits with the agrarian bank through complementary guarantees with the governor of Meta. Approximately 120 loans have been processed.

In Puerto Lleras ASOCAMPROVIC is a first level association that was constituted in 2018, it was created with all the inhabitants of the Laureles neighborhood, because there was no Community Action Board. It has 72 members including some inhabitants of the village of Chafurray. All members of this association are interested in developing sustainable livestock and citrus projects. Ten of its members have experience with Tahitian lemons and about 40% of the members have knowledge of sustainable livestock farming.

AGROCUM, also in Puerto Lleras, was created in March 2008 as part of the projects promoted by the Colombian government to consolidate the AMEM and as an association to demand the voluntary eradication of illicit coca crops. Through negotiations, they were able to access seed capital for some productive projects, but they received no technical assistance of any kind and were left waiting for an electrification project that never arrived. They have implemented projects such as one to improve pastures for small and medium livestock farmers in 2017, but it only reached 40 associates out of 108 families affiliated at that time. Currently there are 78 active associates.

ASOJUNTAS of the municipality of Puerto Lleras, which brings together the community action boards of the municipality. It was created in 200 thanks to the leadership of teacher Olivo Gutiérrez, who promoted peasant organization in the municipality and the empowerment of community action. Of 29 community action boards that applied to execute government resources through solidarity

agreements, 12 of them succeeded, generating a local capacity for the execution of community projects.

ASOHATICO, also in Puerto Lleras, is an association of livestock producers and milk processors that has managed to conquer the regional market in the departments of Meta and Guaviare. It has received support from Cormacarena's green business window to promote good agricultural and production practices. Lácteos el Hático promotes associativity and the generation of added value to the raw materials of this village, contributing to the improvement of the quality of life of the members of the productive unit.

The main rights of this group of actors are freedom of expression, participation, access to information, access to natural resources, work, safety and health at work, food, access to land, conservation and preservation of the environment. , water, social rights. security, health, housing, education - training, culture, consultation, women's participation rights, access to health and social security services, education, among others, and standard of living linked to social safeguards, which are respected through environmental and social safeguards.

	Civil and Political Rights			Economic, Social and Cultural Rights											Other rights		
Stakeholders/ Derechos	Freedom of expression	Participation	Access to information	Access to natural resources	Work	Security and health at work	Feeding	Access to land	Conservation and preservation of the environment	Water	Social Security	Health	Living place	Education - training	Culture	Consultation	Women's rights to participation, access to health services and social security, education, among others.	Adequate standard of living
Farmers, ownership and land tenure	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Productive associations and community action boards	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Territorial entities	X	X	X	X					X	X					X	X		X
Environmental national system entities	X	X	X	X					X	X					X	X		
Indigenous communities	X	X	X	X			X	X	X	X		X	X	X	X	X	X	X

Project Activities and Theory of Change (G1.8)

The theory of change for this project was designed following the adoption of the Open Standards Methodology presented at de Social and Biodiversity Impact Assessment manual for REDD+ Projects, from CCB standard.

Considering that historical data from remote sensors, official Colombian information on drivers and agents and the communities identified the main causes of deforestation as the current extensive cattle ranching system, the lack of land formalization and the lack of sustainable productive alternatives, the project's lines of action are aimed at generating a cultural change through training and capacity building processes to achieve the necessary conditions to advance in the transformation of these causes, formalize land ownership, strengthen forest and project governance, and consolidate sustainable and resilient productive systems.

The project's theory of change matrix and risk matrix can be consulted at Annex. 2.1.11_ 211104_CO_Teoria del Cambio_V1 and its main objective is to reduce deforestation and control clear cutting. The project aims to achieve this, by supporting partners in adopting sustainable practices and good agricultural and livestock production practices that maintain ecosystem balance

as well as generate the sustainable use of natural resources through the implementation of sustainable agricultural systems.[28]

- Training and education for the improvement of individual, collective and organizational capacities of project partners

The project brings together nine associations and 38 community action boards, with different levels of organization, experience and capacities, which have identified the main need to strengthen their project management, planning and administration capacities, as well as their communication, knowledge management and community participation capacities.

For this reason, the first objective of this line of action is to develop training and education programs to improve the individual, collective and organizational capacities of the project partners.

Taking into account that the responsibility for project implementation will fall on the coordinating committees, a training program will be designed for their members, with theoretical and practical modules on topics such as administration, finance, project management, communications, environmental management and green business, and the use of information and communication technologies. There will also be exchanges of experiences among the project partners and with other projects.

With the administrative and financial modules, the Coordinating Committees are expected to have the necessary skills to manage projects, manage resources, formulate business plans and follow up on investments and costs. Thus, they will have the capacity to manage projects to co-finance REDD+ activities. With the communications module, project implementers will keep partners and ALLCOT informed of project progress, be accountable and respond to requests for information and possible non-conformities.

The environmental and green business module will allow projects led by the coordinating committee of each municipality to respect environmental determinants in land use planning and integrate best practices for verification as Green and Sustainable Businesses by the environmental authorities. With the ICT module, the partners will improve their capacities to use IT tools to be more efficient in the implementation process.

Approximately 40 people are expected to take part in these training workshops, according to their role within the committees.

Through the exchange of experiences, the project partners will form communities of knowledge on forest governance, community organization and associativity, sustainable production and consumption. In this way, the coordinating committees will have the necessary skills to manage projects, manage resources, formulate business plans and follow up on investments.

On the other hand, the communities identified the lack of awareness and environmental awareness among the community as another cause of deforestation, as well as the lack of knowledge of climate change and business opportunities for forest protection. The second objective of this line of action is to develop a training program with a differential approach (gender, generational, vulnerability), aimed at all project partners.

Through the development of workshops and meetings, it is expected that people will create a better understanding of the impacts of clearing the forest, and through the knowledge regarding REDD+

[28] For examples, see: Richards, M. and Panfil, S.N. 2011, *Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects: Part 1 – Core Guidance for Project Proponents.* Climate, Community & Biodiversity Alliance, Forest Trends, Fauna & Flora International and Rainforest Alliance. Washington, DC, 34 – 42.

and the potential market for emission reductions, start reducing deforestation in their farms. A total of 600 partners are expected to be reached.

The first objective of this line of action is to create learning routes and experiential meetings with different members of the community, as well as family life plans, to create a community of knowledge (with children, youth, adults, families, educational community) about forests and climate change, which will strengthen interactions between partners and with the rest of the community, a greater and more qualified participation in terms of social, economic and environmental transformation in the territory.

These three linked actions in the line of training and education are aimed at obtaining three significant impacts on the community: i) a cultural change in the way of seeing and relating to nature; ii) installed capacity for community self-management and efficient administration of resources; and iii) more resilient communities in the face of climate change.

The second objective is the support the Land formalization This line of action seeks to contribute to the transformation of one of the structural causes of deforestation and conflict in Colombia, the lack of legal access to land for farmers. During the third year of project implementation, the barriers and specific support needs of each partner will be identified in order to design an advisory and accompaniment program for the land formalization process, which will be structured according to the demand of the partners and in coordination with the National Agency of Land ANT and the mayors' offices.

To achieve this, a previous study of challenges and difficulties for legalization process in the region will be performed and used as baseline for the objective.

As a result of this line of action, a greater appropriation and valuation of productive spaces and forests in formalized lands is expected, and as an impact on the community, it is expected to finally achieve the vindication of the right to land, one of the fundamental pillars to achieve peace.

It is important that this process of legalization will only be provided to those partners interested on it. It will not be mandatory in order to continue with the project.

The third objective is the consolidate the territorial governance of the project partners and strengthen citizen awareness through knowledge management and learning to generate an intergenerational culture for the care and sustainable management of forests.

This line of action is aimed at consolidating the governance of the project partners and strengthening citizen awareness through i) creation and operativity process of coordinating and supervisory committees ; ii) Forest, biodiversity and community monitoring; iii) Information, community participation, citizen service and dispute resolution; iv) Design and implement a communication strategy; v) Institutional articulation; vi) Formulation of farm plans articulating them with delimitation of protection areas, productive areas, pastures and property boundaries.

The coordinating committees will have the capacity to develop instruments for the internal functioning and management of the project, such as operational regulations, strategic plans, operational plans, all design to efficiently manage of the available resources to make investments that curb deforestation. Also, the supervisory committees will enhance their capacities to successfully oversee processes, ensuring transparency and respect for safeguards.

Good governance also implies having a good organization with documented processes and procedures, with guaranteed access to information and full and effective participation of all partners. In this sense, mechanisms for citizen attention, monitoring of compliance with the safeguards adopted by Colombia and accountability will be formally adopted, and a communication and

knowledge management strategy will be implemented to promote a process of continuous learning and improvement, and to consolidate a culture of care and sustainable management of the forests and their biodiversity.

The fourth objectives is to train the community, in general, in good livestock, agricultural and environmental practices. Even though a specific objective regarding productive projects exists, in here it is the intention to include all the partners in general knowing regarding good practices, even in fields different from their own.

The participatory monitoring, not only in the technical process, but in how the information is translated and spread among the communities, beyond the project area and into the leakage belt at least, will be supported and strengthen during the first years of the project. This will support social appropriation of knowledge on forest and biodiversity to control deforestation

For communities to achieve their long-term improvement goals, articulation of actions and resources with other stakeholders, especially governmental ones, will be supported, guided and subscribed under agreements, interventions, contracts, etc.

To achieve the expected reduction of CO_2 emissions caused by deforestation in southern Meta it is essential for communities to be able to identify conservation areas and have clear limits to the agricultural frontier, ensuring its sustainable management, but allowing families to improve their quality of life. For this, baselines, zoning, and consensual farm plans will be developed during the implementation of the project.

- Sustainable productive projects

The fourth line of action of the project is aimed at promoting an economy based on sustainable productive projects for integrated rural development, contributing to closing the agricultural frontier and improving forest goods and services. This is one of the central components that will concentrate most of the investments and generate the most relevant results and social impacts on communities, biodiversity and climate.

It includes six main activities: i) identification, formulation and implementation of productive projects; ii) Identify, formulate and implement a manual of good agricultural and environmental practices; iii) formulation of a technical assistance and agricultural extension program for each line of production aimed at project partners; iv) identification of potential products and by products associated with the main lines of production; v) development of a program to strengthen production chains and generate added value for the products, vi) biodiversity, forestry and carbon stock monitoring

Beginning with the consensual community process of identification of productive projects that will improve positive social and environmental impacts, will lead to selection and formulation of project profiles. This first activity will be developed on several steps that will allow communities and committees to have project documents and business plans for each line, and from there yearly based, developed an operational plan with activities and budgets (at least 5 expected on the first 10 years of the project).

For communities the fact that this process is developed with them, including their real needs and expectations, is expected to improve the amount of areas that will successfully developed and applied the productive projects, with constant environmental improvement.

It is expected that at least 50% of the partners will have access to technical training geared to their selected line of action (sustainable livestock, cocoa, coffee, avocado or citrus). The inclusion of at least half of the project's women in these trainings should always be considered. As the previous activity, this one will need of at least four steps, which includes diagnosis and analysis of agricultural

and livestock activities that will lead to a document of gaps in production systems, in relation to markets and solution alternatives. With this, and always teaming up with communities, 4 technical assistant programs will be developed.

Technical assistance programs aim to strength community knowledge, cooperativity systems, nets and, at long term, besides reducing deforestation associated to low productivity on their existent fields, it is expected to improve yields, reduce contamination associated to agrochemicals and thus contribute with the produce and recovery of ecosystem services in the area.

Actions iii and iv are expected to be the migration of the chain of value from sector one to sector two of the economy, allowing partners to develop a portfolio of potential secondary products, identifying needs, barriers and potentials for the required transformation processes. The possibility to develop bases for this will, at the long term, allow owners to improve their incomes and thus their social and economic well-being.

Finally, monitoring is what will allowed project to produce the information needed, not only to follow up the state of forest, and thus the performance by period, traduced on carbon credits generation, but also it will provide the tools to make on-time decisions, aimed to secure the general objective of the project, reduce deforestation. The detailed aspects of these monitoring plans are presented during the PD, on the corresponding item.

As a result of these actions, it is expected to reduce deforestation, make sustainable use of resources, achieve cost/efficient decisions by the coordinating committees, reduce risks, increase productivity, increase employment opportunities, new business opportunities and sources of income, facilitating the creation of new products and services, and a fair and equitable distribution of benefits.

As a long-term impact on biodiversity, it is expected to increase the area of conserved forest and connectivity between these areas, as well as the maintenance of environmental goods and services. In the community, greater environmental awareness and better territorial governance are expected, as well as an improvement in income, a decrease in poverty levels and an improvement in the living conditions of participating families.

Since December of 2018 to August of 2021, about 75 virtual and face-to-face meetings have been held in the four municipalities with the communities of the project where topics such as; REDD+ projects, deforestation, conservation and project structuring, deforestation drivers, actions to counter deforestation drivers, project safeguards, resource prioritization mechanisms and project structuring, deforestation behavior, causes of deforestation, problems , solutions, biodiversity (flora and fauna) among other topics. A total of 1,600 people participated.

2.1.8 Climate, Biodiversity and Community Benefits Assessment Period (G1.9)

01/1/2019 to 31/12/2048 - 30 years of total crediting period. in accordance with ERPA, this time might be improved by mutual consensus, in the same inferior number of years.

01/01/2019 to 31/12/2048 – 30 years of total benefits assessment period.

2.1.9 Differences in Assessment Periods (G1.9)

The agreement includes two more years, 22 in total, which are meant for closing and wrap up of the process, reason why is not included into crediting period but as part of the benefits assessment period. The period will be extended to 30 years; process that shall be conducted by the committees. start date is 01/01/2019 to 31/12/2048.

2.1.10 Implementation Schedule (G1.9)

Date	Milestone(s) in the project's development and implementation
2017 – 2018	Community project identification, introductory meetings, training sessions, visits to REDD + projects in Colombia
2018 – 2020	Signature of Agreements ALLCOT
2018 – 2020	Implementation of Early actions to reduce deforestation
30th of January 2020	Listed in VERRA VCS
28th of February 2022	Listed in VERRA CCB
14th of February 2020	Filing before the Ministry of Environment and Sustainable Development RENARE
2022	Validation and registration VCS and CCB
2018-2049	Implementation of project activities
2018-2049	Implementation of sustainable actions
2022-2025	Support for the formalization of land
2021-2030	Generation of project governance
2018-2040	Partner training
2022-2041	Technical assistance and extension
2019-2021	First follow-up period
2022	First verification

2.1.11 Risks to the Project (G1.10)

The risks identified to the benefits of the project and the general measures taken to mitigate these risks Appendix 3: Project Risks Table.

2.1.12 Benefit Permanence (G1.11)

ALLCOT, within its follow-up and accompaniment scheme, seeks to create and leave the capacities installed in the coordinating committees in such a way that periodic planning and formulation of annual operational plans are carried out to identify priorities by municipality. Part of the process is the implementation of the sustainable actions identified with the partners.

The focus of the investments is on sustainable production practices that seek to enhance climate, community and biodiversity benefits, which will be maintained over time and beyond the life of the project. The production systems will be focused on increasing income or reducing costs generated by the partner, valued through the use of market prices, taking into account the economic benefits associated with the adoption of new technologies and good social, environmental and agricultural practices. In parallel to this, training, support for formalization and land tenure, governance, technical assistance and community monitoring actions will be implemented, which are expected to have a great impact on the community and thus minimize the risk for future generations and ensure generational replacement.

In addition, the monitoring and community knowledge program will make it possible to establish changes over time at the climatic, community and biodiversity levels, where the benefits of sustainable actions will be established, allowing the coordinating committees to manage resources. The business plans are intended to show the profitability of the actions and be able to extend them over time, apply for competitive funds and leave the project management capabilities in the committees and partners.
During the design phase of the project, ALLCOT, as part of the process of approaching the communities, developed previously defined early actions with the Community Action Boards, Associations and partners described in section 2.3.7 Stakeholder Consultations (G3.4).

2.1.13 Financial Sustainability (G1.12)

Regarding the financial mechanisms that have been adopted in this project in order to have adequate funds to carry out the activities, there are several aspects to mention. As a first point, an analysis was made for the entire project including the income from the sale of carbon certificates and, on the other hand, all the costs that these will have to cover. In addition, on the implementation side of the project, a tool was created which mainly includes information on the productive projects to be covered in order to check that these investments are viable and are made in the most appropriate way, presented on the Annex 2.1.20_Herramienta_Implementacion_SdM_V5.

As a second point, it is worth mentioning that the project is being leveraged from an agreement for the sale of carbon certificates that will be issued after the first verification, in addition to income from other sources of the company. This will cover the initial phases of the project until the first verification. When this phase of the project is completed, the idea is that it will be able to sustain itself with the same income from the sale of the carbon certificates it will produce.

Finally, the third point to mention is that for the investments that are planned to be made in the productive lines of the project area, alternative sources of financing will be l, based on different calls for proposals. The purpose of this is to provide these production lines with as many resources as possible to improve their production systems and reduce deforestation. Documentation supporting this is included in the folder Annex 2.1.20 Financial sustainability.

2.1.14 Eligibility Criteria for Grouped Projects (G1.14)

Only forest areas located within the reference region may be included. Specifically, the leakage area has been identified as having the potential to be included, as they are adjacent areas, with the same causes of deforestation and the same forest types. Within the reference area there are other areas, whose owners have not been identified, but which could meet the requirements.

As a grouped project, and according to the VCS Standard V.4.1 in its 3.5.9 and 3.5.15 items, new partners might be added into the project, as long as they fulfilled these conditions.

Recognizing activity instance as: at least one hectare of forest (by Colombia definition[29]), that has been forest for the last 10 years, from the moment of inclusion. And that is under risk of deforestation in absence of the project. This area must fulfill these characteristics:

[29] Land occupied mainly by trees that may contain shrubs, palms, guaduas, grasses and lianas, in which tree cover predominates with a minimum canopy density of 30%, a minimum in situ canopy height of 5 meters at the time of identification and a minimum area of one hectare.

- The person, who wants to be part of the project must provide documentation on legal ownership of the land, according to the process described on the PD.
- The land must be inside the reference area, preferably on the leakage belt area, and by this fulfil the baseline used in the project, described on this *PD. regarding physical characteristics, causes of deforestation, uses of land and type of forest*
- The land must comply with the additionality based on financial and technology barriers (opportunity cost).
- The new areas of forest (minimum 1 ha) will be using same measures and technologies as described on the PD monitoring plans.
- Committees will have the final decision on the inclusion, considering each candidate and their willingness to comply with the agreements.
- The new partner must sign the accession contract to the master agreement with any of the existent associations or CAB.

New CABs or associations must have lands fulfilling the previous requirements or be presented by a group of minimum 1000 ha partners, that will sign under their contract.

2.1.15 Scalability Limits for the Grouped Projects (G1.15)

By follow the previous mentioned criteria, the project will only include areas inside the reference region. Assuming all possible areas were included in all four municipalities, the project will be inside the expected and calculated scalability limits, financially and technically, as it will be no further than 120,000 hectares. Feasibility studies performed by ALLCOT at the beginning of the project contemplated this scenario as the ideal.

Negative climate impacts, if new areas are included beyond the scalability limits determined, are related to increase risk of non-permanence, as monitoring will exceed the expected capabilities of the committees. Social negative impacts, are directly related to governability. The existent proposal of local committees, joining close towns, respect the political and administrative division of the region, to include areas outside the limits, might create disputes with local governs, such as majors.

Negative biodiversity impacts, are also related to the difficulty of follow up the effectiveness of the actions proposed.

2.1.16 Risk Mitigation Approach for Grouped Projects (G1.15)

In the case any land gets included outside the area, but that fulfills the additionality and baseline directions, it will be necessary to design a new governance model, that allows to comply with the monitoring process (social, biodiversity and climate), and the relation cost/benefit, transparently presented to the partners and committees, in order to assure an informed decision by them.

Also, the new areas, located outside the current municipalities, must complete the introductory process with local governance, as well as the reassessment of stakeholders map, trying to identify new risks and opportunities. Communication strategy must be also updated accordingly.

2.2 Without-project Land Use Scenario and Additionality

2.2.1 Land-Use Scenarios without the Project (G2.1)

The baseline scenario is the same as the conditions existing prior to the start of the Project see Section 3.1. (Baseline Scenario).

2.2.2 Most-Likely Scenario Justification (G2.1)

The justification is the same as for the scenario described in section 3.1. Even though a scenario where deforestation will increase abruptly due to post conflict conditions, as the one presented on National Reference Level for Amazonia, presented by Colombia to the UNFCCC, this one was dismissed, as the adjust made as circumstances, were not achieved during this period.

Instead, the historical deforestation modelling scenario, which proves that agricultural and livestock frontiers are increasing, and considering governmental information pointing out these are the main drivers and the absence of real actions that could change the pattern, and so deforestation will advance accordingly. This information was backed up by partners during workshops, so this one was selected as the most-likely scenario. Further justification might be found on Annex 2.2.2_Most Likely Scenario Justification and on the climate, community and biodiversity sections.

2.2.3 Additionality (G2.2)

a) *STEP 1. Identification of alternative land use scenarios to the AFOLU project activity;*

b) *STEP 2. Investment analysis to determine that the proposed project activity is not the most economically or financially attractive of the identified land use scenarios; or*

c) *STEP 3. Barriers analysis; and*

d) *STEP 4. Common practice analysis.*

Thus, the sub-steps of step 1 of the methodology for the construction of the project baseline are developed below:

a) Step 1. Identification of alternative land use scenarios to the proposed VCS AFOLU project activity

Sub-step 1a. Identify credible alternative land use scenarios to the proposed VCS AFOLU project activity.

Based on the identification of current land use and land cover conditions and the analysis of LU/LC change during the historical reference period within the Reference Region, it is possible to determine that the most likely land use scenario in the absence of the Southern Meta, Forests of Peace and Livelihoods of Life project is the expansion of the agricultural frontier and the expansion of the livestock frontier. Evidence of this is the historical dynamics, where there has been an increase in the area of pastures, permanent crops, and heterogeneous agricultural areas between 2010 and 2018, which is comparable to the decrease in forests for these same years.

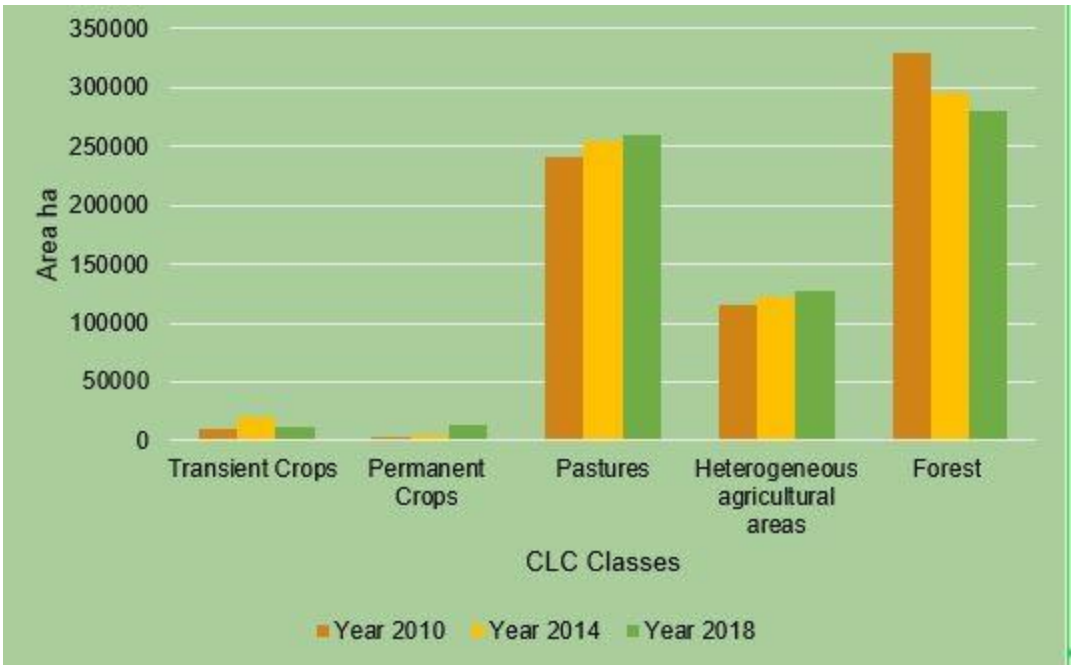


Figure 15. Change on LC/LU

Source: ALLCOT, 2021

Traditional land preparation practices in the region are based on clearing the soil by slashing and burning natural forest areas to create pastures and savannahs for cattle ranching with grass species rich in protein for livestock, or to establish crops with latent economic demand, mainly rice, cacao, rubber, cassava and, more recently, oil palm. However, prior to this practice, in some areas where small remnants of useful or so-called "precious" timber species remain, illegal logging and extraction is carried out prior to logging, burning and spraying.

At the same time, there is a tradition in the area of leaving some areas of forest associated with the drains that help maintain the flow of these springs, which are used to irrigate crops and supply water for livestock. However, in these areas, intensive grazing affects the sprouting of new trees both on the edge and inside these remaining forests, condemning these areas to gradual disappearance.

In consideration of the VT0001 tool, the following is a list of alternative land use scenarios that could have occurred in the area within the proposed project boundaries.

Scenario 1: Increase in traditional crops and pastures, increase in extensive cattle ranching, reducing areas of natural forest. The trend identified in the analysis of historical land use and land cover changes remains.

Scenario 2: Transformation of traditional crop areas to other "fashionable" and more profitable crops that are implemented on a large scale, such as oil palm. The trend follows that presented by the Colombian Ministry of Agriculture, which shows that the country's largest palm oil production is concentrated in the eastern zone, where the department of Meta is located, and is expected to grow in the future, as its average income to the producer is above that of other oil crops such as soybean and canola. The implementation of this crop has been linked in the department as a threat to forests and a cause of deforestation. And it has been documented that in 2017 in the municipalities of Puerto Concordia and Puerto Rico there is evidence of palm crops and although there is no reliable evidence of deforestation generated directly by palm crops, it is important to note that the conditions of connectivity, security, price of land, are given for its expansion, and part

of this symptom may be the process of massive land accumulation for the purpose of development of this crop in the future.

Scenario 3: the peasants decide to conservate their forest, receiving no financial compensation for it from VCS registration, and continue having the same agriculture and pasture hectares.

Scenario 4: The last trend scenario identified corresponds to that related to the return of victims of forced displacement due to the armed conflict in the region. The report, called "Voices of the victims: An approach to the reality of forced displacement in the inspection of Puerto Toledo, municipality of Puerto Rico, Meta, in the period 2005 to 2018" gives a notion of the history of the conflict in the department. The processes of restitution and reparation carried out with the population that has been violated due to the armed conflict, in their process of returning to their homes, not necessarily within the project area, implies that there is a flow of people to the area, which implies an increase in the demand and consumption of goods, the need for employment and income, which can be a factor of pressure on the forests as a means of obtaining income, affecting their surface and structure, causing deforestation. Even at national level, the National Determined Contribution, recognizes this as a National Circumstance the post conflict, and considers it will increase deforestation in former areas conflict.

- *Sub-step 1b. Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations*

Although Colombia has policies, institutions and instruments for forest resource management, and there is a forest harvesting regime approved in Decree 1791 of 1996 by the Ministry of the Environment, which together with the National Natural Resources Code of the Second Law of 1959, establishes the conditions for natural forest harvesting, the type of management to be carried out and those responsible for the control and monitoring of processes, in the scenarios presented, deforestation is mainly associated with illegal logging without a permit, a forest management plan or an environmental license.

In Scenario 1, there is no prior authorization from the Regional Autonomous Corporation to harvest forests, in addition to deficient monitoring and control of these activities and subsequent mobilization of products.

For Scenario 2, something similar to Scenario 1 occurs, since there is no law or instrument that determines that the establishment of a palm crop must take place in areas other than forests, which implies a change in land use and complete transformation of the forest cover in order to prepare and amend the soil for the development of the crop. In contrast to the restrictions that may exist, there is Law 138 of 1994 "Establishing the Quota for the Promotion of the Oil Palm Agroindustry and creating the Palm Development Fund", as well as the production and market of the oil palm. The production and market for this crop has been directly stimulated by general financing and incentive policies and regulations that have sought to promote agricultural production for growth and stability in the rural sector.

Scenario 3 There are no projects or programs that recognize payment for ecological services in the area that include people with no clear legal tenure. Therefore, it is unlikely for mor than 70% of the PA landowners to access to any kind of support on conservation. And as the opportunity cost presents, the current model is not sustainable and drives to deforestation.

Scenario 4 applies transversally to the initial aspects related to the harvesting regime and its permits. Currently, the process of land restitution and reparation for victims of the armed conflict is regulated by Law 1448 of 2011 "Whereby measures for attention, assistance and comprehensive reparation to the victims of the internal armed conflict are dictated and other provisions are issued"

of the Congress of the Republic. Which establishes mechanisms of integral reparation and that within these it addresses conferring to victims, the economic exploitation of agricultural type on a land of public domain that has such vocation and that is susceptible to be appropriated by individuals; having said this, it is possible to infer that it is not broken down when using the expression "economic exploitation of agricultural type" if in it must be a criterion of environmental sustainability or is indifferent to the development of traditional practices that involve the change of land use in forest areas causing deforestation.

To conclude, in this part of step 1 of the tool it can be said that none of the trend scenarios is in tune with the existing regulations, norms and mandates regarding the regulated use of the forest, and that in the Reference Region, if these scenarios were to occur without the development of the project, the scenarios would almost certainly not be presented in the way described.

- *Sub-step 1c. Selection of the baseline scenario*

The Baseline Scenario selected corresponds to Scenario 1, given that in the process of developing this project it is the most documented through the collection of information in the field, evidence present in maps, satellite images, official information reports from IDEAM documented since 1990, and in general, supported by the analysis of land use and cover change for the area of interest.

The progressive loss of forest cover due to the expansion of the agricultural and livestock frontier, illegal logging and land speculation make up the baseline scenario. Regarding speculation, it is assumed that land with forest cover is not productive and therefore has no use; a deforested land is worth 5 to 10 times more than the same forested area.

The tropical rainforests of Meta, near Colombia's Macarena mountain range, are known for their high diversity of plants and endemic species. With increasing pressure from degradation and deforestation, these forests have been prioritized for conservation and carbon offsetting through Reducing Emissions from Deforestation and Forest Degradation (REDD+) mechanisms.

As described above, the most recent version of the VCS "Tool for the demonstration and assessment of additionality in VCS agriculture, forestry and other land use (AFOLU) project activities - VT0001", version 3.0, was used for the generation of the baseline scenario analysis and for this additionality analysis. For additionality, we start from step Two, although it was proven that the most accurate analysis is barrier analysis instead of investment analysis, although we developed the information necessary to take on this analysis, but it will be useful later on. Steps three to step four of this methodology, are fully explained.

b) Step 2. Investment analysis

According to VT0001, the application of this step seeks to determine whether the proposed project activity, without the revenue from the sale of GHG credits, is economically or financially less attractive than at least one other land use scenario.

Sub-step 2a. Determine appropriate analysis method.

It was decided to use a simple cost analysis (Option I) even though the Project Sur del Meta is expected to generate financial or economic benefits other than VCS-related revenues from the sale of GHG credits, by the products of the sustainable actions.

According to economic models of deforestation, the opportunity cost of land determines the land use. For example, as the size of population centers and their demand for food increases, the opportunity cost of nearby forests increases. It is more profitable to transform them to carry out agricultural or livestock activities than to keep them standing. The problem is that since the goods and services provided by the forest do not have a market price and there are positive externalities,

this opportunity cost calculation can lead to cutting down forests that are more valuable when standing than the alternative activities that can be carried out.

Sub-step 2b. – Option I. Apply simple cost analysis.

The VM0015 guide shows in its methodologies for the validation of the additionality of the project a guide, where it was chosen to apply the simple cost analysis with the opportunity cost method for the Conservation project REDD+ Sur del Meta, where it is important to identify the economic data associated with the products, production cost value, transportation cost, product value, this part is intended to analyze the costs in an initial phase of the analysis.

Methodology

The spatial analysis for the simple cost analysis with the opportunity cost method includes the following layers that support the spatial modeling process, such as roads, double drainage, urban areas, slopes, cover, land use and forest/non-forest 2018. At this stage of the analysis it is recommended that the spatial level information covers a larger area than the reference zone in order to avoid the statistical edge effect.

By performing a cost-distance analysis of a landscape element, it allows to determine the lowest cost of displacement according to a friction surface (De Smith, Goodchild, & Longley, 2008). In other words, it allows to calculate the least costly route from a given origin, for each of the cells of a study area (Raster). The word cost can be defined in this context as the time to traverse a distance, so the cost of transport is not continuous.

The next phase is the calculation of the transport layer generated from the friction surface, the distance to the consumption centers and the value of moving a ton of product per kilometer. For the production layer, the areas where the product is produced are identified with the coverage and vocation layers, and the production value is assigned the same as the sales value.

The following equation is used to calculate the profitability of the product

$$\boldsymbol{PPN = S\$n - PCn - CTn}$$

Where S$n is the sales layer of the product from which the production cost PCn and the transportation cost CTn are subtracted, and the result is the profitability obtained per hectare PPn. This process must be repeated for each of the products determined in the first phase.

The final phase begins with the classification of the profitability of each product in order to remove the areas that are not profitable and assign profitability ranges. Subsequently, a sum of the profitable areas of each of the products is made in order to identify the scope of profitability in the territory and end with a reclassification that indicates those areas where the different products can be performed and therefore there is a greater supply of activities to develop that leads to have various levels of profitability. The last part corresponds to cut the areas of higher profitability with the reference region and the forest zones identifying these as the leakage belt.

Results

An economic analysis was carried out to identify the main products in the region with their associated costs in COP, these products can be identified as agents of deforestation, and logging is carried out for the purpose of changing land use. Table 38 shows the list of products, in this case 8 are mentioned, so the profitability process must be carried out independently for each one of them, for the development of the first phase of the project's additionality analysis.

Table 7. List of agricultural and livestock products in the work area

Product	Yield(Ton/ha)	Production costs (COP/ha)	Selling price (COP /Ton/ha)	Transport cost Vistahermosa (COP)
Dual Purpose Livestock	32.4	2,139,708	4,203,615	365,000
Meat and Milk	N/A	2,139,708	991,583	365,000
Dairy Farming	N/A	2,417,156	958,454	365,000
Palm Oil	4	2,800,385	1,755,000	261,000
Banana	19	559,666	1,694,000	261,000
Cassava	19	389,241	877,000	261,000
Coca leaf	7	1,292,571	1,700,000	261,000
Rubber	2.4	3,213,277	1,444,000	261,000
Yellow Corn	3	852,153	801,000	261,000

Source: ENA, DANE 2021

For the development of the spatial phase for the additionality analysis, the information layers were selected, the edge effect was considered for the analysis of the information, and this information is adjusted in a final post-process to refine the results. The layers used in this process, and their information source, are listed below.

Roads, source: Instituto Geográfico Agustín Codazzi - IGAC, GDB Cartografía base, scale 1:100,000; 2019.

Watercourses, source: Instituto Geográfico Agustín Codazzi - IGAC, GDB Base cartography, scale 1:100,000; 2019.

DEM 30 meters, source: Instituto Geográfico Agustín Codazzi - IGAC, GDB Base mapping, scale 1:100,000; 2019.

Slopes, Allcot 2021

Forest/No forest 2018, source: Forest and Carbon Monitoring System, IDEAM.

Land Use Vocation, source: Instituto Geográfico Agustín Codazzi - IGAC; 2019.

Land cover, source: IDEAM 2012.

For the development of the spatial phase for the additionality analysis, the information layers were Land Use Vocation, source: Instituto Geográfico Agustín Codazzi - IGAC; 2019.

Land cover, source: IDEAM 2012.

Transportation

The road layer was taken as the first part of the transportation cost analysis, the friction surface is generated, which indicates the ease of movement in an area. For this layer the information of slopes, coverage, roads and rivers is used. Each of these is rasterized and graded in ranges from 1 to 10, where areas with low values are those that present greater difficulty to carry out productive activities, while zones closer to 10 have greater ease of accessibility in terms of production.

In the case of road and drainage maps, distance maps are generated using GIS spatial analysis tools, and a reclassification is made by ranges with the established values.

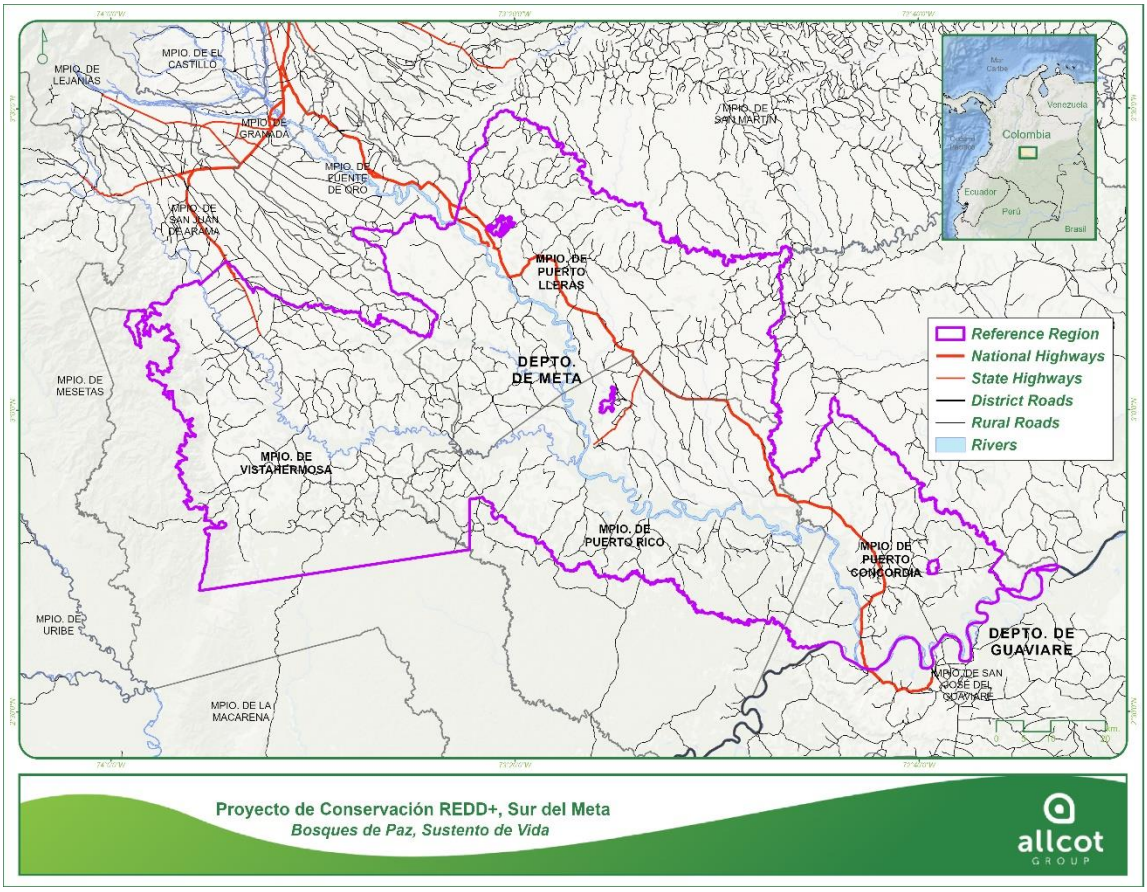


Figure 16. Layer of tracks for the study area

Source: Agustín Codazzi Geographical Institute - IGAC, GDB Base cartography, scale 1: 100,000; 2018

In the road layer, there are some areas with very few roads, such as the areas of the Natural Parks, the upper part of the mountain range and the forested areas of the Amazon region. Rivers play a very important role as they are considered to be mobility axes through which much of the production in remote areas moves. In addition, these streams offer better transportation quality than the road network in these remote areas, which often only have bridle paths or roads in dry weather. Here the Guayabero and Guejar stand out.

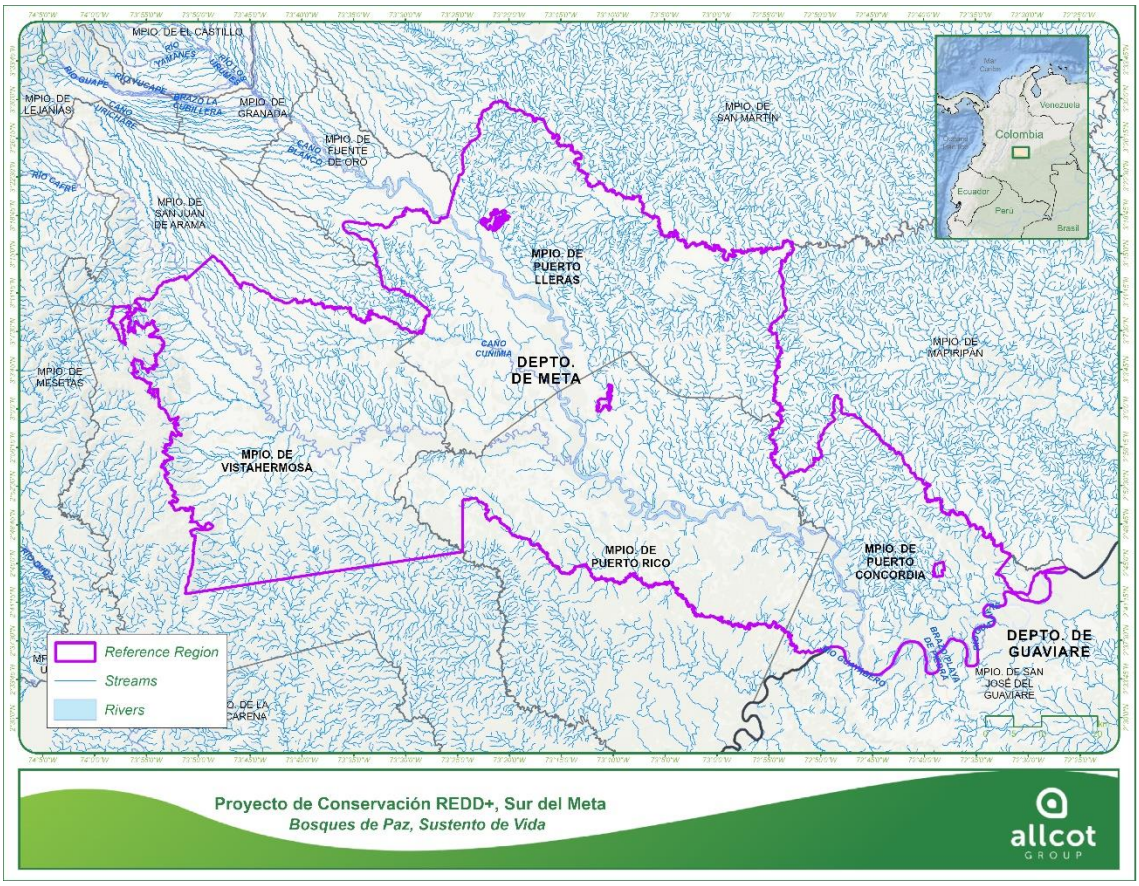


Figure 17. Rivers

Source: Agustín Codazzi Geographical Institute - IGAC, GDB Base cartography, scale 1: 100,000; 2018

The next spatial element is the slope layer generated from the 30 m digital terrain model as a function of the percentage of slope.

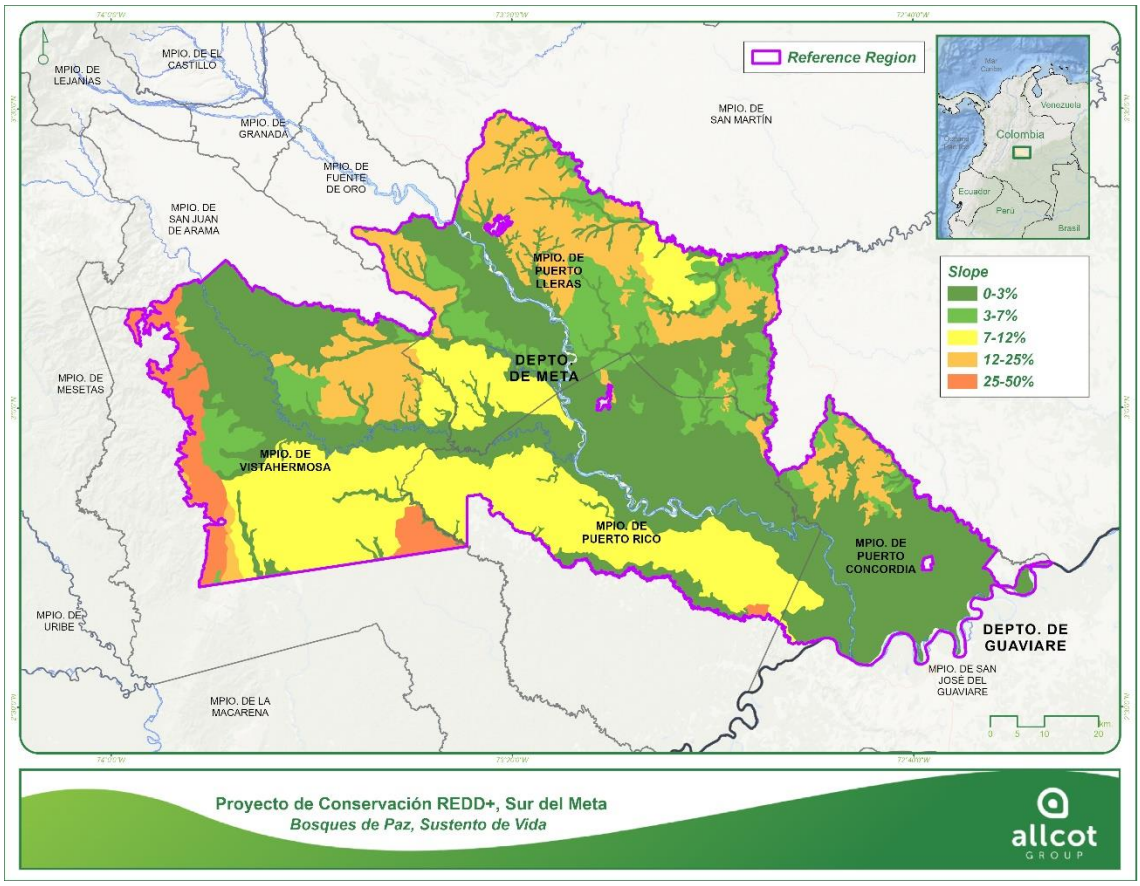


Figure 18. Slopes

Source: ALLCOT, 2021

Finally, the cover layer where displacement is evaluated through the type of material. It is not the same to move in areas of pasture or crops as in areas of forest or herbaceous vegetation that have accessibility limitations.

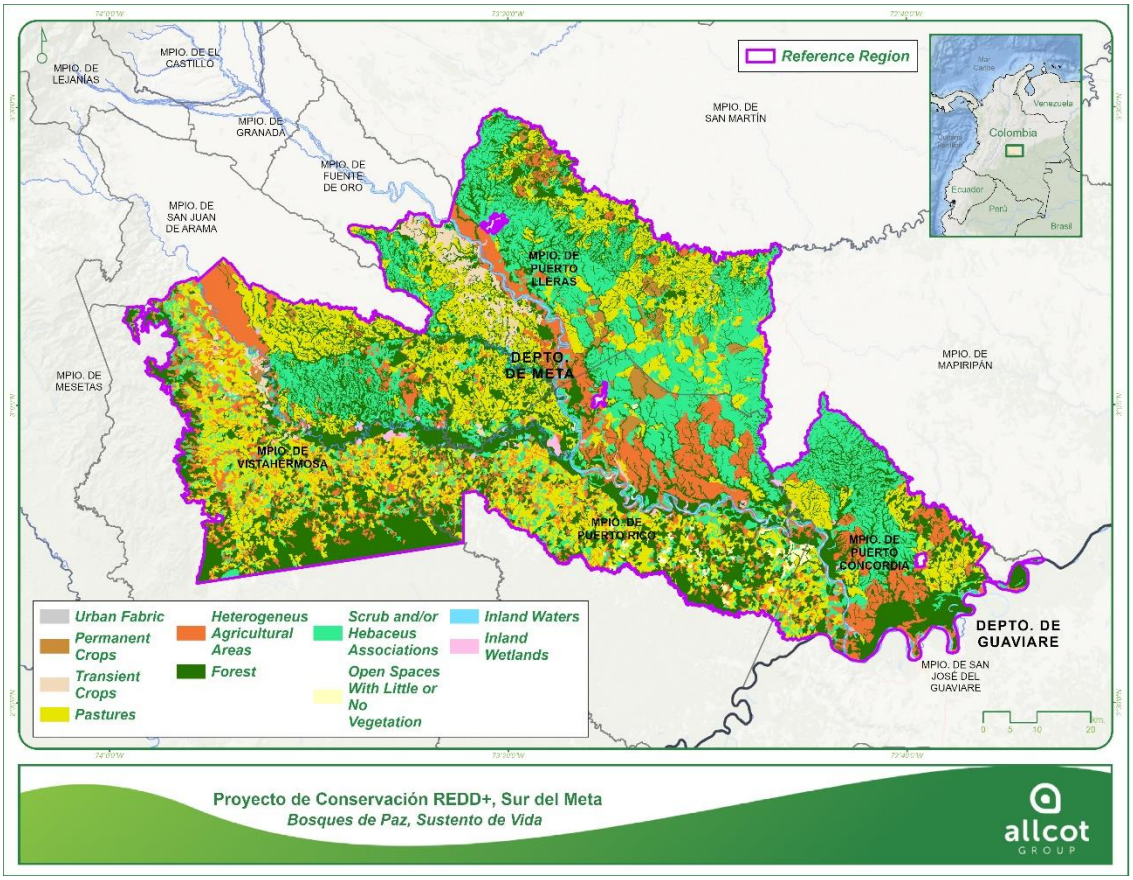


Figure 19. Land Cover

Source: ALLCOT, 2021

Surface of friction follows this formula

*SF= Slopes*0.3+Cover*0.2+Roads*0.25+Rivers*0.25*

The weights were defined by a direct multi-criteria analysis, in which slopes have the highest participation, means of communication such as roads and rivers 25%, and to a lesser extent coverage with 20 %.

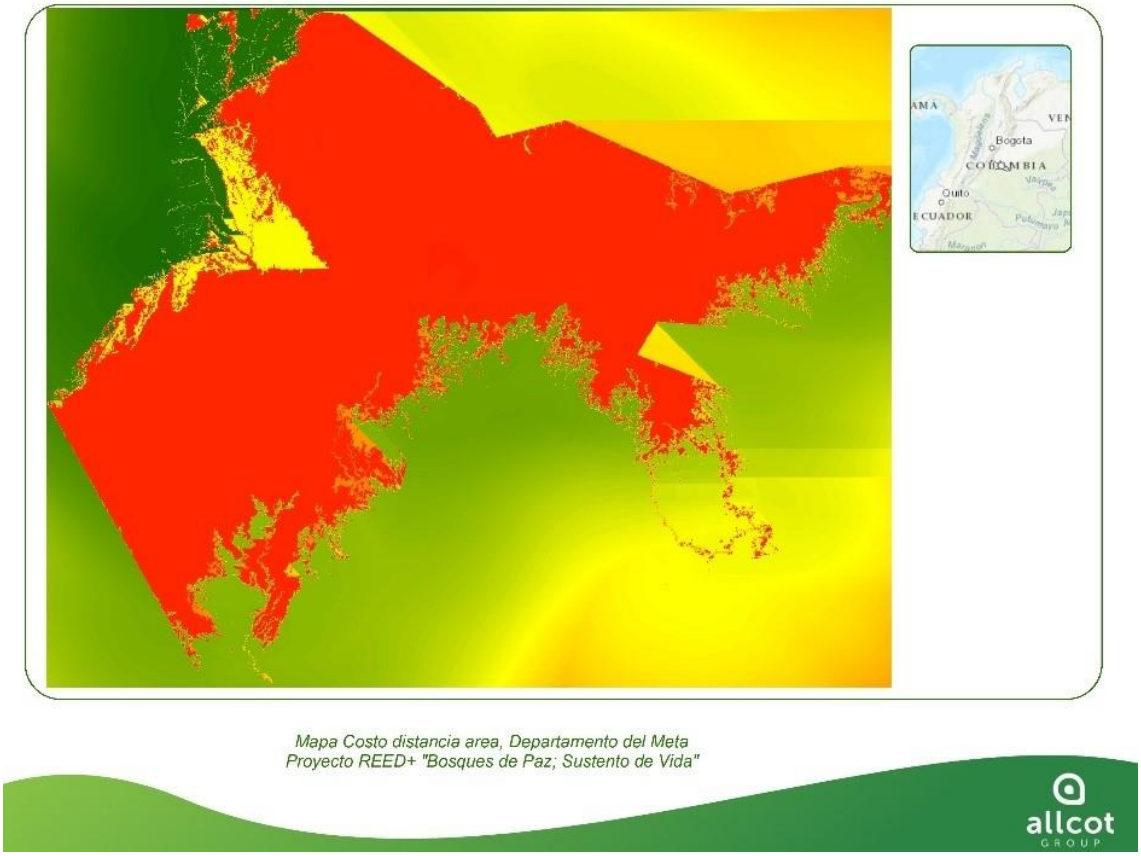


Figure 20. Friction surface map

Source: Allcot 2021

Subsequently, the transportation cost is associated to each cost-distance layer. For this, the value is taken to meters, since the distance maps are in meters, or a reclassification can be made in kilometers, which was applied in each of the transport layers. The costs presented correspond to those of Puerto Rico to San José del Guaviare, between which there are 120 km. With this data, the value of displacement per km for livestock and oil palm is COP $ 2,175, while for banana, cassava, corn and coca production is COP$ 1,237.

Production costs

This layer was generated from the land cover and land use vocation map where the production zones of each product are assigned the value defined for producing one ton. For example, for cassava a value of COP $389,241 is assigned.

Product selling

Based on the previous layer, a defined sales value is assigned for one ton of each product. For example, cassava is assigned a value of COP $877,000. This process was carried out for each of the products analyzed.

Product profitability

From the previous layers and using map algebra supported by the formula defined in the methodology, the profitability of each product is calculated. Each layer indicates the profitability value obtained by producing one hectare of product according to the conditions of the territory.

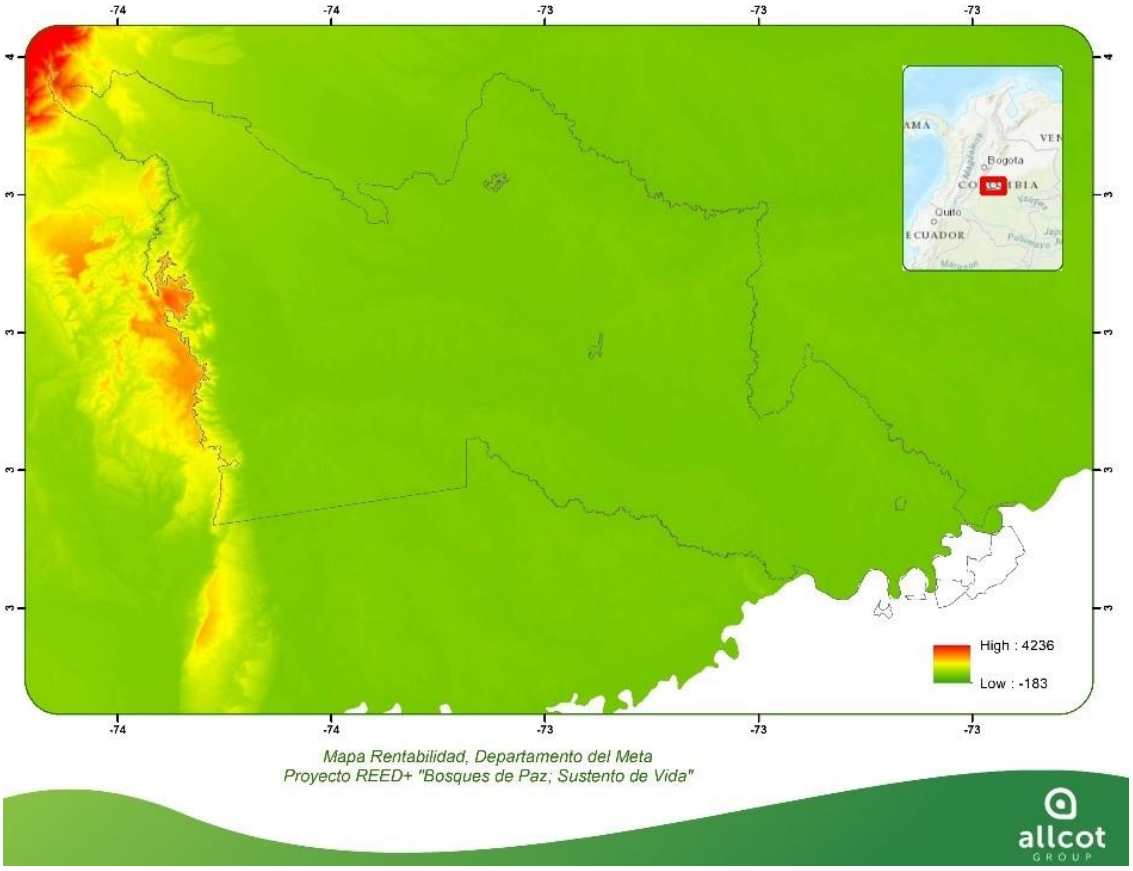


Figure 21. Coca profitability

Source: ALLCOT, 2021

Figure 56 shows that there are areas where livestock production is not profitable, while there are other areas where it is possible to obtain COP $ 4,200,000 per ton. In coca, values of approximately COP $400,000 can be reached.

Conclusion

In this section we described in detail the costs associated to the production of many products that are present within the project area. The main takeaway from this section is that these activities outlined are financially attractive, this is because the income of the activity outweigh the production costs and the transport costs.

Within this we will be identifying the activities that are taking place in the project area and its financial indicators.

In the following table we display the respective NPV for each of the activities.

Table 8 NVP per activity in the reference region

Indicator	NVP year
Plantain	$26.155.625,12
Coca leaf	$14.054.039,77
Cassava	$13.162.006,94
Rubber	$4.554.888,85
Palm oil	$4.251.038,04
Dual Purpose Livestock	$145.666,43
Traditional corn	$135.696,69
Dairy Cattle	-$446.845,46

From these results we can see the annual net benefits per hectare that were obtained for each of the economic activities developed in the project area, which gives us an approximate measure of the opportunity cost of producers.

Given that all of the activities, except for Dairy Cattle, have a positive net present value of the benefits we can argue that these economic activities are financially attractive. Conservation, having no support due to the lack of opportunities and access to projects and programs, has no competition against this model, which causes the forested lands to be perceived as no productive and to be slash and burned to generate income as agricultural or pastureland.

One analysis that we can take from this section, that is going to be referenced below, is that this is the indicators that can be reached with a really good productivity. The problem in the case of these activities is that to reach this level of productivity to get these financially attractive benefits, the landowners have to overcome many barriers. With this in mind, we have a closer look at this analysis.

Step 3. Barrier analysis

According to tool VT0001, the application of this step seeks to complement the previous step in order to identify whether the project faces barriers that prevent its implementation. The following potential barriers were identified in the analysis carried out from the social appraisal with landowners, JAC and Associations and through the survey of SDG:

Sub-step 3a. Identify barriers that would prevent the implementation of the type of proposed project activity.

b) Investment barriers:

Debt funding is not available for this type of activities/lack of access to credits: People do not have money enough to invest on yield improvement, as this needs technical assistance, and banks do not include this into their loan lines. Those that include, do not consider tenure as a legal document and do not allow credits.

One of the main requirements the banks have for them to give out loans, is that the corresponding person asking for it has an adequate credit history. This can result in an issue given the level of banking conditions in the country of origin of the project, Colombia. According to a study made by Asobancaria in 2020, in Colombia about 87% of its population has access to credit products, such as credit cards or loans. When we look at a more precise figure for the project location, that is

considered a rural area, this number decreases to about 55%. This is a basic indication that refers to the difficulty for the people enclosed in the project to access proper funding.

The most important takeaway from this section is that these investment barriers are impeding producers to reach the potential benefits shown above in the analysis, given that they do not have enough resources to fund these activities and thus reaching this productivity. This is where the additionality of the project has an effect, because the idea is to help overcome these barriers.

h) Barriers due to social conditions and land-use practices, inter alia:

Lack of skilled and/or properly trained labor force: The cost of hiring technical assistance cannot be supported by a single farmer.

These barriers are backed up by research like: Situation analysis of sustainable livestock farming in the Meta region and Characterization of the main causes and Causes and agents of deforestation at the national level Period 2005-2015 by IDEAM, MADS and ONUREDD.

Again, the conclusion for this sub section, is that the landowners simply cannot reach their potential productivity.

> Sub-step 3b. Show that the identified barriers would not prevent the implementation of at least one of the alternative land use scenarios (except the proposed project activity):

The barriers identify in the section above do not prevent the implementation of these land uses. What is proposed by the REDD+ project is the further development of these activities to help them reach their potential productivity without having a negative impact on the forest, seeing this as an effect of the additionality.

At the moment, the solution given to this problem by the landowners to overcome the barriers described above is to mainly clear cut the forest and open new areas for agriculture and livestock. In this way, they do not need to ask for credits on banks, the new areas will have better soil conditions and therefor the investment will be considerably less.

With this in mind, we continue to the next step of methodology.

d) Step 4. Common practice analysis

As shown on 2.5.13, no other REDD projects have been currently in the area, therefor no actual common practice comparable is included.

In 2014 there was a study call “The feasibility of a REDD+ project in the special management area of the macarena: a bottom-up approach” by USAID which concludes similarly at the results presented by the project.

Vision Amazonia program, even though it is described as a REDD+ program it does not fulfilled must of the requirements of these types of projects/programs. It does not have a discrete area allocation, nor monitoring that links a chain of cause and effect, or theory of change, between the investments and the reductions generated. In addition, the region is still in the beneficiary acquisition stage. For these reasons it is not considered a similar activity.

e) Conclusion

In summary, we can see that given the analysis that has been done, the project is additional. We get to this conclusion following the corresponding steps of the tool VT0001.

With this in mind, we also undertake an analysis of the land uses of the project area, in which we find that most of these productive projects are profitable, even with the transport costs included.

This statement comes with a caveat, the land uses in this area seem to be profitable but there are many barriers to reach this point, especially for small landowners, which we argue that the project could help overcome. For this reason, we also went through the barrier analysis step.

Within this step, we took a look at barriers, specifically those relating to investment and to social conditions. The main takeaway from this section and from the whole additionality analysis, is that although these productive projects may seem profitable, only few people can access this success and even more in a sustainable manner, leaving many landowners with poor performing productive projects and with a low financial viability. This is because given these barriers, it is a cheaper and more effective alternative for small landowners to clear cut a new area of forest, with soil in better productive conditions, to implement their agricultural and livestock projects. For this reason, the AFOLU project plans to help these landowners in overcoming these barriers and reaching that potential productivity, resulting in a greater profitability, without harming the forest.

Lastly, the analysis also includes the section about common practices, but unfortunately, the project does not have a point of reference in this aspect.

Thus, as described above, the activities contemplated for the present project constitute an additionality as this project is a pioneering initiative for the department of Meta and the municipalities that form part of its Region and Reference and Project Area.

- ***Step 4. Common practice analysis***

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In conclusion, we can see that given the analysis that has been done, the project is additional. We get to this conclusion following the corresponding steps of the tool VT0001. Firstly, within step two (option I) we argue that the project does not have any other income apart from that of VCS related income.

With this in mind, we also undertake an analysis of the land uses of the project area, in which we find that most of these productive projects are profitable, even with the transport costs included. This statement comes with a caveat, the land uses in this area seem to be profitable but there are many barriers to reach this point, especially for small landowners, which we argue that the project could help overcome. For this reason, we also went through the barrier analysis step.

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2.2.4 Benefits to be used as Offsets (G2.2)

No offsets, other than carbon emission reductions, are expected to be obtained by this project.

Most of the project benefits will be used to improve community income by generating capacities to convert unsustainable production systems into sustainable and resilient ones, through investments in education, training and technical assistance, as well as improvements in production systems, and investments in productive projects aimed at adding value and achieving productive linkages to improve the income of participating communities.

One community benefit will be support for the land formalization process, which will be targeted according to the needs of each partner and in coordination with the relevant authorities, as well as the generation, appropriation and application of knowledge on biodiversity and ecosystem services.

Additionally, an improvement in territorial governance is expected, as well as an improvement in family income, greater territorial appropriation and better knowledge for sustainable forest management through monitoring.

2.3 Stakeholder Engagement

2.3.1 Stakeholder Access to Project Documents (G3.1)

For the REDD+ project, access to information and stakeholder participation are the backbone for undertaking a process of change among communities that depend on forests and want to conserve them.

- Information Access during Project design

Access to information during the design of the project was provided in a progressive manner, in accordance with the progress made over time, using different tools and information channels that made it possible to periodically inform the different stakeholders in the four municipalities about the project and its progress.

The following is a description of how access to information was facilitated to different stakeholders, from public sector entities and project partners to other private sector and civil society actors.

The information tools used ranged from informative meetings to the delivery of printed documents summarizing the project, brochures, posters and banners, newsletters and the publication of a booklet. The communication channels used were mainly social networks such as Facebook and Whatsapp, telephone calls and face-to-face meetings to provide information.

To facilitate communication on the progress of the project, the web page was designed and made public: https://conservacionsurdelmeta.com On the page you can find communication pieces, bulletins, videos, summaries, among others.

2.3.2 Dissemination of Summary Project Documents (G3.1)

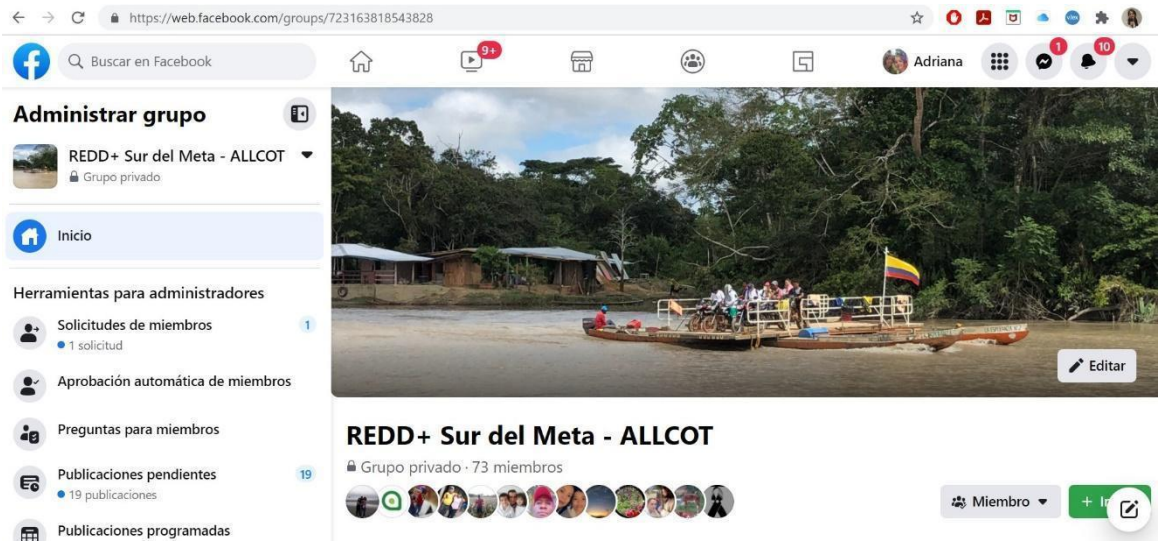
For the implementation of the project, a communication strategy and an internal citizen service procedure are planned to receive and systematize requests for information, possible complaints and dispute resolution, as well as to distribute information regarding the project such as, but not only PD, MR, etc. This strategy will be adapted during the project according to the results of each phase and monitoring period. The procedure for feedback and redress of complaints is described in 2.3.12, establishing the following as channels of attention:

- Project email and ALLCOT contact: reddmassurdelmeta@allcot.com y contactanos@allcot.com
- ALLCOT AFOLU manager and social expert phones.
- WhatsApp group per municipality
- Close Facebook https://www.facebook.com/groups/723163818543828
- Web Page https://conservacionsurdelmeta.com

It should be noted that during the design, the most used means to request information and to disseminate project documents and information was face to face or virtual encounters, either by workshops, meetings, video calls, etc. Most of the information was also reproduce by the local leaders, as not all the community will be able to assist to meetings, so, for instance, presidents of the community action boards will use their own spaces or their relationship to bring information to the partners.

Another system is the cell phone. Calls are received mainly from presidents of community action boards, councilors and mayor's office officials, with whom long conversations are held to respond to all the concerns raised.

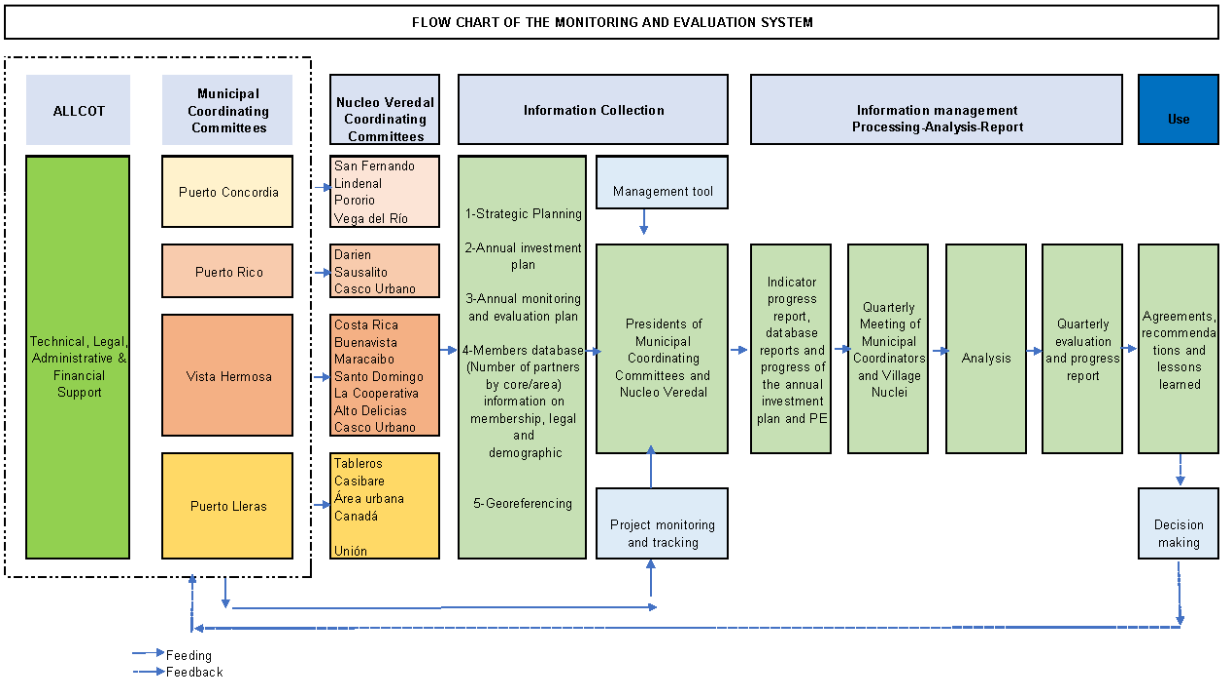
WhatsApp is configured as a tool for sending information. The Facebook group will function as an interactive feedback channel; so far it has 73 active members; during implementation it will be a key channel of exchange between partners.



The Facebook group will be dynamized during project implementation: https://web.facebook.com/groups/723163818543828.

In addition, the "Consultation Books" are available as a mechanism for requesting information at the local level in each Veredal nucleus, which will allow the escalation of consultations, if necessary, to each coordinating committee, to ALLCOT or to any control organism (Annex 2.3.2 _Libro consultas).

For the dissemination of the results ALLCOT design a monitoring scheme is presented below



Source: own elaboration

2.3.3 Informational Meetings with Stakeholders (G3.1)

The main emphasis of the socialization of information about the project was focused on reaching the owners of the farms with forest, all those interested in the villages with the greatest potential forest to protect, so that they would have information to make an informed decision before committing to the project.

Subsequently, information was disseminated to partners already involved (by contract signed) in the project, to inform them of the progress made and to reiterate key information and concepts to clear up any concerns that may have remained after the initial socialization.

All the supports of these meetings are available in Annex 2.3.3_Infomational meetings with stakeholders.

Date	Municipality	Description
February and March 2020	Vistahermosa and Puerto Rico	Posters and banners alluding to forest conservation were also designed and distributed, with basic information on the project and contact details. The posters and banners were used in the project offices installed in February and March 2020
August 2020	Vistahermosa and Puerto Rico	At the beginning of the process in, some copies of documents summarizing the initiative were distributed This summary evolved with updated versions.
February 2021	Puerto Concordia, Puerto LLeras, Puerto Rico y Vistahermosa.	The booklet on forests, climate change and the REDD+ project in Southern Meta was published and distributed among the partners that attended the workshops on prioritization of sustainable actions, held from March 2 to 7, 2021, reaching 50% of the partners registered in the project with the printed booklet. The published booklet includes the ABC of REDD+ and the main concerns that arose after more than a year of socialization in Vista Hermosa and Puerto Rico, providing project partners with a much clearer document that is easy to understand for any reader
March 2021	Puerto Concordia and Puerto Rico	When socialization activities began in Puerto Lleras and Puerto Concordia, flyers presenting ALLCOT and the project were distributed in the four municipalities; Power Point presentation

Date	Municipality	Description
		for briefings updated; 4 NOTIREDD+ newsletters were disseminated with information on the project's progress; and a booklet on Forests, communities and REDD+ in Southern Meta which was distributed to all partners participating in the sustainable actions prioritization workshops held in March 2021.
	Puerto Concordia, Puerto LLeras, Puerto Rico y Vistahermosa.	Other stakeholders interested in learning about the project are, for example, other landowners with different interests in their forests, or leaders of human rights organizations, as happened in Vista Hermosa, where Mr. Victor Jara, delegate of the communities to the Human Rights Board of the municipality, presented several objections about REDD+ projects and disseminated negative information about this mechanism in the social networks of the Association of boards, without first learning about the project, its origin, the developer and its approach. For this reason, ALLCOT's social manager contacted Mr. Jara, with whom she had a telephone conversation of almost two hours to fully explain the context, scope, objectives and approach of the project. Similarly, the project's social consultants have answered several calls from people interested in clearing up doubts about the project, but who are not necessarily part of it. As part of the dissemination process, information capsules were sent by Whatsapp and facebook, as progress reports on the status of the project.
February 14, 2020	Public sector Institutions	With public sector institutions, presentations of the project were made to officials from environmental and territorial authorities at the national, regional and local levels, some in person, others virtually.

Date	Municipality	Description
		Before RENARE began operating, ALLCOT sent the Ministry of Environment and Sustainable Development information on the projects it was developing, including the "Conservation REDD+ South Meta Peace Forests sustaining life" project, through an official letter filed on February 14, 2020 (See Annex 2.3.3 Public sector institutions)..
January 10, 2020,	Public sector Institutions	A meeting was held with the Ministry of Agriculture and Rural Development (MADR) with Mr. Nelson González, Climate Change Coordinator of the Innovation Directorate, Mr. Hernán Quintero, Coordinator of the Sustainable Low Carbon Landscapes Program of the BioCarbon Fund for the Orinoco region, and Mr. Fernando Leyva, Coordinator of Component 2 (land use) of the same program. During the meeting, objectives, scopes and focus of the projects of both entities were shared in order to identify possible synergies. The MADR representatives were interested in the participation of private enterprise in a REDD+ project in southern Meta. The Sustainable Landscapes program provides technical assistance for low-carbon development, and hopes that payment for results schemes can subsequently operate with both the government and private enterprise.
January 17, 2020,	Public sector Institutions	The project was presented at the Governor's Office of Meta, where meetings were held with the secretaries delegated by the Governor of Meta: Mr. Sergio Iván Muñoz, Secretary of Environment; Mr. Julio Romero, Secretary of Agriculture, and Mr. Jhon Alexis Sanabria Garzón, Secretary of Education

Date	Municipality	Description
January 17, 2020,	Public sector Institutions Vistahermosa	In the afternoon, a meeting was held with the mayor of Vista Hermosa, Engineer Jhon Jairo Ibarra, who expressed interest in articulating with the project, particularly with regard to sustainable actions.
May, June and July 2020	Puerto Concordia, Puerto LLeras, Puerto Rico y Vistahermosa.	The local team hired to advance in the socialization of the project and linkage of families, continued with the process of linkage in Puerto Rico and Vista Hermosa and began meetings to present the project with the mayors, municipal councils and presidents of community action boards of the municipalities of Puerto Concordia and Puerto Lleras. The summary document of the project's progress was shared with all the entities and a commitment was made to seek coordination when the project was validated, in order to leverage investments and not duplicate efforts.
July 4 and 6, 2020	Puerto Concordia, Puerto LLeras, Puerto Rico y Vistahermosa.	Socialization meetings were held with municipal authorities and workshops were programmed in the rural nuclei with the guidance of the presidents of the community action boards.
July 4, 2020	Puerto LLeras	The project was presented to the councilors and the municipal ombudsman of Puerto Lleras and a meeting was scheduled at the mayor's office for July 7, however the mayor did not attend nor did she delegate any official

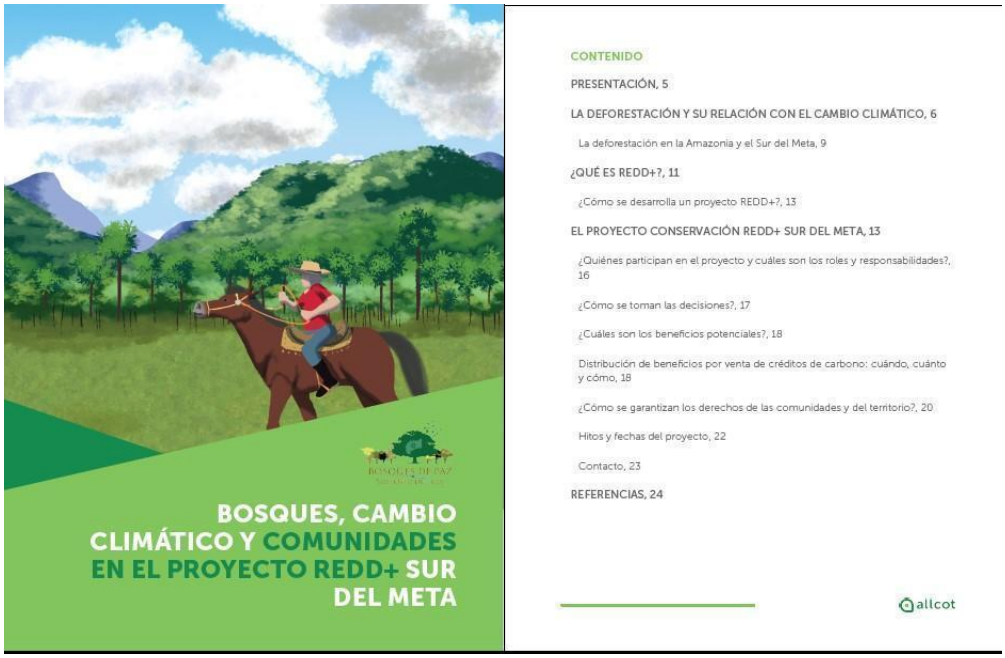


Posters and banners of the project located in the offices that were hired in Vista Hermosa to advance in the linking of families (Ecovista and Asoprogüejar offices)



Allcot team socializing the project in the village of San Rafael, municipality of Puerto Rico. Display of printed billboards/brochures to socialize the project in villages without electrical interconnection. February 2020

Considering that many partners are in non-interconnected areas, audio, text messages, printed flipchart posters to take to areas without electricity and other printed materials were also used.



Cover and content of the brochure "Forests, climate change and communities in the REDD+ Sur del Meta project" published in February 2021 and distributed to project partners who participated in the sustainable action planning workshops held in March 2021.



Flyer distributed in the municipalities of Puerto Concordia and Puerto Lleras to the communities and municipal authorities.



In the photo, from left to right, are the Secretary of the Environment of Meta, Sergio Iván Muñoz, Affif Sefair from Environmental and Sustainable Development Ministry, Sergi Cuadrat and Alexis Leroy CEO ALLCOT. 17 /01/ 2020

2.3.4 Community Costs, Risks and Benefits (G3.2)

Information on potential benefits and risks was presented at the briefing meetings with supporting materials developed such as the project summary, presentations and posters, and the primer distributed to all partners.

Both the summary document and the brochure contain information on benefits and risks and describe the environmental and social safeguards that apply to REDD+ projects in Colombia. In addition, an infographic on benefit sharing was produced and presented at workshops with partner organizations and distributed through the project's social networks (Annex 2.3.4 Community cost, risk and benefits).

For this reason, the materials produced to socialize the project among the communities included frequently asked questions that were enriched over time as new questions arose, and finally all these questions were included in the consultation book that was left in each community center, which was mentioned in numeral 2.3.2. This consultation book allows stakeholders to identify the risks and community benefits of the project and escalate their concerns to be resolved in the different project instances.

ALLCOT has a code of conduct applicable to both internal and external personnel; this can be the starting point to ensure financial, technical and legal transparency. Through the organizational strengthening of the Municipal Coordinators and the Núcleo Veredal Coordinating Committees, ALLCOT will gradually consolidate the processes and procedures having its experience in the application of ISO 9001:2015 standards. quality management system, ISO 14001:2015 standard. environmental management system and ISO 37001:2016 standard. Anti-bribery Management System

2.3.5 Information to Stakeholders on Validation and Verification Process (G3.3)

The process to inform stakeholders about these aspects included two actions. The first, meetings held in the municipalities, showing the status of the project, results of the forest inventory and the process of validation/verification visits. These meetings were held on August 12, 13 and 14, 2021, the JAC and Associations were invited. On August 29, 2021, a virtual meeting was held with Agrocavis partners, with the aim of resolving doubts about the validation verification process. The commitment of the associations and JAC was to replicate the information with the project partners.

The second action was the sending of a brochure by WhatsApp, to have a greater reach, a personal call was made to each and every one of the landowners that were part of the project. In case the call was not answered, a voice message was sent. Supports for these actions can be found in Annex 2.3.3 information for stakeholders on validation and verification.

2.3.6 Site Visit Information and Opportunities to Communicate with Auditor (G3.3)

To ensure timely and independent communication, the auditor will be provided with a database of all registered members and their cell phone numbers. The visits will be scheduled through the leaders of the JACs and Associations, who make an open invitation to the communities.

WhatsApp will be used to make the invitation, which will be open to any partner if required,

When the auditors meet with the partners, the members of the ALLCOT team will withdraw in order not to bias the responses and ensure the transparency of the audit.

2.3.7 Stakeholder Consultations (G3.4)

Stakeholder consultations have taken place at different levels and times, using methodologies adapted to each case.

As described in 2.3.1 and 2.3.2, in the socialization spaces, information tools and methodologies were used to provide stakeholders with relevant information and gather first-hand information on the expectations, interests and needs of the communities. First through their representative leaders of the organizations, and later with the direct participation of the communities in the community centers.

Between June 2018 and December 2019, informative meetings were held with the organizations' partners about the company and about REDD+ in the framework of the voluntary carbon markets, assemblies of the organizations were convened, and commercial contracts were signed in Puerto Rico and Vista Hermosa. Also, in two other municipalities that finally were not included in the project.

In Puerto Rico, on May 8, 2019, a meeting was held with ANUC and the presidents of 42 community action boards, in the facilities of the Municipal Council. In this meeting, the progress in the structuring of the Project was socialized, advances in the early actions that were planned to be developed at that time were presented, the investment schedule was defined, the requirements for the disbursement of resources in a fiduciary assignment in the Agrarian Bank, and the legal and oversight mechanism for the implementation of early actions through ANUC.

On September 8, 2019, a follow-up meeting was held with ANUC. This meeting included a review of the role of the committee, prioritized activities, presentation of the open account for the fiduciary assignment and definition of authorized signatures, and presentation of progress in early actions.

In Vista Hermosa on December 16, 2018 ASOPROGÜEJAR Assembly was held, on April 6, 2019 Agrocavis members assembly was held, and on May 8, 2019 a meeting of the operating committee to identify and prioritize possible early actions to be developed and define the monitoring committee, and on September 7, 2019 a meeting of operating and overseer committees was held to organize the implementation of possible early actions.

In the first quarter of 2020 the second moment of information and participation of the communities was carried out, when the ALLCOT technical team convened the operational committees with the leaders of Puerto Rico and Vista Hermosa to resume and redirect the early actions and hold informative meetings with the communities in 9 veredal nuclei defined in the two municipalities.

On January 18, 2020 a meeting was held with the Operating Committee and Oversight Committee of Puerto Rico and on January 19, 2020 with the respective committees of Vista Hermosa. In these meetings, with the assistance of ALLCOT's technical and administrative teams, a formal presentation of ALLCOT was made, the available budgets for early actions were clarified and the need to socialize the project directly in the villages was made evident, and therefore, some community centers and dates were jointly defined to socialize the project directly with the communities interested in participating.

As a result of the meetings with the committees of these two municipalities, it was agreed to hold information meetings in the rural communities, where all the interested communities could participate, learn firsthand about the scope, benefits and risks of the project, and in general clear up all their concerns. It was agreed to hold 4 workshops in Vista Hermosa and 6 in Puerto Rico, but in Vista Hermosa one of the workshops could not be held due to public order reasons.

In this way, the communities and their representatives have had the opportunity to influence the design of the project, since they are the ones who know the territory in depth and provide the necessary elements and criteria to understand the territorial dynamics, define the project area, the reference region, the measures and actions to be implemented and the internal coordination mechanisms.

Through consultations with leaders and communities, inputs were gathered for:

- The prioritization of the villages with the greatest forest potential and the feasibility of establishing conservation agreements with owners and possessors.
- The socialization route, indicating the appropriate sites to bring together three or more villages in a core area, to facilitate access to the population to the informative meetings.
- The construction of the agenda, methodology and logistics of the informative workshops aimed at the communities in the veredas.
- Analysis of the causes and agents of deforestation.
- Socialization of the project among the communities in veredas and farms.
- Georeferencing of properties.
- Obtaining supporting documentation of registered families.
- Identification and prioritization of lines of action to halt deforestation.
- Conducting an analysis of weaknesses, strengths, threats and opportunities for each organization.
- Planning sustainable actions.
- The definition of criteria for the distribution of benefits.
- Some partners participated in the application of the SDG survey others helped oversee the process such as ANUC in Puerto Rico.

The results of the workshops, interviews, meetings and surveys conducted were integrally incorporated into the project design, particularly in the diagnosis, theory of change and design of the sustainable actions to be implemented, as well as for the analysis of management capacity and the governance structure of the project.

Specifically for the design of sustainable actions, 32 workshops were convened in each of the municipalities. The first cycle of workshops was held in November 2020 with the leaders of the partner organizations, who identified the causes and agents of deforestation and possible actions aimed at transforming these causes. In these same workshops they made an analysis of the existing biodiversity in their territories.

With the results of the first workshop, the second workshop was designed on sustainable actions to be carried out in the Veredal nuclei with the participation of all the partner communities, to present the proposal of actions identified by the leaders of the organizations, validate them and carry out the participative prioritization of these actions.

After prioritizing the sustainable actions with broad community participation, ALLCOT's technical team proceeded to carry out the corresponding studies to determine the feasibility of the prioritized actions, the management capacity of the organizations and the benefit distribution alternatives with the financial projections that were landed as the forest inventory progressed. In the second week of February 2021, virtual workshops were held with the organizations in each municipality to advance the strategic planning of the sustainable actions to be developed.

The project's Theory of Change, objectives, goals and indicators clearly reflect the results of the stakeholder consultations.

Finally, it is worth noting that in the involvement of local teams to carry out the socialization and forest inventory activities, the participation of the partners in the contracting that ALLCOT carried out throughout the process in the four municipalities was favored.

Supporting documents for the Veredal Workshops on Sustainable Actions and Benefit Sharing can be found at Annex 2.3.7 Stakeholder consultation.

2.3.8 Continued Consultation and Adaptive Management (G3.4)

Access to information, participation and ongoing stakeholder consultation will be the cornerstone of adaptive management, from action planning to project accountability.

To this end, strategic planning will be carried out every 4 years and operational planning every year, and annual accountability reports will be presented to partners and other stakeholders. The spaces or mechanisms for accountability will guarantee the participation and feedback of the results by the partners, and the channels for complaints or controversies will be kept permanently open.

These channels will allow for continuous communication between project developers, communities, public authorities and other stakeholders, in order to ensure the relevance of actions, transparency in investments and continuous improvement of the processes related to implementation.

This communication will be permanent within the project among those responsible for implementation in each municipality, and periodically to all partners and other stakeholders. This dynamic will allow for constant feedback of the process in order to be able to carry out a management that adapts to the specific needs of the communities to protect their forests.

The information channels defined as a mechanism for dealing with complaints or claims will be described in 2.3.9. and the procedures in 2.3.12.

2.3.9 Stakeholder Consultation Channels (G3.5)

In order to reach as many families as possible with information and to advance in territorial articulation, we worked hand in hand with the presidents of the community action boards and the representatives of 8 productive associations and one association of community action boards, which have first and second level organizational structures that allow representation at the village level, the first nucleus of organization of families in the territory.

In all municipalities, the direct representation of each of the presidents of the community action boards was convened. In those cases, in which the presidents did not want to participate, the people of the village interested in doing so, were linked through one of the productive associations of their interest. In this way, the members had the possibility of autonomously deciding their representative organization.

We have then a level of consultation with leaders of second level organizations such as the productive associations, another level of consultation with first level organizations such as the community action boards (JAC), and a level of consultation that supports the free prior and informed consent of each owner or possessor, by knowing first hand all the relevant information to sign a forest conservation agreement within the framework of the contracts signed between the organizations.

The second level organizations were permanently consulted, participated in informative meetings, in trainings to socialize at the local level and in workshops to analyze causes and agents of deforestation, identify and prioritize sustainable actions.

The first three associations in Puerto Rico and Vista Hermosa, participated in informative meetings and concerted actions during 2019, 2020 and 2021; the five organizations in Puerto Concordia and Puerto Lleras, participated in socializations conducted by local teams in the month of May and June 2020, and by the ALLCOT technical team in November 2020 and February 2021 to prioritize sustainable actions.

With the onset of the pandemic, weekly virtual sessions were held with the organizations in charge of socialization and linkage of families in the villages, and meetings with the mayors and municipal councils of Puerto Concordia and Puerto Rico.

2.3.10 Stakeholder Participation in Decision-Making and Implementation (G3.6)

The number and diversity of organizations in each municipality must be articulated through the coordinating tables as operational spaces responsible for the planning and execution of the decisions adopted in the project coordination instances. This body must be made up of people who meet a profile and are chosen by the project partners, and must have the resources, tools and capabilities to carry out their tasks.

The associations and boards will coordinate with the coordination committees around the specific actions agreed by the partners and integrated into the project planning. In this way, this line of action will generate and strengthen the organizational and management capacity of the project in each municipality.

Communities have been involved through the generation of trust, joint definition of objectives and goals, recognition and acceptance of collective self-determination, linking and participation in actions or discussion in accordance with the development vision of the territory where they live.

Women and older adults have been and will be relevant, meeting spaces and decision-making have been fostered and will be fostered where the participation of these interest groups will be promoted, likewise they will remain within the cross-cutting activities of the project.

With women, their empowerment is especially important considering their role in the historically male-dominated society, less than 31% of partners are women.

2.3.11 Anti-Discrimination Assurance (G3.7)

As part of the measures adopted by ALLCOT to prevent any organization or person involved in the project from engaging in any form of discrimination, all formal relationships established within the framework of the project, service provision contracts, cooperation agreements, or personnel directly linked to ALLCOT, must subscribe to and abide by the ALLCOT Code of Conduct.

In addition to signing the code of ethical conduct as an integral part of the contract or agreement signed with ALLCOT, the people and organizations linked to the project also receive an induction by ALLCOT's technical and administrative staff on everything related to the Social and Environmental Management Framework, the Code of Conduct, the Occupational Health and Safety System (OSH), and in general, all the processes and procedures of the entity and the project. Some of the educational materials produced and videos of meetings held for this purpose can be consulted in the following links: materials, videos, OSH induction invitations, social and environmental management framework, and communicative pieces on Code of Conduct (Supports in Annex 2.3.11 Antidiscriminatory assurance).

As mentioned in 2.3.10, the differential approach with a gender and generational perspective is a key part of the management of the projects led by ALLCOT and is included as part of ALLCOT's MGSA, which is mandatory for staff and entities that have any relationship with the project.

2.3.12 Feedback and Grievance Redress Procedure (G3.8)

ALLCOT has developed a specific procedure for receiving and responding to Questions, Complaints, Claims and Suggestions (PQRS) that seeks to always ensure that there is a channel available to resolve concerns, disagreements and complaints from users and stakeholders, seeking to strengthen services, stakeholder satisfaction and continuous improvement, within the framework of the REDD+ Sur del Meta project.

The objective of the procedure is to define the channels, activities, and controls necessary to respond in a timely and satisfactory manner to the PQRS that might arise from the project activities (identification, design, validation, registration, implementation and verification).

In the following link you can find the procedure in the Annex 3.2.12_201015_CO_PROCEDIMIENTOPQRS_v1.

2.3.13 Accessibility of the Feedback and Grievance Redress Procedure (G3.8)

The mechanisms and channels for accessing information and submitting complaints or claims were socialized in the informative meetings and workshops held in November 2020 and in February and March 2021, and these channels were also published in the newsletters and in the project booklet.

The procedure will again be socialized at the start of the operation of the elected and regulated coordinating committees, through the project start-up briefings and the various existing channels such as social networks.

The channels for information and attention to requests for information, petitions, complaints, and claims have been disseminated through printed documents such as project summaries, newsletters and brochures, and have been communicated in the face-to-face meetings held with the participating partners.

When the operation begins, the coordinating committees in each municipality will be formed and formalized, for which purpose assemblies of members will be convened in the veredal nuclei to carry out the process of electing representatives for each sector.

Subsequently, operational planning workshops will be held for the project with each of the coordinating committees in the four municipalities.

Each committee will adopt an operational manual, processes and procedures for the execution of activities, including the adoption of a procedure for dealing with requests, complaints and claim.

2.3.14 Worker Training (G3.9)

Worker training is a fundamental axis of the change process and constitutes the first of the lines of action defined in the project. The success of the sustainable actions will depend on its implementation, since it is the farmers themselves who will develop the improvements to their productive systems aimed at consolidating green and sustainable businesses, for which they require a training and capacity building process in administrative, accounting, and financial issues, as well as in technical issues of forest monitoring and biodiversity, sustainable production and good environmental practices.

In addition, learning routes will be developed for all the members of the family nucleus, to raise awareness and strengthen capacities throughout the community, aiming at the cultural anchoring of the changes that are taking place at the level of forest conservation and sustainable production systems.

During the design of the project, local professional, technical and operational personnel were hired and had access to induction and training sessions to enable them to carry out their functions. Such was the case of the training of personnel hired for socialization and for the georeferencing of properties and linking of families, as well as training in the digital tool for the team of surveyors who applied the SDG survey, the data processing format, biosafety protocols, among other topics. Results will be presented on the monitoring report.

It is expected that 50% of the community will have received some type of training on topics such as climate change and deforestation for the first verification and that the entire population will receive some type of technical training by the end of the project.

In objective one of the project "Training and education for the improvement of the individual, collective and organizational capacities of the project partners" a curriculum aimed at partners and stakeholder was developed, beginning with issues related to climate change, governance, valuation of flora and fauna, as the project progresses, the training will be focused in relation to the defined productive lines, the curriculum is presented below.

TRAINING TOPICS		
ENVIRONMENTAL	**TECHNICIANS**	**SOCIAL BUSINESS**
Environmental pollution	Climate Change	Community organization and business partner
Protection of water sources	Technical management of the crop	Basic functions of the company
Protection and conservation of biodiversity and forests	Good farming practices	Systems management (spreadsheets and text)
Soil management and conservation	Livestock technical management	strategic planning
Preparation and application of organic fertilizers	Weed management	Quality management system
Organic production and clean technologies	Good farming practices	Sources of funding
Integrated management of pests and diseases	Good milking practices	Marketing
agrotoxicology	Silvopastoral systems	Business plans
Safe use of pesticides	disease management	agribusiness management
environmental management	Good manufacturing practices	Accounting
Use of protective equipment for industrial safety and application of agrochemicals	Ecological agriculture	
Forest management and implementation of temporary and permanent shadows		
Management of micro-watersheds		

TRAINING TOPICS		
ENVIRONMENTAL	**TECHNICIANS**	**SOCIAL BUSINESS**
wildlife protection		
Management and protection of gallery forests		
Ecological planting of crops		
Conservation of soils and water resources		
Management and control of forest fires		
Food safety.		

In principle, the curricula are taught by the ALLCOT team, as the governance of the project is consolidated, the activity is left to the Municipal Coordinating Committees with the support of ALLCOT to guarantee compliance with the indicators.

At present, ALLCOT has carried out a training process within the socializations where the following topics have been worked on:

- Profit sharing
- Importance of the forest
- Project information
- Code of ethics, biosafety protocols,
- Forest inventory and its relationship with the project
- Ccommunication mechanisms, profit sharing
- Sustainable livestock farming and its relationship with the conservation of natural resources
- Mechanisms for prioritizing resources and structuring projects
- Behavior of deforestation, drivers of deforestation, actions to counter the drivers of deforestation
- Strategic planning, identification of causes, prioritization of alternatives, participation mechanisms and citizen attention, flora and fauna workshop
- REDD+ projects, deforestation, conservation
- Project Structuring

Approximately 445 women and 820 men have attended the meetings and have received training for a total of 1,245 partners and stakeholders.

2.3.15 Community Employment Opportunities (G3.10)

One of the central conditions for the success of the project, which was agreed with the communities and their representative leaders, is precisely that the project generates productive alternatives and

green employment opportunities for the project leaders and partners, and opportunities for vulnerable people who do not have land, but who may eventually become deforestation agents.

Thus, the strategic plan and action plan of each municipality includes resources to guarantee the functioning of the operating and oversight committee, to ensure fair payment for the work of those responsible for coordinating and executing all project activities.

In addition, sustainable productive projects will also generate opportunities for local experts with experience in good agricultural and livestock practices, who can be hired as farmer-to-farmer trainers, one of the most effective methodologies proven for on-farm productive reconversion processes.

The training program will ensure that the partners can benefit from the employment generated by the project, both in training in best practices and in the transformation and value-adding processes to consolidate production chains.

Directly, as part of the committees, 20 jobs are expected to be created, 10 of which expected to be women.

2.3.16 Relevant Laws and Regulations Related to Worker's Rights (G3.11)

Allcot follows the Legal Framework for Colombia as follows:

Political Constitution of Colombia. Article 53. The corresponding law shall consider at least the following minimum fundamental principles:

- Mandatory compliance Decree 1072 of 2015.
- INDUCTION: "It is a process aimed at initiating the employee in his or her integration to the organizational culture during the four months following his or her engagement. (Decree 1567 of 1998, article 7).
- REINDUCTION: "It is aimed at reorienting the employee's integration to the organizational culture by virtue of the changes produced in any of the matters to which its objectives refer" (Decree 1567 of 1998, article 6, 7).
- TRAINING: "On-the-job training refers to a teaching-learning process that allows the employee to acquire and/or develop knowledge, skills and abilities necessary to achieve an efficient performance translated into the contribution to the development of specific functions" (Administrative Department of Public Function (DAFP) of February 21, 2026.

Supports of these procedures are in Annex 2.3.16 relevant laws and regulations related to worker´s rights

2.3.17 Occupational Safety Assessment (G3.12)

Allcot follows these protocols and spaces in order to avoid, reduce, mitigate and face risks for the people who work with the company or the project. Two types of risks have been evaluated, depending on the type of work carried out: In-office (in-house) and field work (out office). The documentation is found in Annex 2.3.17 evaluation of safety at work.

According to Colombian laws, a Work Health and Safety Management System must be created in companies, which starts by mentioning the scope of the work centers and employees, regardless of their hiring or relationship, including contractors and subcontractors.
Subsequently, the nature of the hazards must be specified, the organization's commitment to the implementation of the SG-OSH must be established, integrating the organization's management

policies, these policies must be clearly and precisely documented with the date and signed by the representative. The legal framework of the organization must be reviewed and approved annually and must be disseminated at all levels of the company and be accessible. This occupational health and safety management system includes the occupational health joint committee, which is in charge of operationalizing the actions and activities that contribute to the well-being of workers.

1. Labor Coexistence Committee (LCC)
2. Joint Occupational Health and Safety Committee (COPASST).
3. Industrial Hygiene and Safety Regulations
4. Presentation of COVID19 biosafety protocol.
5. General Policy and Objectives SG-SST
6. Work at Home Policy
7. COVID19 biosafety protocol.
8. Road Safety Policy
9. How to act in case of emergencies.
10. Alcohol, Tobacco and Psychoactive Substances Prevention Policy.
11. Biosafety Protocol Work at Home
12. Biosafety Protocol for Work at Home
13. General Biosafety Protocol for Office Work
14. Work safety protocol for on the field work

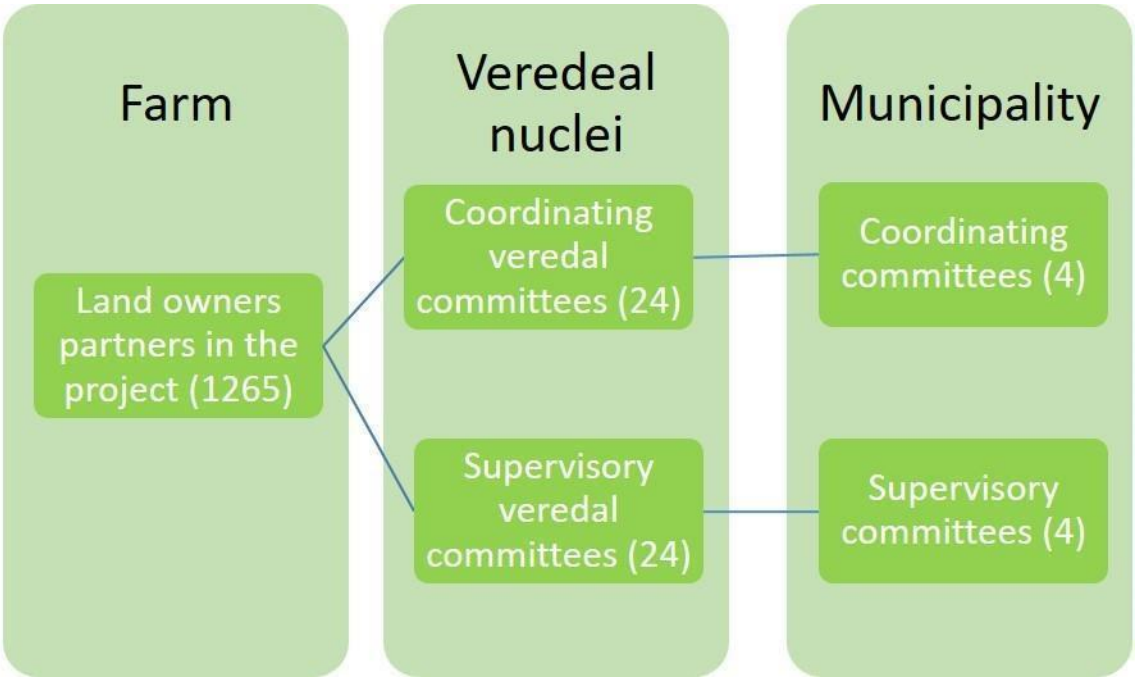
The worker protection policies, protocols and procedures that ALLCOT has developed consist of the development of a process in stages that includes policy actions, organization, planning, application, evaluation, audit seeking continuous improvement, based on the identification and control of the risks that may affect safety and health at work in order to anticipate, recognize and evaluate.

2.4 Management Capacity

2.4.1 Project Governance Structures (G4.1)

The governance of the project will connect the farm level to the regional level, articulating instances and mechanisms for information and feedback, such as the coordinating committees in the veredal nuclei (24 of them) and 1 coordinating committee in each of the 4 municipalities. In addition, in each municipality and veredal nucleus, will have a supervisory committee that will be formalized to follow up on the project. In this way, the partner communities will be able to influence decision-making in a timely manner, and those responsible for implementation will have the necessary mechanisms and procedures to operate efficiently and transparently in a scenario with difficult communication and connectivity conditions.

The governance structure, show on the figure, allows us to see how the relationships between the actors involved in the project are superimposed and aggregated in the representation and coordination instances defined at three levels.



At the center of the governance structure is the community of partners conformed by the families of owners and possessors of land with forest who have voluntarily decided to commit to its protection. Their main function is to exercise the governance of the forest on their land, to know and take care of it. Likewise, to watch over the interests of the community members in terms of the protection of the forest and its biodiversity, to participate in the processes of strengthening the productive systems, to allow access to their farms to carry out forest and biodiversity monitoring, to participate in the meetings to which they are summoned and in general to guarantee that the benefits they receive for conservation are mainly destined to stop deforestation.

The board presidents or delegates of the landowners partners in the project in a group of veredas will act as representatives of the community at the nucleus veredal level. As there are villages where the community action boards have not joined the project, it will be the delegates of the members or associations who will play this role.

The Veredal Nucleus Committees will be responsible for channeling information and supporting logistics at the local level for the implementation of the actions, while the supervisory Committees will be responsible for following up on the transparency of the execution and on the mechanism of grievance and safeguards.

The coordinating committees of each municipality, where the delegates of the Veredal Nuclei are located with the functions of designing and executing the strategic plans and annual operational plans, as well as submitting the accountability reports.

The committees of the municipalities will be constituted by people elected by the partners at the nucleus level, and ALLCOT will participate with voice, but without vote, in order to ensure that project standards are maintained.

For the election process of the members of the committees, minimum requirements and criteria will be defined to guarantee their suitability to carry out the functions entrusted to them.

- Entities engaged.

As presented in 2.1.6, nine associations are part of the project, participating as representatives of the landowners in the commercial agreements signed with ALLCOT: ANUC and Asofrapricom in Puerto Rico; Agrocavis and Asoprogüejar in Vista Hermosa; Asocamproariari in Puerto Concordia; Asohatico, Asocamprovic, Asojuntas and Agrocum in Puerto Lleras.

A SWOT analysis and semi-structured interviews were conducted with all participating organizations, in which basic information was collected about their history and experience in project management, and aspects to be strengthened as organizations were identified.

The board of directors of the Municipal Coordinating Committees will be made up of a president, vice president, treasurer and secretary, in addition to the Municipal Oversight Committee.

The Coordinating Committees of Village Nuclei will be made up of the legal representative of each signatory board that makes up the village nucleus, a legal representative of the Associations and a number of representatives of the adherent partners belonging to that village nucleus (chosen by consensus).

According to each nucleus, this number may vary, but in no case should it be less than 10% of all members in the nucleus. In any case, all the villages, regardless of the number of members, will have representation in the Coordinating Committee of the Village Nucleus.

The Municipal Oversight Committee will be made up of the president of each Oversight Committee of the village nucleus and members of the JACs and Associations that sign the project.

Each nuclei village Oversight Committee will be made up of project partners representing each village, if they do not coincide, representation will be chosen according to the number of partners per village.

The Administrative Team will be made up of a minimum of a project administrator, an administrative assistant and the necessary field technicians to cover the operation of the project in the field and according to the Annual Operating Budget-AOB.

The main functions of the members of the Coordinating Committee are described below. For more information, you can consult the regulations of the coordinating committees of village and municipal nuclei attached to this document.

Functions of the president and vice president of the Coordinating Committee:

• Call, prepare and attend the meetings of the Coordinating Committee

• Call the meetings of the general assembly of partners.

• Keep the schedule

• Give the word

• Maintain order in meetings

• Ensure the proper use of the resources delivered by the project to the Coordinating Committee.

• Other functions assigned by the Coordinating Committee

Duties of the secretary

- Prepare and record in the corresponding book, the minutes of each of the meetings of the Coordinating Committee and the Assembly of Partners.
- Keep the register and keep the membership book up to date.
- Other functions assigned by the Coordinating Committee

Treasurer functions

- Receive from the administrator the reports of execution of resources adjusted to the Annual O perative Plan - POA, as well as the vouchers that accredit the movements made.
- Custody the resources that the Project assigns to the Coordinating Committee.
- Safeguard the accounting books and keep them in an orderly and updated manner in accordance with the law.
- Make the payments approved by the assembly, the governing body according to the current Annual Operative Plan and register them in the corresponding book.
- Have the accounts available to an external auditor, tax auditor and observers.
- Keep the official Accounting of the Coordinating Committee.

2.4.2 Required Technical Skills (G4.2)

ALLCOT has technical forestry profiles with expertise in the AFOLU sector and GIS experts on the one hand, as well as social profiles with expertise in environmental management with rural communities and experience in the development of productive projects and green businesses. For the Biodiversity theme, there are experts in biodiversity valuation.

AFOLU Manager, Angelica Beltran has coordinated REDD+ activities in at least 5 projects under VCS Standard and has experience on community engagement in the REDD+ topic in Colombia as part of the National REDD+ Strategy and as author for Pre SESA for Amazonía and the Proposal for guidelines for community monitoring participatory monitoring in Colombia and its articulation with the National Forest Monitoring System.

AFOLU Expert, Jeimmy Avendaño, has experienced on forest carbon measurement and monitoring for carbon footprint projects, including at least 3 REDD+ VCS Standard projects. Also, has been part of IDEAM, the national institute in charge of monitoring forest in Colombia, especially on the MRV system.

AFOLU GIS team, has three professionals that together add more than 15 years of experience on land use/land cover identification in Colombia. Also, have experienced on modeling deforestation and determining drivers and patterns of deforestation.

AFOLU Social team, has experienced on social engagement, risk analysis, stakeholders mapping.

AFOLU legal team is expert on land tenure process, as the leading lawyer Elkin Rodriguez has worked for INCORA, INCODER, National Agency of Lands among other national entities related.

At the local level in each municipality, the coordinating committees require at least one project coordinator with the technical capacity to lead project implementation in each municipality, field technicians to develop technical assistance programs, and administrative assistants to support and document the legal and administrative operations of the project.



2.4.3 Management Team Experience (G4.2)

ALLCOT´s **Head of Group Technical Department**, Mercedes García, Expert biologist in the design, structuring and supervision of carbon projects. She has more than 15 years of experience in the carbon markets, as a chief auditor auditor of mitigation project activities under CDM and voluntary markets, such as Gold Standard, CCB, REDD + Plan Vivo and VCS in an accredited DOE by UNFCCC.

She has extensive experience in validation and verification of most types of carbon offset projects, such as renewable energy, waste management, cogeneration, biomass and biogas projects, fuel switching, efficient stove distribution, and forestry (ARR and REDD+ projects).

Juan Diego Muñoz, Project manager coordinator, is a Forest Engineer with more than 11 years of work experience in both environmental projects and urban water supply project focused on environmental monitoring for the construction of infrastructures, flora and fauna surveys. He has also achieved several masters and courses related to efficient management in urban water supply systems, environmental engineering and management, water and sanitation in international cooperation projects, carbon and water footprint and sustainable development goals (SDG).

Currently he is certified project manager, in charge of the project management activities related to the correct implementation and monitoring of the pipeline of projects in ALLCOT.

2.4.4 Project Management Partnerships/Team Development (G4.2)

The Project has not identified the need of partnerships outside the 9 existing associations.

2.4.5 Financial Health of Implementing Organization(s) (G4.3)

Information sensitive to the auditor's availability.

2.4.6 Avoidance of Corruption and Other Unethical Behavior (G4.3)

As mentioned on section 2.3.11 and on the corresponding annex, ALLCOT has a Code of conduct that is explained and mandatory of any person and organization that works with ALLCOT and applies to this project. A Know Your Client process is performed by the project proponent, following the https://www.infolaft.com/ and it is expected to be fulfilled by the committees during the project implementation.

As part of these, supports on the ALLCOT state on https://www.infolaft.com/ is presented on Annex 2.4.5 Avoidance of corruptions and other unethical behavior.

2.4.7 Commercially Sensitive Information (*Rules* 3.5.13 – 3.5.14)

For security reasons, topics related to the financial well-being of the organizations, as well as contacts of some individuals and the total database will not be included. The Agreements, prices, and data relating commercial agreements are considered sensitive information as well. Some of the tools designed by ALLCOT are also considered commercially sensitive information (follow up, stakeholders mapping in some parts, PIN) as been part of ALLCOT´s Know-how. The annex are not suppose to be public, since include sensitive information.

2.5 Legal Status and Property Rights

2.5.1 Statutory and Customary Property Rights (G5.1)

The project area was historically populated by peasants from other regions of Colombia who were displaced by the violence of the 1940s and 1950s. In some cases, in the beginning, colonization was led by extensive cattle ranching, palm and other monoculture projects in Caquetá and Guaviare, supported by the State, which opened the way for colonization of adjacent sites.

The focus of colonization began in the Sierra de La Macarena, Colombia's first natural reserve area, and from there it spread to the entire plain. This protection figure, due to land use problems generated by the colonists, had to be redirected, becoming 2 national natural parks, Sierra de la Macarena and Tinigua, and the Ariari River Integrated Management District, however, the absence of a state of conservation and the lack of a legal framework for the area, which was not in place, led to the creation of the Sierra de la Macarena and Tinigua National Parks.Since then, government entities in charge of land management and titling, INCORA and INCODER, began a process of subtraction of forest reserve areas in the Amazon and allocation to settlers, who were asked to demonstrate their dominion over the area by clearing 1/3 of the area to be titled, an allocation that clearly did not consider the potential use of the land.

However, these processes were not constant; they went through stages of increased violence, forced displacements and other causes that did not allow all settlers to obtain clear title to their lands.

Under this scenario, the following forms of land tenure appear within the project area.

Ownership:

All land belongs to farmers and peasants who are responsible for their property rights.

All landowners can prove their legal ownership of the land through documentation recognized by the government and the Ministry of Agriculture as sufficient to prove land rights.

Possession

Possession is a legal figure through which the spirit of lord and owner is exercised over a thing with the purpose of acquiring the property by prescription with the passage of time, the Civil Code in its Article 762 defines it as follows: "possession is the possession of a determined thing with the spirit of lord or owner, whether the owner or the one who is considered as such, has the thing by himself, or by another person who has it in his place and on his behalf (...) the possessor is considered as the owner of the thing, and is considered as the owner of the thing. Then the person who possesses the thing (in this case a property) must exercise the spirit of lord and owner, that is to say, perform all the acts proper of a person who is the owner, such as the maintenance and conservation of the same; it is not a requirement that the possessor has the property by himself, another person can have it, for example a house given in lease by the possessor to another person. Possession is a presumption in which the possessor is considered the owner as long as the contrary is not proven; this legal figure refers, for example, to the fact that if a person who owns a property "abandons" it and leaves it to its fate, but another person owns it, takes care of it, preserves it, improves it, it is fair that with the passing of time there is a figure that allows him to acquire the ownership of that property to which he has given a utility and has spent time in preserving it. Possession is the way for the acquisition of property by acquisitive prescription of ownership with the passing of time. There are two types of possession, regular and irregular possession.

- Regular possession: it is the one that has a fair title and is possessed in good or bad faith, but always accompanied by a fair title.
- Just Title: The Civil Code defines as just title the constitutive or transfer of ownership.

The following are considered as constitutive of ownership: occupation, accession and prescription, and as transfer of ownership: sale, donation between living persons, exchange, and other valid titles that demonstrate the mode of ownership under the terms of Article 673 of the Civil Code.

Legal research on this matter is on the Annex 2.5.1_ MODALIDADES DE TENENCIA DE TIERRA - PROYECTO REDD+ SUR DEL META.

2.5.2 Recognition of Property Rights (G5.1)

As mentioned on 2.5.1, the project recognizes the property rights of its partners, as long as they can prove it by legal documents. Nevertheless, acknowledging the titling of land as a tool to improve people´s well-being and thus reduce deforestation, the support on this legal process has been identified, in the theory of change, as one of the lines of action of the project, to be developed in the first years of the implementation of the project, after first verification.

2.5.3 Free, Prior and Informed Consent (G5.2)

To develop this numeral, we will start with how each aspect of free prior and informed consent was developed:

'Free' the accession process took place without coercion, manipulation, or intimidation.

'Prior' consent was obtained sufficiently in advance and before any authorization or start of activities.

'Informed' information was provided, the nature of the agreement, the scope, the different moments of the project, implementation, proposed activities; the general and specific objective of the project,

duration; area, evaluation of the benefits, probable economic, social, cultural and environmental impacts, as well as potential risks; and procedures that may be involved among other issues.

During the development of consolidating the process, several meetings were held, in order to inform possible partners, about the mechanism REDD+, the contract figure, rights and obligations, which are fully explain on the framework contract and adherence contract. Part of the framework contract demands a general meeting approving the signature.

Regarding other stakeholders, especially the government ones, meetings presenting the program, explaining the reach and goals of it were made. The main risk was always focused on double accountability or doubling efforts, which will be addressed by continuous up-dates, open channels of communication and the respect for the decision of the landowners.

Special case occurs with the indigenous reservation. Even though invitations to informing meetings were send through majors, they have not participated on the process. A proper channel of communication and monitoring will be developed to acknowledge and sort out any kind of negative impacts of the project upon them.

Supporting documents of this are under Annex 2.5.3 free, prior and informed consent and Annex 2.3.7 stakeholders' consultation.

2.5.4 Property Rights Protection (G5.3)

Within the signed agreements, there is the following clause, which specifies the protection of the property rights of the adherent members:

"The present Agreement does not constitute a legal business of transfer of ownership, and consequently, it shall not grant any right of ownership to THE BUYER INVESTOR GROUP, or its members over the properties linked to the Project; therefore, within the framework of the present Agreement, the participants of the same, and members of THE SELLING ORGANIZATION, shall not lose, under any circumstance, the ownership of their lands, nor the right of dominion over their lands, nor the autonomy of management of their forests, where they may implement any productive project (that does not imply the cutting of trees) and, in any case, all within the framework of the documents subscribed and referenced herein".

2.5.5 Illegal Activity Identification (G5.4)

The monitoring of the activities will be based on the reports of each committee. The project proponent will develop a tool that will help committees to follow up budgets and activities.

Also, as part of the theory of change, trainings on financial aspects will be provide. Part of the project proponent role will be to support with the KYC process.

Regarding activities prohibited by the project, and described on the contract, one of the roles of the veredal nuclei committees, both coordination and supervisory, will be to identify situations like this and operate accordingly.

" no logging, changes in land use, opening of roads, burning and other activities that could jeopardize the achievement of the project."

If during the term of this contract, the MEMBER OF THE FARMERSHIP ASSOCIATION requires the use of natural resources within the area under conservation, it must process the different

Permits, Concessions and Authorizations required by law, which it must request from the Competent Environmental Authority.

No felling or pruning of the trees under conservation during the term of this contract, except for those actions intended for domestic consumption, which shall be planned and shall be framed within the current legislation.

In order to ensure the protection, and avoid lost or negative Impacts on biodiversity, a set of rules will be generated during the process of designing community monitoring program. For the time being, during workshops the Importance of no hunting has been discussed with the partners.

2.5.6 Ongoing Disputes (G5.5)

In this regard, as property land inside the national park La Macarena has not been clarify by the government no people whose properties were located within La Macarena National Natural Park were entered, making cross-referencing of coordinates, and overlapping of maps.

About possible disputes over the territory, as explained on 2.5.1, two possible situations were found: Cases where tenure is not clear, which is avoided through the certification of sound possession by JAC or Mayor's Office and in the case of ownership, with the review of the notary public registry.

The second case occurs in cases of land dispossession disputes, a situation that is also recorded in the aforementioned documents. These cases were identified as irregular possession and false tradition.

However, a record of the documentation will be kept and compliance with these conditions will be monitored through the committees, based on the principle of good faith.

Regarding indigenous communities no disputes have been presented to the ANT and the local mayor of Puerto Concordia does not report any land dispute. Monitoring of this community will be made during the project through ombudsman's office reports, as it was from 2015 to 2018 Annex 2.5.6 ongoing disputes.

An analysis of the status of mining projects, particularly hydrocarbon projects, within the project areas was carried out considering two sources only for consultations made within the national territory but of public access. The first source of information is found on the web page of the Colombian Environmental Information System (Sistema de Informacion Ambiental de Colombia - **SIAC**). The second source of information can be found on the website of the “Ministerio de Ambiente y Desarrollo Sostenible” **(MADS)**,

A digital resource called "Geographic Viewer" is available on the SIAC website. The user can have access to an online geographic information system with different layers of cartographic information. It can also download layers in Shape format from the SIAC website.

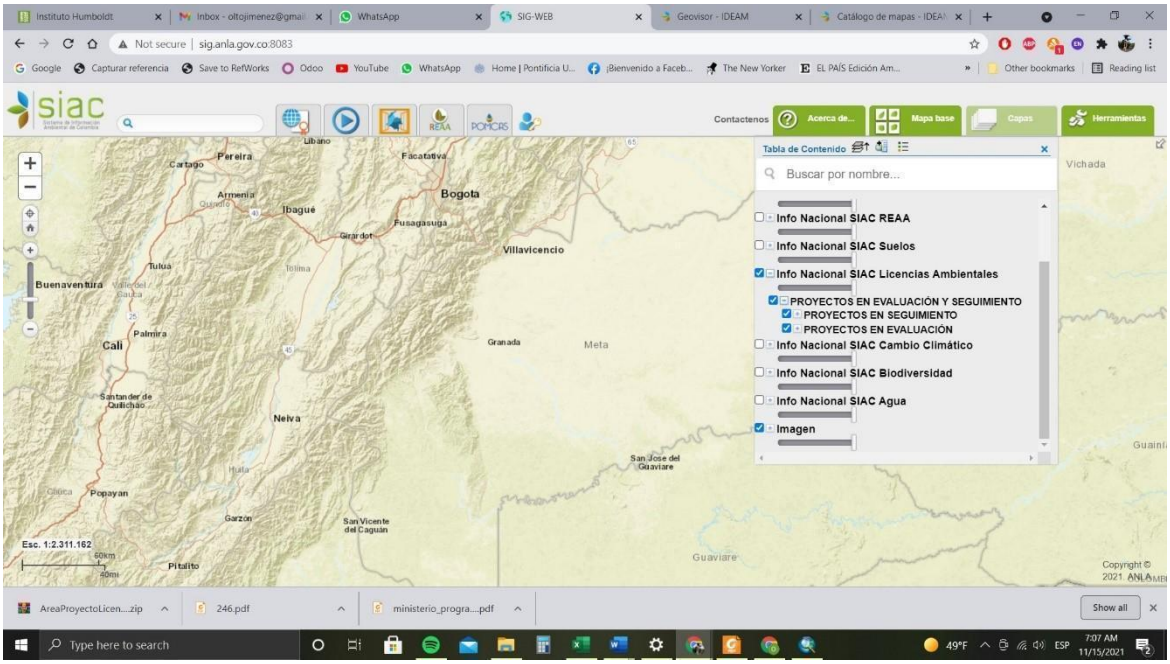


Figure 22. SIAC Geographic viewer

Source: http://sig.anla.gov.co:8083/

This map shows the projects and the project areas.

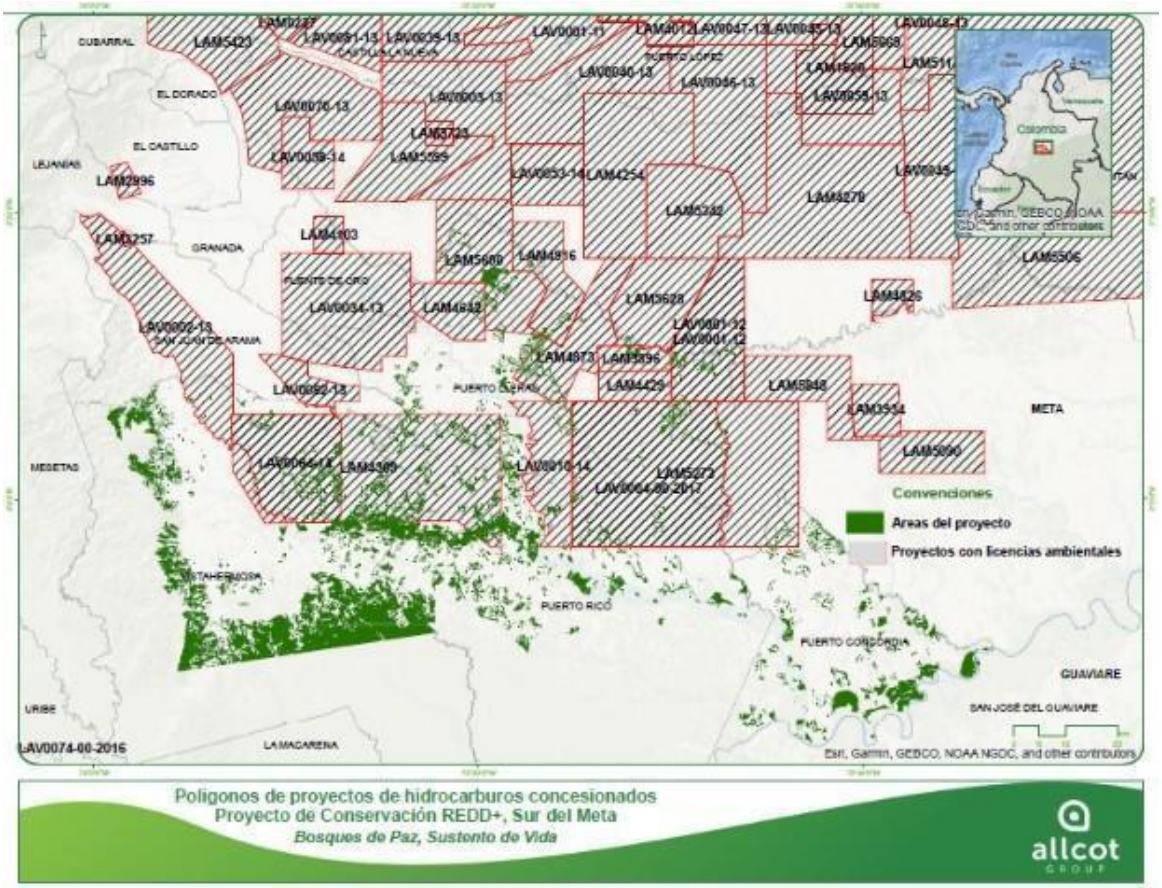


Figure 23. Concessioned oil projects

A cartographic processing was carried out considering the project areas and the downloaded shape file called "Projects under evaluation and follow-up". The following information was obtained from the process described above

Table 9. SIAC Geographic viewer

ID DOSSIER PROJECT	OPERATOR	PROJECT NAME	EIS REGULATION	STATUS
LAV0002-13	HOCOL S.A	ÁREA DE PERFORACIÓN EXPLORATORIA CPO -16	1558 (2014-12-19)	ACTIVE
LAV0064-14	PETROMINERALES COLOMBIA LTDA	ARIARI I	3204 (2017-07-31)	ARCHIVED
LAM5273	HOCOL S.A	AREA DE PERFORACION EXPLORATORIA CPO-17	1870 (2011-09-19)	ACTIVE
LAM4873	ECOPETROL S.A.	AREA DE PERFORACION EXPLORATORIA PASTIZAL – PUERTO	2155 (2010-11-03)	ACTIVE
LAM4309	PETROMINERALES COLOMBIA LTDA	AREA DE INTERES DE PERFORACION EXPLORATORIA RIO ARIARI	1164 (2009-06-17)	ACTIVE
LAM3896	ECOPETROL S.A.	AREA DE INTERES PERFORACION HADAS	2054 (2007-11-26)	ACTIVE
LAM4916	ECOPETROL S.A.	AREA DE INTERES DE PERFORACION EXPLORATORIA RODAMONTE - CEDRITO	2162 (2010-11-04)	ACTIVE
LAM4642	ECOPETROL S.A.	AREA DE PERFORACION SERRANA	1001 (2010-05-25)	ACTIVE
LAM4429	ECOPETROL S.A.	AREA DE PERFORACION EXPLORATORIA HECHICERA	1469 (2009-07-30)	ACTIVE
LAV0001-12	ECOPETROL S.A.	AREA DE PERFORACION EXPLORATORIA CAMALEON	925 (2013-09-10)	ACTIVE
LAM5600	ECOPETROL S.A.	AREA DE PERFORACION EXPLORATORIA VALLE CAFETAL	85 (2013-02-06)	ACTIVE
LAM5628	ECOPETROL S.A.	AREA DE PERFORACION EXPLORATORIA CABRESTERO	197 (2013-03-18)	ACTIVE
LAV0001-12	ECOPETROL S.A.	AREA DE PERFORACION EXPLORATORIA CAMALEON	925 (2013-09-10)	ACTIVE

ID DOSSIER PROJECT	OPERATOR	PROJECT NAME	EIS REGULATION	STATUS
LAV0010-14	HOCOL S.A	ÁREA DE PERFORACIÓN EXPLORATORIA CPO 17 WEST (META)	1371 (2015-10-28)	ACTIVE
LAV0004-00-2017	HOCOL S.A.	ÁREA DE PRODUCCIÓN CPO 17	867 (2017-07-27)	ACTIVE

The second source of information is called "VITAL" (**V**entanilla **I**ntegral de **T**ramites **A**mbientales) and is a digital resource for information on the "ID DOSSIER PROJECT" presented in the table above. For example, figure 23 shows the result of the search using a search ID DOSSIER PROJECT



Figure 24. VITAL search report

According to this, no activities are currently in operation in the territory, even though are still open and could start activities. Nevertheless, according to VITAL no approach to communities have happened, and accordingly to the potential use of the territory and being a Special District of Management considered as an Environmental Determinant by CORMACARENA, and there for any type of deforestation process, or a non-permitted use (as oil exploitation) must be considered illegal.7

2.5.7 National and Local Laws (G5.6)

ALLCOT orients its actions based on the constitutional and legal framework in force in relation to the environment, biodiversity and climate change. In Colombia, Law 164 of 1994, which ratifies the United Nations Framework Convention on Climate Change (UNFCCC), has had important developments such as the National Policy on Climate Change (PNCC) whose objective is to incorporate climate change management in public and private decisions to advance in a climate-resilient and low-carbon development path, which reduces the risks of climate change and allows taking advantage of the opportunities it generates.

In accordance with the PNCC, ALLCOT, through its AFOLU projects, contributes to the implementation of the Colombian Low Carbon Development Strategy (ECDBC), the National Climate Change Adaptation Plan (PNACC) and the Integrated Strategy for the Control of Deforestation and Forest Management (EICDGB).

In this context, ALLCOT is recognized as part of the National Climate Change System (SISCLIMA) created through Decree 298 of 2016, which according to its Article 2, is made up of the "set of state, private and non-profit entities, policies, standards, processes, resources, plans, strategies, instruments, mechanisms, as well as information pertaining to climate change, which is applied in an organized manner to manage greenhouse gas mitigation and adaptation to climate change in the country."

In addition to the political and legal framework on climate change, it is of special interest and business commitment to be aligned with Law 165 of 1994, which adopts the Convention on Biological Diversity (CBD), which establishes the guidelines for States Parties to know, conserve and sustainably use biodiversity, recognizing the importance of indigenous peoples, black and peasant communities for its conservation and sustainable use. Particularly the rights recognized in Article 8j and related articles of the CBD, related to the protection of traditional knowledge associated with biodiversity.

LAW/DECREE/CONVENTIONS	COMPLIANCE
Law 164 of 1994: Ratifies the UNFCCC decision 1/CP16 about the national circumstances that define the measures that parties should adopt to reduce emissions from deforestation and forest degradation, protect forest reserves and sustainable manage forest	The project complies with this law because its main purpose is to contribute in the reduction of GHG emissions through the conservation of important forest remnants that are highly endangered due to the expansion of grasslands and croplands
Forest Policy (1996).The national forest policy that was adopted in 1996 through the document 2.384 of the National Council for Economic and Social Planning, aim at achieving the sustainable use of forest in order to consolidate the forestry sector in the national economy. Such policy set targets and procedures to halt deforestation by coordinating different economic sectors, promotion of reforestation of forest, rationalization of administrative processes for the sustainable use of forest and addressing social and economic problems of the local communities:	The project complies with the national Forest Policy because it promotes forest conservation and the fair and informed inclusion of the local communities that make part of it. In addition, the project supports the sustainable management of forest by promoting agroforestry systems especially in zones located inside the leakage management areas. The Project will also enforce the local economic development by improving production systems, generating employment, transferring technology and by investing in the execution of the activities proposed by the project participants
Law 2nd of 1959 (Congreso de Colombia, 1959). This law defines the national forest reserves and forest areas of common interest. Special management policies apply to these designated areas and harvesting and commercialization of ecosystem services is restricted and in some cases forbidden	The project is located inside the national Amazonian Forest Reserve. Different categories of management have been defined for these areas. The project complies with this law because it aims at reducing deforestation by promoting conservation and sustainable practices considered by the Law 2nd of 1959

LAW/DECREE/CONVENTIONS	COMPLIANCE
Convention for the Protection of the World Cultural and Natural Heritage. Paris, 1972	The project protects remnants of primary and secondary forest form the Amazonian biome and all its associated biodiversity. The project will do that by conforming vigilance patrols, demarcating the territory and by training the project participants and other stakeholders in the importance of the conservation of forest,
Convention on International Trade in Endangered Species: wild fauna and flora. Washington, 1973 and law 357 of 1997	The project protects remnants of primary and secondary forest form the Amazonian biome and all its associated biodiversity. Hunting will not be allowed, and only sustainable fishing will be permitted. Because the forest inside the project is owned by peasants and farmers and because the main deforestation driver identified was the expansion of grasslands for livestock production, the project will not allow the extraction of wood for commercial purposes. Only those able to obtain harvesting permits for domestic purposes will be allowed
Convention on Biological Diversity. Rio de Janeiro, 1992. Convention on Wetlands of International Importance especially as Waterfowl Habitat - Ramsar (hosted by Colombia in 1997).	The project area does not include any wetland of International Importance as defined by the RAMSAR convention. On the other hand, the project protects the biodiversity by promoting the conservation of forest and by enforcing alternative productive systems that can reduce the pressure on the permanence of forest
Decree 1076 of 2015. Set the rules for the management of regional and national forest protecting areas and decree 2811 of 1974	The project does not include any national forest protecting area
Decree 2372 of 2010 That regulates the National Protected Areas	The project area does not include any national protected area
Decree 1791 of 1996. Defines the rules for the harvesting of forest and planted areas in Colombia	The decree grants the public or private landowners the possibility of harvesting wood for domestic purposes. Hence only domestic harvesting will be allowed by the project upon approval from the regional environmental authority CORMACARENA
Law 1333 of 2009 that rules the national environmental sanctions	None of the project participants have any environmental sanction.
Resolution PS-GJ. 1.2.6.180633 of CORMACARENA which prohibits the use of open fires inside its entire jurisdiction area and the controlled fires inside the municipalities of La Macarena, Mapiripan, Uribe, Vistahermosa, Mesetas, Puerto Rico and Puerto Colombia	All human-induced fires inside the project area and leakage management areas are forbidden. The committees will make sure no fires are being caused inside the project area

LAW/DECREE/CONVENTIONS	COMPLIANCE
Resolution 1447 of 2018 that creates the national MRV system for GHG mitigation activities.	The project is in the process of certification with the VCS s standard and once validated and verified it will be registered in the National Registry of GHG Emission Reduction - RENARE (yet the RENARE has not been fully operational). On the other hand, according to the resolution, the baseline scenario is a type of baseline that represents GHG emissions measured in tons of CO2e that would occur in the absence of GHG mitigation policies, plans, strategies or initiatives in the timeframe in which climate change targets or commitments are subscribed to. As for the Baseline, the decree defines it as the scenario representing the GHG emissions that would occur in the absence of a mitigation initiative. Currently, the only approved reference scenario for Colombia is the Amazon biome reference scenario. Although the project is located inside such reference scenario, it only covers emissions reduced for the period 2013-2017 and the baseline was also defined only for that period. Such reference scenario, baseline and deforestation rates have not been updated for the emissions produced after 2018 inside the Amazon biome. For this reason, the project proponent has decided to define its own reference region in order to better estimate the actual deforestation rates and to use updated information, especially because deforestation in the project area has increased drastically and the previously defined reference region lacks of updated data that can account for the increased forest loss. There have been presented a new reference level, but the UNFCCC has not yet finishing the approbatory phase and the time scale does not cover the one for the project. Consequently, the project complies with such the resolution.
Decree 926 of 2017 that rules the national carbon tax	The project will be certified through the VM0015 methodology from the VERRA Standard. The Verified carbon Units may be used by passive agents of the national territory for the non-causation of the carbon tax, since

LAW/DECREE/CONVENTIONS	COMPLIANCE
	it complies with the characteristics of the GHG reduction and removals conditions as summarized below: 1. The project is a GHG mitigation initiative developed in the national territory: The project is located in the department of Meta 2. The GHG mitigation initiative is formulated according with the VERRA procedures and methodologies. VERRA is an internationally recognized standard that has a platform for public registration of GHG emission reductions and removals 3. The project activities are not enforced by mandate of an environmental authority to offset the impact produced by the work or activity subject to an environmental authorization. This is a complete voluntary initiative 4. The project is in process of validation and verification
Law 388 of 1997 Decree Law 1989 of 1989 creates the Especial Area of Management of Macarena	According to Environmental Determinants by Law 388 of 1997, the regions declared as Environmental determinants must prevail over any other type of use, going against it will be considered illegal. Decree Law 1989 of 1989 creates the Especial Area of Management of Macarena. This area is governed by the Renewable Natural Resources Code and Decree 622 of 1977. There the permitted activities are indicated, such as: conservation, research for conservation, research, education, recreation, culture, recovery and control. This decree includes the forbidden actions on these types of areas, declaring: Article 30: “To develop agricultural or industrial activities, including hotel, mining and oil activities”.

2.5.8 Approvals (G5.7)

Approval is not required as such, although the Colombian government requires the registration of the project in the National Registry of GHG Emission Reduction RENARE, which was done as stated in this document. The actual state is feasibility, the update to under validation has not been possible since the page has not been working properly Annex 2.5.8 Renare

2.5.9 Right to Claim Benefits (G5.8)

As proof of property listing, representation is available in the VERRA gas pipeline, supported by framework contracts and adherent contracts (ERPA), between ALLCOT and associations, community action boards and landowners.

The carbon rights have been assigned to both the holders and the owners of the land in relation to the area supported by the document that accredits it as the deed of the property and is subsequently ratified through georeferencing.

2.5.10 Other Programs (G5.9)

Research on different GHG programs was performed and no coincidences were found. CDM was not applicable, as this is a REDD project, so VCS, Cercarbono and Proclima. Annex 2.5.13 participation under other GHG Programs includes the complete list of existing programs, as indicative the map shows the places, where clearly no superposition with the project is detected.



Figure 25. GHG REDD+ projects registered in Colombia.

2.5.11 Double Counting (G5.9)

Besides RENARE, all partners have been explicitly informed of the prohibition of using the same area to prove deforestation reduction to any project or program. This prohibition is included in the contracts.

The constant communication with stakeholders such as Cormacarena and other government institutions will be a key factor to avoid this to happened. As well as the committees.

3 CLIMATE

3.1 Without-Project Climate Scenario

3.1.1 Without-Project Estimated Greenhouse Gas Emissions (CL1.1)

The estimation of the carbon content in the biomass will be carried out using step 6 of the methodology 15 from VERRA ex-ante, estimating the average carbon contents for the forest class through the literature.

According to 6.1.1 Estimation of the average carbon stocks of each LU/LC classed in the VM0015 methodology; the average carbon contents by forest classes within the Project area can be obtained from carbon stock data for these classes from published local studies and existing forest and carbon inventories. Or by using additional field measurements for classes for which there is insufficient information.

Taking into account that two types of forests are considered in the reference region, Project area and leakage belt corresponding to Tropical humid forest (bh-T) and Very humid premontane forest (bmh-PM), the report of IDEAM (2011), entitled "Estimation of current (2010) carbon stocks stored in the aboveground biomass in natural forests of Colombia. Stratification, allometry and analytical methods", which presents for the forests in question the values of average aerial biomass together with the average carbon per hectare, which follow the criteria of 6.1.1:

a) The data are less than 10 years old;

b) The data are derived from multiple measurement plots;

c) All species above a minimum diameter are included in the inventories;

d) The minimum diameter for trees included is 30 cm or less at breast height (DBH);

e) Data are sampled from good coverage of the classes over which they will be extrapolated.

It should be noted that the information used for the estimation of carbon content is based on the same information used to estimate the forest cover in the Project boundaries. This information is based on the IDEAM forest/non-forest layers, so conservatively the stocks and the methodology of the study is applicable to the instances of this project, and there are no forest classes that do not have insufficient information in the quantification of their carbon contents, therefore it is not necessary to implement the steps described by the methodology in step b) "Collect missing data" of title 6.1.1.

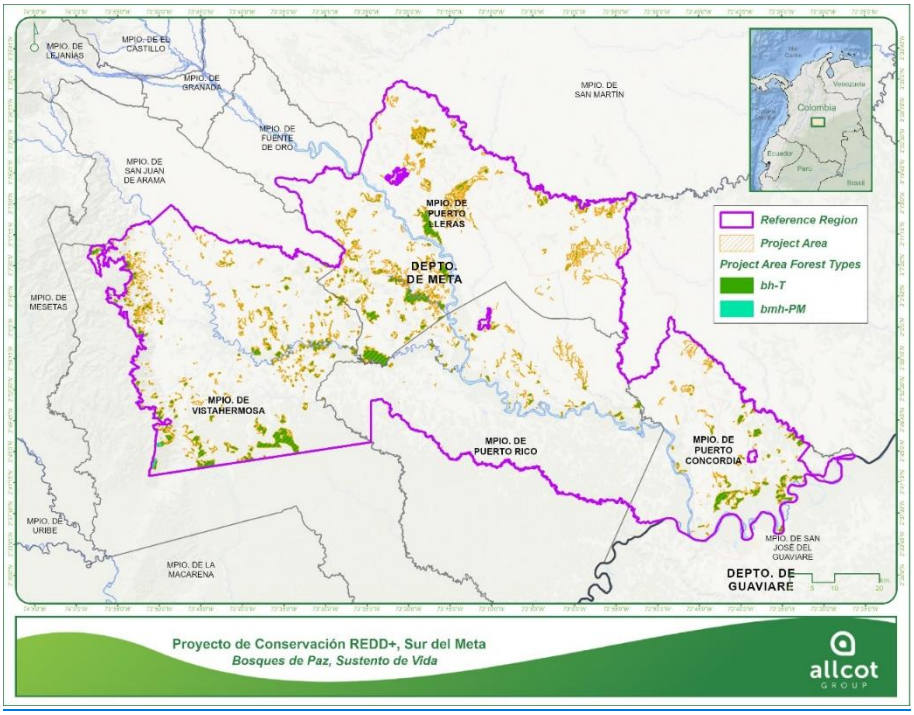


Figure 26. Project area

For the tropical humid forest an average aerial biomass of 284.6 tons per hectare with an average carbon content of 132.1 tons per hectare is reported. As for the very humid premontane forest, it presents an average aerial biomass of 172.2 tons per hectare, and a carbon content of 91.5 tons per hectare.

Tipo de bosque	A_i (ha)	C_i (t ha^{-1})	C_i (t)	CO_2e_i (t)
Bosque muy seco tropical	55.814	49,1	2.739.142	10.052.652
Bosque seco tropical	565.621	48,1	27.200.576	99.826.115
Bosque húmedo tropical	44.343.684	132,1	5.855.813.753	21.490.836.473
Bosque muy húmedo tropical	5.514.120	82,5	454.997.990	1.669.842.622
Bosque pluvial tropical	206.147	86,1	17.750.638	65.144.843
Bosque seco premontano	4.451	70,3	313.110	1.149.114
Bosque húmedo premontano	987.370	57,0	56.326.428	206.717.993
Bosque muy húmedo premontano	2.217.396	91,5	202.820.103	744.349.777
Bosque pluvial premontano	565.600	106,8	60.381.135	221.598.766
Bosque seco montano bajo	19.145	108,0	2.067.865	7.589.066
Bosque húmedo montano bajo	1.357.183	147,5	200.219.644	734.806.094
Bosque muy húmedo montano bajo	1.411.289	130,0	183.530.173	673.555.736
Bosque pluvial montano bajo	109.803	52,6	5.779.565	21.211.004
Bosque húmedo montano	25.713	72,7	1.870.386	6.864.316
Bosque muy húmedo montano	861.919	62,7	54.071.298	198.441.662
Bosque pluvial montano	356.666	53,2	18.980.008	69.656.629
Total	**58.601.922**	**121,9**	**7.144.861.815**	**26.221.642.861**

Source: Estimación de las reservas actuales (2010) de carbono almacenadas en la biomasa aérea en bosques naturales de Colombia; Estratificación, alometría y métodos análiticos. IDEAM, 2011

The image in Spanish from the original document.

Results of the estimation of current (2010) carbon stocks stored in biomass in natural forests in Colombia. Conventions: Ai = Extent of forest in the country for 2010; Cj = Average carbon by forest type; Ci = Total carbon by forest type; CO2ei = Carbon dioxide equivalent by forest type.

Source: Estimation of current (2010) carbon stocks stored in aboveground biomass in natural forests of Colombia; Stratification, allometry and analytical methods.. IDEAM, 2011

For the calculation of belowground carbon content, the ratio of aboveground biomass to belowground biomass will be used with a factor of 0.3. That is, for each ton of aboveground biomass, the belowground biomass corresponds to 30% of the aboveground biomass, 0.3 tons. As indicated by the methodology, the results of the content estimates are reported in Table 15.a (estimated values) of the methodology, presented in Table 15 and Table 16.

Since the table asks for the information in carbon equivalent contents; carbon dioxide equivalent is the result of multiplying the emitted tons of GHGs by their global warming potential. To convert the amount of carbon stored in natural forests, the IPCC (2003, 2006) recommends multiplying the amount of tons of carbon stored in forests by 3.67 Given that the estimates presented, the time horizon specified for each type of forest corresponds to the 30-year duration of the project.

The equation established for the conversion of total carbon released from deforestation in tons converted to carbon equivalent released from deforestation in tons is as follows:

$$C_{total} \times 3.672 = CO_{2Eq}$$

For Tropical rain forest (bh-T in Spanish):

- Carbon for above-ground biomass:

bh-T Cab_{icl}:

284.6 C *3.67= 1043.5 CO_{2Eq}

1043.5 CO_{2Eq}*0.47= 490.5 CO_{2Eq}

- Carbon for below-ground biomass:

bh-T Cbb_{icl}:

284.6 C *3.67 *0.31= 323.5 CO_{2Eq}

323.5 CO_{2Eq}*0.47=152.0 CO_{2Eq}

For Very humid premontane forest (bmh-PM in Spanish):

- Carbon for above-ground biomass:

bmh-PM Cab_{icl}:

172.2 C *3.67= 631.4 CO_{2Eq}

631.4 CO_{2Eq}*0.47= 296.8 CO_{2Eq}

- Carbon for below-ground biomass:

bmh-PM Cbb_{icl}:

172.2 C *3.67 *0.31= 195.7 CO_{2Eq}

195.7 CO_{2Eq}*0.47= 92 CO_{2Eq}

The Confidence Interval (CI) was taken of the study by IDEAM (2011) for each type of forest, being for the Tropical humid forest (bh-T) of 14.4 ton/ha and for the Very humid premontane forest (bmh-PM) of 40.4 ton/ha, these walues with a confidence interval of 95% associates to value of significance of 0.05 and $Z_{\alpha/2}$=1.96; greater confidence than the VM0015 methodological requirements indicates in the table 15 of the methodology. As with the content of above-ground biomass, was used the values of dry matter carbon fraction and the relation Carbon -Oxygen to convert these values to CO_2 equivalent. And for the belowground confidence interval, in addition this value was multiplicate for the ratio of aboveground to belowground biomass of 0.31. Having like results of CI for bh-T in aboveground a value of 24.8 tn CO_2 eq/ha and for belowground of 7,7 tn CO_2 eq/ha. And the CI for bmh-PM of 69.6 tn CO_2 eq/ha and 21.6 tn CO_2 eq/ha, respectively.

Taking into account the date of the IDEAM's information higher than the 10 years especified for the time condition of the carbon contents information by the methodology. The forest types were used like strata to generate a new inventory.

The results obtained of the inventory and the carbon calculations for the tropical humid forest an average carbon content of 385.27 ton CO_2 eq per hectare was calculated. As for the very humid premontane forest, it presents an average carbon content of 498.26 ton CO_2 eq per hectare.

For the calculation of belowground carbon content, the ratio of aboveground biomass to belowground biomass will be used with a factor of 0.31. That is, for each ton of aboveground biomass, the belowground biomass corresponds to 31% of the aboveground biomass, 0.31 tons. Thus, the belowground carbon content for the tropical humid forest an average carbon content was 119.4 ton CO2 eq per hectare and for the very humid premontane forest of 498.26 ton CO2 eq per hectare. As indicate the methodology in the section 6.1.1 letter f, was done an uncertainty assessment.

For the confidence intervals of the calculate carbon per each forest type. Was used a confidence level of 90%, obtaining for this probability a t or $Z_{\alpha/2}$=1.645. This information was used to calculate the admissible error using the formula.

$$E = Z_{\alpha/2} * \frac{\sigma}{\sqrt{n}}$$

Where:

E is the Error

$Z_{\alpha/2}$ is the quantile of the standard normal distribution that carries a probability of α/2 with α significance level set

σ is the standard desviation, and

n is the sample size

And the confidence intervals are equal to

With this assumption, using the next inventory information of each forest type the error percent and confidence intervals were calculated.

Table 10. Error calculation of the carbon estimations

Forest type	$Z_{(\alpha/2)}$	Sample size (n)	Plot Area (ha)	Sampled Area (ha)	Sampled tn CO_2eq	Mean	tn CO_2eq /ha	Standard deviation (σ)	Admisible Error	Error %	Confidence Interval	
											Inferior (tn CO_2eq/ ha)	Superior (tn CO_2eq /ha)
bh-T	1,645	137	0,06	8,56	3298,8	24,08	385,27	10,32	1,45	6,0 %	362,07	408,48
bmh-PM	1,645	28	0,06	1,75	871,96	31,14	498,26	16,68	5,18	16,6 %	415,31	581,21

Source: ALLCOT, 2021

Thus, considering the error percent for each forest type, according to the section 6.1.1 letter f. "If the uncertainty of the total average carbon stock (Ctotcl) of a class cl is less than 10% of the average value, the average carbon stock value can be used. If the uncertainty is higher than 10%, the lower boundary of the 90% confidence interval must be considered in the calculations". Then, for the bh-T the aboveground carbon content remains in 385.27 ton CO_2 eq per hectare and 119.43 ton CO_2 eq per hectare for the belowground carbon contents. By contrast, for the bmh-PM the error percent is higher than 10%, being of 16.6%. Therefore, the values were adjusted to the inferior limit of the confidence interval to 415.31 ton CO_2 eq per hectare and 128.75 ton CO_2 eq per hectare for the belowground carbon contents.

The Table 11. presents carbon stock values on a constant basis for all forest classes since no degradation or enhancement of carbon stocks is contemplated for forest classes within the Project boundary. Stocks in the dead wood biomass carbon pool, litter carbon pool, soil organic carbon pool, harvested wood products carbon pool are omitted, as described in 3.3 Project Boundary. As indicated in the methodology for reporting the results of the estimates per hectare for each class, or in the case of this project, forest type, the results should be presented following the structure of Table 15a.

Table 11. Estimated values for carbon stock per hectare of forest classes icl existent in project area and leakage belt (15a)

Project year *t*	Initial forest class *icl*					
	Name: Tropical humid forest					
	ID icl: bh-T					
	Average carbon stock per hectare + 90% CI					
	Cab *icl*		***Cbb*** *icl*		***Ctot*** *icl*	
	C stock t CO2 e ha-1	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1
T0 a 30	438.3	23.2	119.4	7.2	504.7	30.4

Project year *t*	Initial forest class *icl* Name: Very humid premontano forest *ID icl: bmh-PM* **Average carbon stock per hectare + 90% CI**					
	Cab *icl*		***Cbb*** *icl*		***Ctot*** *icl*	
	C stock t CO2 e ha-1	*+ 90% CI t CO2 e ha-1*	*C stock t CO2 e ha-1*	*+ 90% CI t CO2 e ha-1*	*C stock t CO2 e ha-1*	*+ 90% CI t CO2 e ha-1*
T0 a 30	498.3	82.9	154.5	21.4	652.7	104.4

Where:

Cab_{icl} Average carbon stock per hectare in the above-ground biomass carbon pool of class icl; tCO2-e ha-1

Cbb_{icl} Average carbon stock per hectare in the below-ground biomass carbon pool of class icl; tCO2-e ha-1

$Ctot_{icl}$ Average carbon stock per hectare in all accounted carbon pools of LU/LC icl; tCO2-e ha-1

Table 15.b of the methodology is omitted considering that the uncertainty of the total carbon content of each carbon pool evaluated is less than 10% of the average value, as well as the confidence intervals reported by the literature consulted are around 35%.

And the Table 12 presents the values for above and belowground carbon contents adjusted by the uncertainly.

Table 12. Values to be used after discounts for uncertainties (15b)

Project year t	Initial forest class icl Name: Tropical humid forest ID icl: bh-T Average carbon stock per hectare + 90% CI					
	Cab icl		Cbb icl		Ctot icl	
	C stock t CO2 e ha-1	C stock change t CO2e ha -1	C stock t CO2 e ha-1	C stock change t CO2e ha -1	C stock t CO2 e ha-1	C stock change t CO2e ha -1
T0 a 30	385.3	0.0	119,4	0.0	504.7	0.0
Notes	Like the uncertainty of the total average carbon stock (Ctotcl) of the bh-T is less than 10% of the average value, the average carbon stock value can be used. Then, for the bh-T the aboveground carbon content remains in 385.27 ton CO2 eq per hectare and 119.43 ton CO2 eq per hectare for the belowground carbon contents. Thus, the carbon stock values going on a constant in time basis for all forest classes since no degradation or enhancement of carbon stocks is contemplated for forest classes within the Project boundary. Stocks in the dead wood biomass					

Project year t	Initial forest class icl Name: Tropical humid forest ID icl: bh-T Average carbon stock per hectare + 90% CI					
	Cab icl		Cbb icl		Ctot icl	
	C stock t CO2 e ha-1	C stock change t CO2e ha -1	C stock t CO2 e ha-1	C stock change t CO2e ha -1	C stock t CO2 e ha-1	C stock change t CO2e ha -1
	carbon pool, litter carbon pool, soil organic carbon pool, harvested wood products carbon pool are omitted, as described in 3.3 Project Boundary					

Project year t	Initial forest class icl Name: Very humid premontano forest ID icl: bmh-PM Average carbon stock per hectare + 90% CI					
	Cab icl		Cbb icl		Ctot icl	
	C stock t CO2 e ha-1	C stock change t CO2e ha -1	C stock t CO2 e ha-1	C stock change t CO2e ha -1	C stock t CO2 e ha-1	C stock change t CO2e ha -1
T0 a 30	415..3	0.0	133	0.0	548,3	0.0
Notes	For the bmh-PM the error percent is higher than 10%, being of 16.6%. Therefore, the values were adjust to the inferior limit of the confidence interval to 415.31 ton CO2 eq per hectare and 128.75 ton CO2 eq per hectare for the belowground carbon contents. Thus, the carbon stock values going on a constant in time basis for all forest classes since no degradation or enhancement of carbon stocks is contemplated for forest classes within the Project boundary. Stocks in the dead wood biomass carbon pool, litter carbon pool, soil organic carbon pool, harvested wood products carbon pool are omitted, as described in 3.3 Project Boundary					

Source: ALLCOT, 2021

For the post deforestation classes were identified four principal classes. Three in relation with agricultural land and other one with meadows. The aboveground carbon contents for each post deforestation class were taken from the study tittle “Estimación de las reservas de dioxido de carbono generadas por la deforestación durante el periodo 2005-2010” by IDEAM. This information is the more recent, and actually is the official information in the colombian territory. Citing the study “for cover types other than natural forests, data were obtained from reports in scientific literature, preferably studies conducted in Colombia.” And the emission factors were calculated as the

difference in carbon content or stocks due to the change from one cover to another, for example, the change from natural forest to permanent crops.

In the present project, the post deforestation classes associated with the loss of forest are: 1) Heterogeneous agricultural areas, 2) Permanent crops, 3) Transient crops, and 4) Pastures. IDEAM reports the followings contents:

Cobertura		BA	± DE	C	± DE
Tierras agrícolas**	Áreas agrícolas heterogéneas	11,5	-	5,8	-
	Cultivos permanentes	57,8	47,5	28,9	23,8
	Cultivos transitorios	8,4	2,2	4,2	1,1
Praderas**	Herbazales	28,2	35,7	14,1	17,9
	Pastos	12,7	15,5	6,4	7,8

Source: Estimación de las reservas de dioxido de carbono generadas por la deforestación durante el periodo 2005-2010. IDEAM, 2011

The image in Spanish from the original document.

Where BA is the aerial biomass in tons per hectare, C is the carbon stored in tons per hectare and SD is the standard deviation of each one. Áreas agricolas heterogénas translated like Heterogeneous agricultural areas, Cultivos permantes translated like Permanent crops, cultivos trnsitorios like Transient crops, and Pastos lije Pastures.

Since the IDEAM study only presents the standard deviations for each value of biomass content by cover, and although the studies referred to by IDEAM for post-deforestation content indicate a confidence level in the statistical tests that varies from 0.1 to 0.05, i.e., a confidence interval of 90% to 95%. In the official document no reference is made to the number of samples used, therefore, it is not possible to calculate the confidence interval, and therefore don't exist certainty about the confidence level or their error. Thus, the section 6.1.1 letter f, in relation to this situation indicates that "When defaults are used, the lowest value of the range given in the literature source (or the value reduced by 30%) must be used for the forest classes, and the highest value (or the value augmented by 30%) for non-forest classes".

In this sense, each biomass content per hectare was converted to equivalent carbon for aboveground stock using the relation 44/12 (3.67) and a dry matter factor of 0.47 refer previously in this document, and for the belowground carbon contents using the relation 0.31. Obtaining the followings values mentioned in the Table 13. according with the Table 16 of the VM0015 Methodology.

Table 13. Average carbon stock long term (30 years) per hectare for each icl forest (16)

Project year *t*	Post deforestation class fcl					
	Name: Heterogeneous agricultural areas					
	ID icl: Haa					
	Average carbon stock per hectare + 90% CI					
	Cab $_{icl}$		*Cbb* $_{icl}$		*Ctot* $_{icl}$	
	C stock t CO2 e ha-1	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1
T0 a 30	19.8	N.A	6.1	N.A	26.0	2.6
Average	19.8	N.A	6.1	N.A	26.0	2.6
Average to be used in calculations	19.8	N.A	6.1	N.A	26.0	2.6

Project year *t*	Post deforestation class fcl					
	Name: Permanent crops					
	ID icl: Pc					
	Average carbon stock per hectare + 90% CI					
	Cab $_{icl}$		*Cbb* $_{icl}$		*Ctot* $_{icl}$	
	C stock t CO2 e ha-1	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1
T0 a 30	99.6	N.A	30.9	N.A	130.5	13.0
Average	99.6	N.A	30.9	N.A	130.5	13.0
Average to be used in calculations	99.6	N.A	30.9	N.A	130.5	13.0

Project year *t*	Post deforestation class fcl					
	Name: Transient crops					
	ID icl: Tc					
	Average carbon stock per hectare + 90% CI					
	Cab $_{icl}$		*Cbb* $_{icl}$		*Ctot* $_{icl}$	
	C stock t CO2 e ha-1	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1
T0 a 30	14.5	N.A	4.5	N.A	19.0	1.9
Average	14.5	N.A	4.5	N.A	19.0	1.9

Project year *t*	Post deforestation class fcl Name: Transient crops *ID icl: Tc* Average carbon stock per hectare + 90% CI					
	Cab icl		*Cbb icl*		*Ctot icl*	
	C stock t CO2 e ha-1	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1
Average to be used in calculations	14.5	N.A	4.5	N.A	19.0	1.9

Project year *t*	Post deforestation class fcl Name: Pastures *ID icl: Pa* Average carbon stock per hectare + 90% CI					
	Cab icl		*Cbb icl*		*Ctot icl*	
	C stock t CO2 e ha-1	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1	*C stock t CO2 e ha-1*	+ 90% CI t CO2 e ha-1
T0 a 30	21.9	N.A	6.8	N.A	28.7	2.9
Average	21.9	N.A	6.8	N.A	28.7	2.9
Average to be used in calculations	21.9	N.A	6.8	N.A	28.7	2.9

Since the values of carbon content are estimated by official study and in the thirty-year horizon indicated in the methodology for projection and calculation of averages, the values are not affected and are presented in summary form.

Following the format of Table 14.table 17of the methodology, the weighted average carbon stock per unit area in the long term (30 years) is presented below in Table 14., understanding that the analysis approach for the quantification of emissions and base scenario integrate the adjust of the contents for each post deforestation class by 30% like the methodology indicates. Notice that the refence region is assumed like only one zone.

Table 14. Carbon stock average long term per hectare (17)

	Post -deforestation LU/LC-classes *fcl*								**Area weighted long-term (30 years) average carbon stocks per zone *z***
	Name:	**Heterogeneous agricultural areas**	**Name:**	**Permanent crops**	**Name:**	**Transient crops**	**Name:**	**Pastures**	
Zone	***ID fcl***	***Haa***	***ID fcl***	***Pc***	***ID fcl***	***Tc***	***ID fcl***	***Pa***	

		Cab_{fcl}	Cbb_{fcl}	Cab_{fcl}	Cbb_{fcl}	Cab_{fcl}	Cbb_{fcl}	Cab_{fcl}	Cbb_{fcl}	Cab_{z}	Cbb_{z}
IDz	**Name**	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***	***C stock t CO2 e ha-1***
1	Zone 1	25.8	8.0	129.5	40.1	18.8	18.8	63.2	19.6	59.3	21.6
Note: Values adjusted in 30% for uncertainty according with the methodology, section 6.1.1 letter b											

Source: ALLCOT, 2021

The Project does not consider dead wood biomass carbon pool, litter carbon, soil organic carbon pool, and harvested wood products carbon. For the calculation of carbon stock change factors is necessary consider the following aspects:

- The carbon contents for the initial forest classes and the final post deforestation classes for above and belowground pools are constant for all the credit period.
- According to the IPCC guidelines, the carbon content in the post deforestation classes takes into account only the conversion of natural forests to cropland or permanent pasture. With the clarity that a transient crop is grown on the same site on a cyclical basis. For this reason, the decrease of carbon stocks of the initial classes to the post deforestation classes is considered in each year by the total conversion of the land cover and is not distributed for fractions, because the transformation is permanent in the reference baseline scenario without project.
- The transition of one forest class to any of the four post deforestation classes obey to a lot of variables and factors described in the drivers and agents analysis. Therefore the potential of transition is determined by the historical change of forest and its ponderation in proportion of the transformed area between the periods conformed by 2010-2014 and 2014-2018

Using the aspects presented previously, for the calculation of carbon stock change factors were used the initial forest classes and the classes post deforestation presented in the **¡Error! No se encuentra el origen de la referencia.** being mentioned previously in the **¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.**, and being consistent with the information of the **¡Error! No se encuentra el origen de la referencia.**, **¡Error! No se encuentra el origen de la referencia.**, and **¡Error! No se encuentra el origen de la referencia.**.

Table 15. *List of land-use and land-cover change categories (18)*

			Initial LU/LC class *icl*	
		ID_{cl}	1	2
	ID_z	Name	Tropical humid forest (bh-T)	Very humid Premontane forest (bmh-PM)
Zone *z*	**Heterogeneous agricultural areas (Haa)**	Zone 1	bh-T to Haa	bmh-PM to Haa
	Permanent crops (Pc)		bh-T to Pc	bmh-PM to Pc
	Transient crops (Tc)		bh-T to Tc	bmh-PM to Tc
	Pastures (Pa)		bh-T to Pa	bmh-PM to Pa

Source: ALLCOT, 2021

It should be noted that IDEAM's Forest/Non Forest information considers in its legend three classes: Forest, Non Forest and No Information. The No Forest information groups all those coverages that differ from the official definition of Forest for Colombia. However, since this information was used in modeling the location of future deforestation it is not possible to determine for the project boundaries which type of forest will become which type of class post deforestation. Therefore, the historical weighted weights in proportion of forest areas converted to the four identified post deforestation classes will be used to adjust the emission factors. As following shows:

The behavior of the change in coverage between 2010-2014 and 2014-2018 is shown in the following table.

Table 16. *Weighted weight of aboveground carbon content for post deforestation classes*

		Historical Post -deforestation LU/LC-classes *fcl (hectares)*									
Period	Initial Class	Heterogeneous agricultural areas		Permanent crops		Transient crops		Pastures		Total Surface (ha)	Total %
		Haa (Surface hectares)	*%*	*Pc (Surface hectares)*	*%*	*Tc (Surface hectares)*	*%*	*Pa (Surface hectares)*	*%*		
2010-2014	Forest	12,832.7	64.8 %	82.8	0.42 %	671.402685	3.4 %	6,216.6	31.4 %	19,803.4	100.00 %
2014-2018		5,535.9	34.0 %	6.1	0.04 %	149.1	0.9 %	10,578.3	65.0 %	16,269.3	100.00 %
Mean		9,184.3	49.4 %	44.4	0.23 %	410.2	2.2 %	8,397.4	48.2 %	18,036.4	100.00 %

Period	Historical Post -deforestation LU/LC-classes *fcl (hectares)*									
	Initial Class	Heterogeneous agricultural areas		Permanent crops		Transient crops		Pastures		Total Surface (ha)	Total %
		Haa (Surface hectares)	*%*	*Pc (Surface hectares)*	*%*	*Tc (Surface hectares)*	*%*	*Pa (Surface hectares)*	*%*		
Carbon content (ton CO_2 eq/ha)		19.8		99.6		14.5		48.6			
Carbon content weighted weight (ton CO_2 eq/ha)		9.8		0.2		0.3		23.4			
Total Mean above ground carbon content post deforestation classes (ton CO_2 eq/ha)		33.8									
Adjusted total mean above ground carbon content post deforestation classes*(ton CO_2 eq/ha)		**43.9**									
Note: *Values adjusted in 30% for uncertainty according with the methodology, section 6.1.,1 letter b											

Source: ALLCOT, 2021

In consequence, the value of the above ground carbon for the post deforestation classes is 43.9 ton CO_2 eq/ha. And using the relation of 0.3 between the above ground and the below ground biomass, the content of the below ground carbon is of 8.42 ton CO_2 eq/ha

The equation used, therefor, calculated with Method 2 of VM0015: Activity data per category ct or ctz[30] is, for reference region, project area and leakage area for the total carbon accountant period fixed. In here it is presented the Project Area baseline:

Regarding the estimated equivalent carbon content for above and belowground biomass within the Project Area in the reference period. These are presented in the Table 17. and

[30] For conservative purposes only 1,1% has been added explaining the difference encountered on the official data.

Project year *t*	Activity data per category x Carbon stock change factor for above-ground biomass in the project area				Total baseline carbon stock change in the project area	
	ID_{ct}	bh-T	ID_{ct}	bmh-PM	Annual	cumulative
	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$\Delta CabBSLRR_t$	$\Delta CabBSLRR$
	ha	tCO_2-e ha-1	ha	tCO_2-e ha-1	tCO_2-e ha-1	tCO_2-e ha-1
2019	1,363	488,285	22	8,667	496,952	496,952
2020	1,317	471,483	22	8,481	479,964	976,916
2021	1,271	455,259	21	8,299	463,557	1,440,473
2022	1,227	439,593	21	8,120	447,713	1,888,186
2023	1,185	424,466	20	7,946	432,412	2,320,598
2024	1,144	409,860	20	7,775	417,635	2,738,233
2025	1,105	395,757	20	7,608	403,364	3,141,598
2026	1,067	382,138	19	7,444	389,583	3,531,180
2027	1,030	368,989	19	7,284	376,273	3,907,453
2028	995	356,292	18	7,128	363,419	4,270,873
2029	961	344,032	18	6,974	351,006	4,621,878
2030	928	332,193	18	6,824	339,018	4,960,896
2031	896	320,762	17	6,678	327,440	5,288,336
2032	865	309,725	17	6,534	316,259	5,604,595
2033	835	299,067	16	6,394	305,461	5,910,056
2034	806	288,776	16	6,256	295,032	6,205,088
2035	779	278,839	16	6,122	284,961	6,490,048
2036	752	269,244	15	5,990	275,234	6,765,283
2037	726	259,979	15	5,861	265,840	7,031,123
2038	701	251,033	15	5,735	256,768	7,287,891
2039	677	242,395	14	5,612	248,007	7,535,898
2040	654	234,054	14	5,491	239,545	7,775,444
2041	631	226,000	14	5,373	231,373	8,006,817
2042	609	218,223	14	5,258	223,481	8,230,298
2043	588	210,714	13	5,145	215,859	8,446,157
2044	568	203,463	13	5,034	208,498	8,654,655
2045	549	196,462	13	4,926	201,388	8,856,043
2046	530	189,702	12	4,820	194,522	9,050,564
2047	511	183,174	12	4,716	187,890	9,238,455
2048	494	176,871	12	4,615	181,486	9,419,941

Table 18.

$\Delta CabBSLPA = \sum ABSLPA_{ct,t\ bht} * \square\ C\ stockt\ CO2\ e\ ha\text{-}1_{bht} + \sum ABSLPA_{ct,t\ bmhPM} * \square\ C\ stockt\ CO2\ e\ ha\text{-}1_{bmhPM}$

$\Delta CabBSLPA = ((25764 * 469.1) + (497 * 512.7))$

$\Delta CabBSLPA$= 12.342.252 tCO_2-e cumulative 30 years

Table 17. Carbon stock change factor for above ground biomass in the project area

Project year *t*	Activity data per category x Carbon stock change factor for above-ground biomass in the project area				Total baseline carbon stock change in the project area	
	ID_{ct}	bh-T	ID_{ct}	bmh-PM	Annual	cumulative
	$ABSLRR_{ct,t}$	$\square Cab_{ct,t}$	$ABSLRR_{ct,t}$	$\square Cab_{ct,t}$	$\square CabBSLRR_t$	$\square CabBSLRR$
	ha	tCO_2-e ha-1	ha	tCO_2-e ha-1	tCO_2-e ha-1	tCO_2-e ha-1
2019	1,363	488,285	22	8,667	496,952	496,952
2020	1,317	471,483	22	8,481	479,964	976,916
2021	1,271	455,259	21	8,299	463,557	1,440,473
2022	1,227	439,593	21	8,120	447,713	1,888,186
2023	1,185	424,466	20	7,946	432,412	2,320,598
2024	1,144	409,860	20	7,775	417,635	2,738,233
2025	1,105	395,757	20	7,608	403,364	3,141,598
2026	1,067	382,138	19	7,444	389,583	3,531,180
2027	1,030	368,989	19	7,284	376,273	3,907,453
2028	995	356,292	18	7,128	363,419	4,270,873
2029	961	344,032	18	6,974	351,006	4,621,878
2030	928	332,193	18	6,824	339,018	4,960,896
2031	896	320,762	17	6,678	327,440	5,288,336
2032	865	309,725	17	6,534	316,259	5,604,595
2033	835	299,067	16	6,394	305,461	5,910,056
2034	806	288,776	16	6,256	295,032	6,205,088
2035	779	278,839	16	6,122	284,961	6,490,048
2036	752	269,244	15	5,990	275,234	6,765,283
2037	726	259,979	15	5,861	265,840	7,031,123
2038	701	251,033	15	5,735	256,768	7,287,891
2039	677	242,395	14	5,612	248,007	7,535,898
2040	654	234,054	14	5,491	239,545	7,775,444
2041	631	226,000	14	5,373	231,373	8,006,817
2042	609	218,223	14	5,258	223,481	8,230,298
2043	588	210,714	13	5,145	215,859	8,446,157
2044	568	203,463	13	5,034	208,498	8,654,655
2045	549	196,462	13	4,926	201,388	8,856,043

Project year *t*	Activity data per category x Carbon stock change factor for above-ground biomass in the project area				Total baseline carbon stock change in the project area	
	ID_{ct}	bh-T	ID_{ct}	bmh-PM	Annual	cumulative
	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$\Delta CabBSLRR_t$	$\Delta CabBSLRR$
	ha	tCO_2-e ha-1	ha	tCO_2-e ha-1	tCO_2-e ha-1	tCO_2-e ha-1
2046	530	189,702	12	4,820	194,522	9,050,564
2047	511	183,174	12	4,716	187,890	9,238,455
2048	494	176,871	12	4,615	181,486	9,419,941

Table 18. Carbon stock change facto below ground biomass in the project area

Project year *t*	Activity data per category x Carbon stock change factor for below-ground biomass in the project area				Total baseline carbon stock change in the project area	
	ID_{ct}	bh-T	ID_{ct}	bmh-PM	annual	cumulative
	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$\Delta CabBSLRR_t$	$\Delta CabBSLRR$
	ha	tCO_2-e ha-1	ha	tCO_2-e ha-1	tCO_2-e ha-1	tCO_2-e ha-1
2019	1,363	151,368	22	2,687	154,055	154,055
2020	1,317	146,160	22	2,629	148,789	302,844
2021	1,271	141,130	21	2,573	143,703	446,547
2022	1,227	136,274	21	2,517	138,791	585,338
2023	1,185	131,585	20	2,463	134,048	719,385
2024	1,144	127,057	20	2,410	129,467	848,852
2025	1,105	122,685	20	2,358	125,043	973,895
2026	1,067	118,463	19	2,308	120,771	1,094,666
2027	1,030	114,387	19	2,258	116,645	1,211,310
2028	995	110,450	18	2,210	112,660	1,323,970
2029	961	106,650	18	2,162	108,812	1,432,782
2030	928	102,980	18	2,116	105,095	1,537,878
2031	896	99,436	17	2,070	101,506	1,639,384
2032	865	96,015	17	2,026	98,040	1,737,424
2033	835	92,711	16	1,982	94,693	1,832,117
2034	806	89,521	16	1,939	91,460	1,923,577
2035	779	86,440	16	1,898	88,338	2,011,915

Project year *t*	Activity data per category x Carbon stock change factor for below-ground biomass in the project area				Total baseline carbon stock change in the project area	
	ID_{ct}	bh-T	ID_{ct}	bmh-PM	annual	cumulative
	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$ABSLRR_{ct,t}$	$\Delta Cab_{ct,t}$	$\Delta CabBSLRR_t$	$\Delta CabBSLRR$
	ha	tCO_2-e ha-1	ha	tCO_2-e ha-1	tCO_2-e ha-1	tCO_2-e ha-1
2036	752	83,466	15	1,857	85,323	2,097,238
2037	726	80,594	15	1,817	82,411	2,179,648
2038	701	77,820	15	1,778	79,598	2,259,246
2039	677	75,142	14	1,740	76,882	2,336,129
2040	654	72,557	14	1,702	74,259	2,410,388
2041	631	70,060	14	1,666	71,726	2,482,113
2042	609	67,649	14	1,630	69,279	2,551,392
2043	588	65,321	13	1,595	66,916	2,618,309
2044	568	63,074	13	1,561	64,634	2,682,943
2045	549	60,903	13	1,527	62,430	2,745,373
2046	530	58,808	12	1,494	60,302	2,805,675
2047	511	56,784	12	1,462	58,246	2,863,921
2048	494	54,830	12	1,431	56,261	2,920,182

3.2 Net Positive Climate Impacts

3.2.1 With-Project Estimated Greenhouse Gas Emissions (CL2.1)

Since actual changes in carbon stocks and GHG emissions will be subject to MRV the reason for estimating them at the beginning of a fixed reference period is to help guide the optimal implementation of emission reduction measures and to allow reasonable revenue projections to be made. However, as no deforestation or planned degradation activities are contemplated within the project area and their respective emissions, it is not appropriate to apply this step.

Regarding Ex ante estimation of carbon stock changes due to unavoidable unplanned deforestation within the project area, The estimated reduction in emissions resulting from unplanned logging in the project region is estimated based on the goals of reduction rates of historical deforestation that has been identified. However, reduction of rates will depend on the effectiveness of the activities proposed. The methodology proposes to multiply the annual changes in carbon contents for each forest class avoided of being deforested by the factor (1-E), where E is the effectiveness of the proposed measure, which varies between zero and one. That is, the effectiveness is related to the reduction target expected from the project implementation at times t, t + 1, t + 2, … However, conservatively, project proponents have set goals of deforestation reduction on 70% within the first five years, and from then onwards a reduction of deforestation by 80% to the identified historical rates, until achieving a reduction of 90% between year 10 to 30 of the project Table 57.(27)

Table 19 Ex ante estimated net carbon stock change in the project area under the project (27)

Project year *t*	***Total carbon stock decrease due to planned activities***		***Total carbon stock increase due to planned activities***		***Total carbon stock decrease due to unavoided unplanned deforestation***	
	annual	**cumulative**	**Anual**	**cumulative**	**annual**	**cumulative**
	ΔCPAdPAt	***ΔCPAdPA***	***ΔCPAiPAt***	***ΔCPAiPA***	***ΔCUDdPAt***	***ΔCUDdPA***
	tCO_2-e	**tCO_2-e**	**tCO_2-e**	**tCO_2-e**	**tCO_2-e**	**tCO_2-e**
2019	0	0	195.302	195.302	195.302	195.302
2020	0	0	188.626	383.928	188.626	383.928
2021	0	0	182.178	566.106	182.178	566.106
2022	0	0	175.951	742.057	175.951	742.057
2023	0	0	169.938	911.995	169.938	911.995
2024	0	0	109.420	1.021.415	109.420	1.021.415
2025	0	0	105.681	1.127.097	105.681	1.127.097
2026	0	0	102.071	1.229.168	102.071	1.229.168
2027	0	0	98.584	1.327.751	98.584	1.327.751
2028	0	0	95.216	1.422.967	95.216	1.422.967
2029	0	0	45.982	1.468.949	45.982	1.468.949
2030	0	0	44.411	1.513.360	44.411	1.513.360
2031	0	0	42.895	1.556.255	42.895	1.556.255
2032	0	0	41.430	1.597.685	41.430	1.597.685
2033	0	0	40.015	1.637.700	40.015	1.637.700
2034	0	0	38.649	1.676.349	38.649	1.676.349
2035	0	0	37.330	1.713.679	37.330	1.713.679
2036	0	0	36.056	1.749.735	36.056	1.749.735
2037	0	0	34.825	1.784.560	34.825	1.784.560
2038	0	0	33.637	1.818.196	33.637	1.818.196
2039	0	0	32.489	1.850.685	32.489	1.850.685
2040	0	0	31.380	1.882.066	31.380	1.882.066
2041	0	0	30.310	1.912.376	30.310	1.912.376
2042	0	0	29.276	1.941.652	29.276	1.941.652
2043	0	0	28.278	1.969.929	28.278	1.969.929
2044	0	0	27.313	1.997.242	27.313	1.997.242

2045	0	0	26.382	2.023.624	26.382	2.023.624
2046	0	0	25.482	2.049.107	25.482	2.049.107
2047	0	0	24.614	2.073.720	24.614	2.073.720
2048	0	0	23.775	2.097.495	23.775	2.097.495

Total ex ante estimations for the project area are presented on the next table, corresponding to table 29 for VM0015.

Table 20 Total ex ante estimated actual net carbon stock changes and emissions of non-CO2

Project year *t*	*Total ex ante carbon stock decrease due to planned activities*		*Total ex ante carbon stock increase due to planned activities*		*Total ex ante carbon stock decrease due to unavoided unplanned deforestation*		*Total ex ante net carbon stock change*		*Total ex ante estimated actual non-CO2 emissions from forest fires in the project area*	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCPAdPAt	*ΔCPAdPA*	*ΔCPAiPAt*	*ΔCPAiPA*	*ΔCUDdPAt*	*ΔCUDdPA*	*Δ CPSPAt*	*Δ CPSPA*	*EBBPSPAt*	*EBBPSPA*
	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e
2019	0	0	0	0	195.302	195.302	195.302	195.302	0	0
2020	0	0	0	0	188.626	383.928	188.626	383.928	0	0
2021	0	0	0	0	182.178	566.106	182.178	566.106	0	0
2022	0	0	0	0	175.951	742.057	175.951	742.057	0	0
2023	0	0	0	0	169.938	911.995	169.938	911.995	0	0
2024	0	0	0	0	109.420	1.021.415	109.420	1.021.415	0	0
2025	0	0	0	0	105.681	1.127.097	105.681	1.127.097	0	0
2026	0	0	0	0	102.071	1.229.168	102.071	1.229.168	0	0
2027	0	0	0	0	98.584	1.327.751	98.584	1.327.751	0	0
2028	0	0	0	0	95.216	1.422.967	95.216	1.422.967	0	0
2029	0	0	0	0	45.982	1.468.949	45.982	1.468.949	0	0
2030	0	0	0	0	44.411	1.513.360	44.411	1.513.360	0	0
2031	0	0	0	0	42.895	1.556.255	42.895	1.556.255	0	0
2032	0	0	0	0	41.430	1.597.685	41.430	1.597.685	0	0
2033	0	0	0	0	40.015	1.637.700	40.015	1.637.700	0	0
2034	0	0	0	0	38.649	1.676.349	38.649	1.676.349	0	0
2035	0	0	0	0	37.330	1.713.679	37.330	1.713.679	0	0
2036	0	0	0	0	36.056	1.749.735	36.056	1.749.735	0	0
2037	0	0	0	0	34.825	1.784.560	34.825	1.784.560	0	0
2038	0	0	0	0	33.637	1.818.196	33.637	1.818.196	0	0
2039	0	0	0	0	32.489	1.850.685	32.489	1.850.685	0	0
2040	0	0	0	0	31.380	1.882.066	31.380	1.882.066	0	0

2041	0	0	0	0	30.310	1.912.376	30.310	1.912.376	0	0
2042	0	0	0	0	29.276	1.941.652	29.276	1.941.652	0	0
2043	0	0	0	0	28.278	1.969.929	28.278	1.969.929	0	0
2044	0	0	0	0	27.313	1.997.242	27.313	1.997.242	0	0
2045	0	0	0	0	26.382	2.023.624	26.382	2.023.624	0	0
2046	0	0	0	0	25.482	2.049.107	25.482	2.049.107	0	0
2047	0	0	0	0	24.614	2.073.720	24.614	2.073.720	0	0
2048	0	0	0	0	23.775	2.097.495	23.775	2.097.495	0	0

3.2.2 Net Impact (CL2.2)

In the case of the Meta Sur, Forests of Peace, Livelihoods Project, in sub-step 9.2 Calculation of ex-ante estimation of total net GHG emissions reductions. The net reduction of anthropogenic GHG emissions from the proposed AUD project activity is calculated as follows using equation 19 of the methodology:

$$\Delta REDDt = (\Delta CBSLPAt + EBBBSLAPAt) - (\Delta CPSPAt + EBBPSAt) - (\Delta CLKt - ELKt)$$

$$\Delta REDDt = (12.340.122 + 0) - (2.097.495 + 0) - (246.802 - 0)$$

$$\Delta REDDt = 9.995.825$$

Equation 1 (19): Ex ante estimation for Project emission reductions.

Where:

ΔREDD$_t$: Net GHG emission reductions by the project in a year t (tCO2$_{CO2}$e);

ΔCBSLPA$_t$: Sum of carbon stock change in the base line on the Project area year t tCO2$_{CO2}$e);

EBBBSLPA$_t$: Sum of carbon stock change from biomass burning from base line on the Project area year t (tCO2$_{CO2}$e);

ΔCPSPA$_t$: Sum of real carbon stock change estimated ex ante in the Project area on the year t (tCO2$_{CO2}$e);

EBBPSPAt: Sum of real carbon stock change from biomass burning estimated ex ante in the Project area on the year (tCO2$_{CO2}$e);

ΔCLK$_t$: Sum of net carbon stock change estimated of leakage ex ante in the Project area on the year t (tCO2$_{CO2}$e);

ELK$_t$: Sum of leakage estimated ex ante year t (tCO2$_{CO2}$e);

$_t$: 1, 2, 3 ... T, one year in the crediting period proposed by the project.

As indicated in the methodology in the substep 9.3 the Ex ante calculation of Verified Carbon Units (VCU), consecutively, To estimate the number of VCUs, we used equation 20 of VM0015. The Project Risk Factor parameter was estimated through the VCS AFOLU Non-permanence Risk Tool document, resulting in 22%.

$$VCUt = \Delta REDD_t - VBC_t$$

$$VBC_t = (\Delta CBSLPA_t - \Delta CPSPA_t) * RF_t$$

$$VCUt = 9.997.567 - 2.199.465$$

$$VCUt = \mathbf{7.798.102}$$

Equation 2 (20): Number of buffer credits deposited in the VCS buffer at the moment t (t CO2$_{CO2}$-e).

Where:

VCU$_t$: Number of VCUs that can be trade in the moment t (tCO2$_{CO2}$e);

ΔREDD$_t$: net GHG emission reduction ex ante by the project year t (tCO2$_{CO2}$e);

VBC$_t$: number of buffer credit to be on the VCS buffer on time t (t CO2$_{CO2}$-e);

ΔCBSLPA$_t$: Sum on carbon stock change on the baseline on the project area in the year t(tCO2$_{CO2}$e);

ΔCPSPA$_t$: sum of real carbon stock change estimated ex ante on the project area year t (tCO2$_{CO2}$e);

RFt: risk facto used to calculate VCS buffer credits (%);

$_t$: 1, 2, 3 ... T, one year in the crediting period proposed by the project

In accordance with the methodology, the results are presented following the structure of table 36 of the VM0015 methodology template. It is presented in the Annex Tables VM0015, because of its size it is out of the template of this document. Likewise, presents the information obtained for the estimation of net reductions, adding the calculation information of the VCUs penalized by the risk factor of the AFOLU non-permanence risk tool, corresponding to 22%. The table 48 presents the resumed ex ante estimated net anthropogenic GHG emission reductions (REDDt) and Verified Carbon Units (VCUt)

Table 21. Ex ante estimated net anthropogenic GHG emission reductions (REDDt) and Verified Carbon Units (VCUt)(36)

Project year *t*	Baseline carbon stock changes		*Ex ante* project carbon stock changes		*Ex ante* leakage carbon stock changes		*Ex ante* net anthropogenic GHG emission reductions		*Ex ante* VCUs tradable		*Ex ante buffer credits*	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	$CBSLPA_t$	*CBSLPA*	$CPSPA_t$	*CPSPA*	CLK_t	*CLK*	$REDD_t$	*REDD*	VCU_t	*VCU*	VBC_t	*VBC*
	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e
2019	651.103	651.103	-195.331	-195.331	-13.022	-13.022	442.750	442.750	345.345	345.345	97.405	97.405
2020	628.846	1.279.949	-188.654	-383.985	-12.577	-25.599	427.615	870.365	333.540	678.885	94.075	191.480
2021	607.352	1.887.300	-182.205	-566.190	-12.147	-37.746	412.999	1.283.364	322.139	1.001.024	90.860	282.340
2022	586.594	2.473.894	-175.978	-742.168	-11.732	-49.478	398.884	1.682.248	311.129	1.312.153	87.754	370.095
2023	566.547	3.040.441	-169.964	-912.132	-11.331	-60.809	385.252	2.067.500	300.497	1.612.650	84.755	454.850
2024	547.188	3.587.629	-109.438	-1.021.570	-10.944	-71.753	426.806	2.494.306	332.909	1.945.559	93.897	548.747
2025	528.491	4.116.120	-105.698	-1.127.268	-10.570	-82.322	412.223	2.906.530	321.534	2.267.093	90.689	639.437
2026	510.435	4.626.556	-102.087	-1.229.355	-10.209	-92.531	398.140	3.304.669	310.549	2.577.642	87.591	727.027
2027	492.998	5.119.554	-98.600	-1.327.955	-9.860	-102.391	384.538	3.689.208	299.940	2.877.582	84.598	811.626
2028	476.158	5.595.712	-95.232	-1.423.186	-9.523	-111.914	371.403	4.060.611	289.694	3.167.276	81.709	893.334
2029	459.895	6.055.606	-45.989	-1.469.176	-9.198	-121.112	404.707	4.465.318	315.672	3.482.948	89.036	982.370
2030	444.188	6.499.795	-44.419	-1.513.595	-8.884	-129.996	390.886	4.856.204	304.891	3.787.839	85.995	1.068.365
2031	429.020	6.928.815	-42.902	-1.556.497	-8.580	-138.576	377.538	5.233.742	294.479	4.082.319	83.058	1.151.423
2032	414.371	7.343.186	-41.437	-1.597.934	-8.287	-146.864	364.647	5.598.388	284.424	4.366.743	80.222	1.231.645
2033	400.224	7.743.410	-40.022	-1.637.956	-8.004	-154.868	352.197	5.950.585	274.714	4.641.457	77.483	1.309.129
2034	386.561	8.129.971	-38.656	-1.676.612	-7.731	-162.599	340.174	6.290.759	265.336	4.906.792	74.838	1.383.967
2035	373.366	8.503.337	-37.337	-1.713.949	-7.467	-170.067	328.562	6.619.321	256.278	5.163.070	72.284	1.456.251
2036	360.623	8.863.960	-36.062	-1.750.011	-7.212	-177.279	317.348	6.936.669	247.531	5.410.602	69.817	1.526.067
2037	348.316	9.212.275	-34.832	-1.784.843	-6.966	-184.246	306.518	7.243.187	239.084	5.649.686	67.434	1.593.501
2038	336.430	9.548.705	-33.643	-1.818.486	-6.729	-190.974	296.058	7.539.245	230.925	5.880.611	65.133	1.658.634
2039	324.951	9.873.656	-32.495	-1.850.981	-6.499	-197.473	285.957	7.825.202	223.046	6.103.658	62.911	1.721.544
2040	313.865	10.187.521	-31.387	-1.882.367	-6.277	-203.750	276.201	8.101.403	215.437	6.319.095	60.764	1.782.309
2041	303.158	10.490.680	-30.316	-1.912.683	-6.063	-209.814	266.779	8.368.183	208.088	6.527.183	58.691	1.841.000
2042	292.818	10.783.498	-29.282	-1.941.965	-5.856	-215.670	257.680	8.625.863	200.990	6.728.173	56.690	1.897.690

2043	282.832	11.066.330	-28.283	-1.970.248	-5.657	-221.327	248.892	8.874.755	194.136	6.922.309	54.756	1.952.446
2044	273.187	11.339.517	-27.319	-1.997.567	-5.464	-226.790	240.405	9.115.160	187.516	7.109.825	52.889	2.005.335
2045	263.873	11.603.390	-26.387	-2.023.954	-5.277	-232.068	232.208	9.347.368	181.122	7.290.947	51.086	2.056.421
2046	254.877	11.858.266	-25.488	-2.049.442	-5.098	-237.165	224.291	9.571.659	174.947	7.465.894	49.344	2.105.765
2047	246.188	12.104.455	-24.619	-2.074.061	-4.924	-242.089	216.646	9.788.305	168.984	7.634.878	47.662	2.153.427
2048	237.797	12.342.252	-23.780	-2.097.840	-4.756	-246.845	209.262	9.997.567	163.224	**7.798.102**	46.038	2.199.465

3.3 Offsite Climate Impacts (Leakage)

3.3.1 Types of Expected Leakage (CL3.1)

For the development of this project, the ex ante leakage estimation procedure was used, step 8 of VM0015 - Guidelines for ex ante estimation of leakage was applied. Ex ante estimation of the reduction in carbon stocks and increase in greenhouse gas emissions due to leakage prevention measures.

For leakage described on section 8.1 of VM001 the project has found evidence (as presented on causes and drivers of deforestation) that deforestation and degradation of forest ecosystems continue to occur because of historical issues. These include the lack of governance, poor social organization, and insufficient funding. All this adds to climate change territorial signs like the increasing risk of hazardous meteorological events, loss of seasonality, and temperature rise. Allcot and the campesino communities, prioritized lines of action directly or indirectly related to the project leakage management, which not only will preclude the migration of deforestation- or degradation-related activities outside the project area and the leakage belt but impulse a transformative trend towards more sustainable, inclusive, and climate-resilient livelihoods.

Among other topics, the line of land formalization includes monitoring communities, biodiversity, and forest. It also consists of formulating individualized, yet-articulated farm plans for project participants. The line of sustainable production will impulse the closing of the agricultural frontier by supporting the sustainability of four priority commodities: citrus, coffee, cocoa, and sustainable livestock. The native agricultural system, "Pancoger," will also be part of this supportive effort if needed.

However, we assume conservatively these lands will remain as non-forest lands, and therefore carbon stocks will remain unchanged throughout the life of the project. Similarly, emissions from the application of organic fertilizers are considered insignificant; eg composting uses anaerobic decomposition and a combination of garbage and organic waste from crops, that because of their small-scale feature, do not generate large emissions. e

The leakage prevention activities are not associated with other projects registered under VCS or the UNFCCC. Emissions from fossil fuel consumption for the implementation of activities that will avoid deforestation, do not need to be counted and recorded for total carbon balances, as stated by the methodology. Therefore, leakage net estimates are presented in Table 59 (30a)

Ex –ante CH_4 and N_2O emissions estimates due to the increase in number of grazing animals The Project proposal does not pretend to promote activities that increase emissions derived from enteric fermentation or biomass burning. Therefore, those estimates will not be considered.

Total estimates of changes in carbon content and increases in emissions due to the leakage prevention in the ex - ante phase They were considered as not significant, due to the leakage management, and therefore they were not estimated.

Following section 8.2 of VM0015, GHG emissions from displacement of activities could only be considered leakage if these emissions are within the leakage belt (LK) and occur above baseline projections. A mobility analysis was used to calculate the extent of the project leakage belt and the results of this analysis are presented in section spatial boundaries. (As stated in the footnote of the VCS methodology VM0015 "If the agents of deforestation do not participate in leakage prevention activities and project activities, the Displacement Factor will be 100%. When leakage prevention activities are implemented, the factor will be equal to the proportion of baseline agents that are estimated to have the opportunity to participate in leakage prevention activities and project activities", therefore, if all agents have the opportunity to participate in Project activities, the LDF should be zero). Under this assumption, the project intends for the agents to participate in the project activities and the LDF should be zero for this particular case.

In addition, the VM0015 methodology indicates that the amount of leakage will depend on the Leakage Displacement Factor (LDF) which is equal to the proportion of deforestation agents that do not participate in Project activities. Considering deforestation is caused by each individual owner on its own land, therefor we are including all of our agents of deforestation and they will not displace their activities to other lands. Supporting this please see Annex Stakeholder consultation, free, prior and informed consent. Annex1.11_211104_CO_Teoria del cambio, Herramienta de implementación acciones sostenibles and Annex2.1.8_ 211103_CO_StakeholderMappingSurdelMeta.xlsx

3.3.2 Quantity of Expected Leakage (CL3.1, 3.3)

Following these assumptions and putting them into practice, the Meta Sur, Forests of Peace, Livelihoods Project is not expected to generate displacement leakage as the Project activities are designed to provide all deforestation agents that reach the Project Boundary the opportunity to participate in Project activities. Nevertheless, the ex ante calculations will include a 2% Displacement Factor in order to be conservative. It is important to acknowledge that monitoring ang ex post calculation will detect and any leakage displacement as well as be reflected in correction actions towards the project. See table 60 (34 VM0015)

Table 22 Ex ante estimated leakage due to activity displacement (34)

Project year t	Total ex ante estimated decrease in carbon stocks due to displaced deforestation		Total ex ante estimated increase in GHG emissions due to displaced forest fires	
	annual	cumulative	annual	cumulative
	ΔCADLKt	ΔCADLK	EADLKt	EADLK
	tCO2e	tCO2e	tCO2e	tCO2e
2019	13.020	13.020	0	0
2020	12.575	25.595	0	0
2021	12.145	37.740	0	0
2022	11.730	49.470	0	0
2023	11.329	60.800	0	0
2024	10.942	71.742	0	0
2025	10.568	82.310	0	0
2026	10.207	92.517	0	0
2027	9.858	102.375	0	0
2028	9.522	111.897	0	0
2029	9.196	121.093	0	0
2030	8.882	129.975	0	0
2031	8.579	138.554	0	0
2032	8.286	146.840	0	0
2033	8.003	154.843	0	0
2034	7.730	162.573	0	0
2035	7.466	170.039	0	0
2036	7.211	177.250	0	0
2037	6.965	184.215	0	0
2038	6.727	190.943	0	0

2039	6.498	197.441	0	0
2040	6.276	203.717	0	0
2041	6.062	209.779	0	0
2042	5.855	215.634	0	0
2043	5.656	221.289	0	0
2044	5.463	226.752	0	0
2045	5.276	232.028	0	0
2046	5.096	237.125	0	0
2047	4.923	242.048	0	0
2048	4.755	246.802	0	0

Step 8.3 Ex ante estimation of total leakage

Table 23 Ex ante estimated total leakage (35)

Project year t	Total ex ante GHG emissions from increased grazing activities		Total ex ante increase in GHG emissions due to displaced forest fires		Total ex ante decrease in carbon stocks due to displaced deforestation		Carbon stock decrease due to leakage prevention measures		Total net carbon stock change due to leakage		Total net increase in emissions due to leakage	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	EgLKt	EgLK	EADLKt	EADLK	ΔCADLKt	ΔCADLK	ΔCLPMLK t	ΔCLPMLK	ΔCLKt	CLKt	ELKt	ELK
	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e	tCO2e
2019	0	0	0	0	-13.020	-13.020	0	0	-13.020	-13.020	0	0
2020	0	0	0	0	-12.575	-25.595	0	0	-12.575	-25.595	0	0
2021	0	0	0	0	-12.145	-37.740	0	0	-12.145	-37.740	0	0
2022	0	0	0	0	-11.730	-49.470	0	0	-11.730	-49.470	0	0
2023	0	0	0	0	-11.329	-60.800	0	0	-11.329	-60.800	0	0
2024	0	0	0	0	-10.942	-71.742	0	0	-10.942	-71.742	0	0
2025	0	0	0	0	-10.568	-82.310	0	0	-10.568	-82.310	0	0
2026	0	0	0	0	-10.207	-92.517	0	0	-10.207	-92.517	0	0
2027	0	0	0	0	-9.858	-102.375	0	0	-9.858	-102.375	0	0
2028	0	0	0	0	-9.522	-111.897	0	0	-9.522	-111.897	0	0

3.3.3 Leakage Mitigation (CL3.2)

NA

3.4 Climate Impact Monitoring

3.4.1 Climate Monitoring Plan (CL4.1)

The VM0015 methodology was used to monitor the reduction of emissions expected by the project, using as a basis the national deforestation reports generated annually by IDEAM. Given that these reports arrive at the departmental level, the GIS group of Allcot will interpret the images for the four municipalities. It is important to clarify that the image base will be the same used by IDEAM, that is, official sources for Colombia will be used.

The parameters to be considered will be:

- Monitoring of changes in carbon stocks and greenhouse gas emissions for periodic verification.
- Tracking of actual changes in carbon stocks and GHG emissions in the project area and reference region.
- Leakage monitoring.
- Ex post calculation of GHG emission reductions.
- Monitoring of the impacts of natural disturbances and other events identified in the natural risks of the project.

Forest monitoring will be carried out through the establishment of sampling plots, which will obey the technical instructions of the Field Manual for carbon monitoring in natural forests (Ideam, 2014).

The technical team that will carry out the carbon content monitoring will be coordinated by a forestry engineer with proven experience in forest inventories and in field data collection of variables required for carbon content estimates. This professional will have a technical group and an operational support group in the field, all of which will receive the necessary training for the development of the monitoring. This training will be justified and recorded in the monitoring report.

- Satellite image processing and interpretation

Annex 2.4 presents the protocol used in the acquisition, processing and quality assurance of information from satellite images. These images will be used in monitoring for land cover identification and forest condition analysis in the project area.

The protocol describes the image processing, type of bands used, the geometric correction to be performed, Conversion of the data to surface reflectance, Cloud and water masking. In addition, the processing is focused on image classification, in which pixels of a finite number of individual classes or data categories are grouped, based on visualization, digital levels of the data and from the satisfaction of coverage criteria, in this case framed in the Corine Land Cover methodology.

As a method for validating the thematic accuracy of the land cover layers for the three analysis periods, a preliminary statistical analysis of concordance was proposed using the n X n dimension confusion matrix method, in which the agreements and disagreements between the interpreted information and the reference information are counted; where the main diagonal of the matrix will

indicate the existing agreements between the interpreted land cover and the reference information. For this, it is recommended to use ArcGIS tools to optimize the process.

- Definition of mapping units

The definition of the units of analysis for the survey of forest plots for carbon monitoring starts from the identification of the forest types included in the models for the estimation of aboveground biomass and carbon in natural forests (Yepes et al., 2011). Vegetation cover units (IDEAM, 2010) and the climatic classification proposed in Holdridge's methodology (1978) are taken into account. This is considered appropriate for REDD+ projects (Yepes et al., 2011).

The Map of Forest Types is used, which is the result of superimposing the previously identified vegetation the vegetation cover map with the life zones map for Colombia (IDEAM, 2005). Table 32 shows an example of the result of the cartographic analysis used for the first carbon monitoring. Seven (7) forest type units were identified, five (5) in the tropical rainforest (bh- T) and two (2) in the tropical rainforest (bh- T) and two (2) in the very humid premontane forest (bmh-PM).

Table 24. Types of forests identified in the first carbon monitoring

LIFES ZONES	LAND COVER	FOREST TYPES
Tropical rainforest (bh-T)	Open forest	bh-T Open forest
	River forest	bh-T River forest
	Dense forest	bh-T Dense forest
	Fragmented forest	bh-T Fragmented forest
	Morichales	bh-T Morichales
Very humid premontane forest (bmh-PM)	Dense forest	bmh-PM Dense forest
	Fragmented forest	bmh-PM Fragmented forest

- Definition of the type and intensity of sampling

A Probabilistic Sampling will be carried out. A Stratified Random Design will be used, in which the strata correspond to the defined forest types. The samples will be placed in the strata. Strata are defined as subgroups of units of analysis that differ in the characteristics to be analyzed. To define the number of sample elements to be selected from each of the strata, the following options are used. According to Bai et al.(2013), proportional allocation and optimal allocation can be used. In proportional allocation, the sample size of each stratum is proportional to the size of the stratum that gave rise to it, with respect to the total population. In optimal allocation, the sample size of each stratum is defined by the sampler.

In the selection of the sampling sites, due to the historical reports of the region, safety aspects must be considered.

The sample size and sampling intensity are defined based on the technical considerations of the Protocol for National and Subnational Carbon Estimation (Yepes et al., 2011). This document highlights that, in order to achieve an adequate error in the framework of REDD projects, an error of ±10% is allowed, with 95% confidence. For this reason, two (2) stages are presented below to define the number of sampling units.

The first stage includes the calculation of the theoretical sampling intensity, based on experiences from forest inventories of forest management plans and forest studies in the project's area of

influence. In the second stage, the sampling error is progressively calculated until the final number of plots required to reach a 10% admissible error is specified. The calculation of the number of plots will be given by the coefficient of variation, the desired sampling error and the t-Student distribution. The relationship of these variables is given by the following equation.

$$n = \frac{(\frac{t\alpha}{2gl})^2 * (CV\%)^2}{(E\%)^2}$$

tα/2gl = Value of the t - student table with a significance level α with n - 1 degrees of freedom.

CV% = Coefficient of variation associated with pre-sampling stage

E% = Sampling error equal to or less than 10%.

- Location of the plots

The survey of each plot will be carried out in a square shape, using a precision compass, stakes and tape measure. Four stakes will be used to delimit each plot and they will be identified on the base post with the respective code, written with indelible paint.

Once each plot is established, it will be assigned a nomenclature code, and then georeferenced using a calibrated GPS, with which the decimal coordinates (National Origin) of the south western vertex, which corresponds to the base post of the plot, will be recorded. From this vertex the systematic route will be made in a left-right-left and lower-upper-lower direction. In the assembly of the plots and their quadrants, the course, distance and slope correction will be considered with the help of the compass and the analog clinometer.

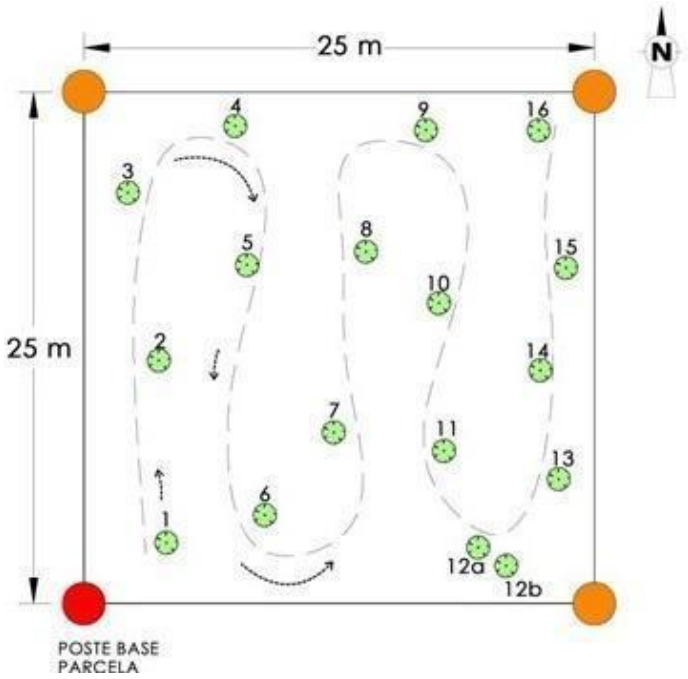


Figure 27. Sequence diagram of the route sequence in the plots

The establishment of the plots within each of the pre-established coverages will be carried out with the help of digital cartography, making adjustments in the field if necessary, and following the recommendations for the establishment of plots in the protocol for National-Subnational Estimation

of Biomass-Carbon in Colombia, the Field Manual for Carbon Monitoring in Natural Forests (Peña et al., 2014) and the Field Manual of the National Forest Inventory of Colombia (IDEAM, 2018).

- Measurement of trees

In each 25 m x 25 m plot, all tree and palm species with a DBH ≥ 10 cm will be measured. The following variables will be recorded for each individual:

a) Numbering
b) Common name of the individual.
c) Scientific name of the individual.
d) Height of palms (m): Distance from the base of the individual to the point where the plume of leaves begins. In the case of palms, the total height is considered to be equivalent to the height of the stem or stipe.
e) Total height of trees (m): Vertical distance between the ground and the apical (highest) part of the plant; the total height will be measured at 40% of the individuals, using an analog clinometer. The height of 100% of the trees will be estimated from a measurement of 40% of the individuals; the total height of the remaining 60% will be calculated using regression models that relate the total height to the diameter of the tree, based on data from 40% (Figure 1-3). The use of these models is suitable for carbon (Yepes et al., 2011) and biomass estimation (VCS, 2012; Yepes et al., 2011).
f) Tree stem height (m): The height of the stem from its base to the height of the first branch, the total height of 40% of the individuals will be measured, also using an analog clinometer. The height of the trunk of the remaining 60% of the individuals will be calculated by means of a regression that relates the height with the diameter of the tree, from the data of the aforementioned 40%.
g) DBH (cm): Diameter at breast height (1.3 m above the ground), measured with bark. It will be measured with a diametric tape (Figure 1-3).
h) Shaft shape and condition: straight, twisted, twisted, bifurcated, decoped, dead, among other options.

The recording of the variables mentioned above will be recorded in the previously prepared field forms, which will also include aspects such as date, person in charge, plot code, forest type, municipality, village, decimal coordinates and altitude of the sampling site.

An agreement has been signed with the district university "Francisco José de Caldas" in the city of Bogotá D.C. The university will carry out and ensure the technical consistency of the required studies. However, ALLCOT will perform verifications of the information generated and will make the necessary adjustments regarding the requirements of the standards.

The information collected in the field of the tree and palm individuals registered in the sampling units will be structured in a final database in Excel to be delivered to ALLCOT, which will be accompanied by a technical memory of the sampling error calculation; likewise, the location points of the surveyed plots will be georeferenced through the use of specialized software in geographic information systems, delivering the information in Shapefile format. The information collected in the field will be digitalized and delivered to ALLCOT on a weekly basis in Excel format. The information will be scanned daily and at the end of the field trip, the physical formats will be delivered.

3.4.2 Dissemination of Monitoring Plan and Results (CL4.2)

When monitoring is performed, this will be disseminated accordingly to 2.3.2 using the same channels

3.5 Optional Criterion: Climate Change Adaptation Benefits

3.5.1 Regional Climate Change Scenarios (GL1.1)

3.5.2 Climate Change Impacts (GL1.2)

3.5.3 Measures Needed and Designed for Adaptation (GL1.3)

4 COMMUNITY

4.1 Without-Project Community Scenario

4.1.1 Descriptions of Communities at Project Start (CM1.1)

The data collected in the project's baseline show a situation of widespread poverty and many limitations of the communities in terms of unsatisfied basic needs, lack of access to services, deforestation and degradation of natural resources that are used as raw materials to generate sources of income. Today the community finds itself in a scenario of frustration due to so many failed projects of the past, and with great distrust in both public and private entities because the projects offered are generally of very short duration and do not meet the objectives set, and in some cases the organizations do not return to the territory.

It is most likely that if the trend continues with the current productive practices, the forests, soils and ecosystems in general in southern Meta will continue to be degraded, which will lead to an increase in the agricultural frontier, rising use and tenure conflicts, progressively depleting the soils, which will ultimately lead to an intensification in the multidimensional poverty levels of the communities.

In chapter 2.1.4 on social parameters, a description was made of the population process through migratory dynamics and the current situation of the communities after the peace agreement, presenting the main municipal data, and in 2.1.12 from the VCS PDD the baseline of the survey conducted to measure the SDGs is presented.

Among the project partners there are at least three large groups and two minority groups, on one hand, the majority group made up of migrant peasant settlers from years ago, who have roots in the territory, but do not have title deeds and hope that someday their land tenure will be formalized (80% who do not have deeds). Within this group, there are 35.67% of possessors, 12.33% of tenants and 52% who have letters of sale that support their ownership.

On the other hand, there are peasant settlers with legal titles to their land (26.38%), some of whom are elders whose children do not live in the territory and do not plan to return, and others who are waiting for the generational replacement for the administration and care of the farms.

The third group is the large absentee landowners, who live in the city and have their farms for livestock production or palm crops, but wish to conserve forest remnants on their properties and are interested in improving or changing their productive activity because they have suffered the economic impact of the low productivity of their production systems and the effects of climate change.

Finally we find the minority groups, that even though in the project area there are no indigenous reserves or collective territories of black communities, the survey conducted does show the existence of community members who recognize themselves as Afro-Colombian (2.84%) or indigenous (0.17%), thus forming two minority groups within the project, which must be characterized at the beginning of the execution, to establish the differential actions to be implemented and thus guarantee the special rights that cover these communities.

Archetype: The average member is 53 years old, has 3 children, monthly income between 250,000 colombian pesos and 500,000 colombian pesos and has lived in the same village for more than 4 years.

71% of those surveyed are men and 29% women, which is related to the universe of partners that presents 68% men and 32% women.

According to the community organization processes, there are also two large groups within the project, the members linked through community action boards, and the members linked through associations. In the following link, you can consult the maps with the coverage of each organization within the project: ANNEX 4.1.1_ Cobertura organizaciones socias.

To contextualize the starting conditions of the communities, the results of the Sustainable Development Goals - SDG survey are presented.

52% of those surveyed state that they are owners, 35.67% possessor and 12.33% holder.

52.75% say they support the possession in a sales letter, 20.87% in writing and 26.38% in another document.

85.64% of those surveyed state that they feel between secure and very secure about their property rights over the land.

91.82% of those surveyed state that they are in the subsidized health system, 6.84% in the contributory system and 1.34% do not have coverage.

92.49% do not have access to a computer/tablet at home, 7.51% do.

96.83% do not have internet access at home.

95.49% do not have access to drinking water.

0.67% disposes of wastewater in the sewer system, 64.27% in a septic tank and 35.06% in the open sky.

1.84% dispose of their solid waste in a sanitary landfill (the truck passes), 59.27% bury it, 31.72% burn it and 7.18% leave it in the open.

74.46% do not have access to electricity, 25.54% do have access.

In general, people who do not have access to electricity use solar energy.

The municipality most affected by the armed conflict is Vista Hermosa, 79% of those surveyed in said municipality have been victims of the conflict, compared to 49% in Puerto Concordia, 48% in Puerto Rico and 31% in Puerto Lleras.

Displacement is the violent act experienced.

It is recorded that the greatest effects of Covid-19 have been economic and very few people have a family member who has contracted Covid-19.

In general, the state of health is good for all ages, except for the range that includes ages between 64 and 74 years, where the most common response recorded was "fair".

56% indicate that the main cause of deforestation is the need to plant pastures for livestock and 26% the lack of economic opportunities.

35% indicate that the main consequence of deforestation is the loss of rivers and streams, 26% damage to soil quality and 33% loss of biodiversity.

The main uses of wood indicated by the respondents are for fences, infrastructure and domestic use.

86% of those surveyed cook with firewood.

The species that cut down the most are cedar, myrtle and cumin.

The fauna species most affected are the lapa and the armadillo, local species.

Despite the fact that 81% of the treatment group considers that the socialization process was sufficient, 64% know what their obligations and benefits are, and only 43% know the governance bodies.

The relation to sustainable actions would like to participate in sustainable agricultural systems (33%), followed by sustainable livestock systems (31%) and land formalization (14%).

As a third option, transformation issues and added value to products appear.

4.1.2 Interactions between Communities and Community Groups (CM1.1)

The communities identified in the project area are mostly low middle-income peasant communities, small and medium landowners who derive their livelihood mainly from livestock and agriculture, with landholdings ranging from 1 to 100 hectares.

However, there are indications that in general there are no conflicts or significant commercial relations, except for some small landowners or owners of less than 10 hectares who offer their labor on the larger farms, especially in the palm oil companies. Data to determine the magnitude of this situation within the project should be collected in the field during implementation.

Relations within the community groups of small and medium landowners are channeled through their grassroots organizational structures, which are the community action boards; eventually the

communities participate in projects led by productive associations, but they remain part of the association for the duration of the project.

Large landowners rarely participate in the organizational dynamics of the villages, but they do participate in the processes if they are called upon by the municipal administration or participate through the administrators or owners of their farms.

In general terms, there are good relations between the communal action boards among themselves, and between these and the productive associations, since, in general, there are presidents of the communal action boards in the boards of the associations. However, at times there may be some rivalry between Asojuntas and productive associations, as they compete for resources and representation in relation to projects and resources.

In the framework of the REDD+ project, this rivalry is overcome by recognizing the strategic role of both organizations, because while the community action boards have a role of territorial representation and concrete community interest, the productive associations are the platform for channeling undertakings and seeking synergies aimed at consolidating value chains.

Relations with people who self-identify as ethnic minorities do not present any type of conflict or evident discrimination, nevertheless as presented on the Ongoing disputes, the relationship with the indigenous communities, next to the project, will be monitored and information will be available for them.

4.1.3 High Conservation Values (CM1.2)

To identify the HCV, the Generic guide for the High Conservation Values by the HCV Resources Network was applied

High Conservation Value	National Natural Park Sierra de la Macarena HVC 6 local: site of recognized and important historical or cultural value, even if it is not protected by any legislation
Qualifying Attribute	The Serranía de la Macarena is one of the oldest geological formations in Colombia. It was colonized in the mid-twentieth century by peasants displaced by violence, marking a milestone as it was the first amnesty process where economic support was given for the relocation to this region, from where the colonization of the region known as the Macarena Special Management Area spread. The Serranía de la Macarena is appreciated as one of the most outstanding wildlife refuges on the planet since it brings together ecosystems of the Andean, Orinoquia and Amazon regions, it provides water services to the municipalities of Puerto Rico and Vista Hermosa. The communities have created, with the help of the European Fund for Peace, a regional brand called "Serranía La Macarena. Territorio mágico" with which they seek to redefine the geographical and historical landmark in a region in search of peace and prosperity. Center of confluence of colonist and peasant interests in terms of conservation.

Focal Area	The areas adjacent to the National Park, which are part of the project, can be converted into a protection buffer. Vista Hermosa and Puerto Rico

High Conservation Value	HCV 5: Ariari River, river banks, wetlands and morichal forests
Qualifying Attribute	Water availability in the region for productive projects and the life of communities
Focal Area	Verify progress in the implementation of the POMCA to guarantee the ES for the communities, affects the 4 municipalities

High Conservation Value	HVC 6 local: site of recognized and important historical or cultural value, even if it is not protected by any legislation regional Natural Park Laguna San Vicente, Puerto Rico, Meta
Qualifying Attribute	Supply of environmental goods and services and nature tourism activities. Conserve areas with wildlife species, water, and that are unique or attractive scenic areas. Preserve habitats and populations for the survival of species of interest.
Focal Area	Ariari River, river banks, wetlands and morichales, conserving nearby forest areas included in the project.

High Conservation Value	HCV 6: site of recognized and important historical or cultural value, even if it is not protected by any legislation Caño Unión waterfalls in Vista Hermosa
Qualifying Attribute	Nature tourism activitiesThe waterfalls fall in a kind of labyrinth, due to the rock formations of its walls
Focal Area	Ariari River, river banks, wetlands and morichales, conserving nearby forest areas included in the project.

High Conservation Value	Soils
Qualifying Attribute	Soil quality is a determining factor for the production systems to be implemented.
Focal Area	Agroecological soil restoration and management

4.1.4 Without-Project Scenario: Community (CM1.3)

The project is expected to change the existing levels of poverty and inequality in the region, as described in 2.1.7. (2.1.6 of VCS PDD)

Without the project, soil productivity is expected to decline, generating more deforestation and making it increasingly difficult for the population to market their products. This will translate into

lower income and increased poverty. The communities in the workshops indicate that the greater the distance between roads, the higher the cost of marketing.

The reduction in income, together with the impact on strategic ecosystems, can generate a greater affectation of the population by diseases related to water quality.

Regarding the associativity, it was identified that the associations require training to be able to participate and increase their opportunities to access projects of diverse origin: international cooperation, national, regional and local government, private funds, etc.

Currently, most of them do not meet the requirements and are missing important opportunities. If they continue like this, they will probably disappear or have much less impact than expected.

4.2 Net Positive Community Impacts

4.2.1 Expected Community Impacts (CM2.1)

Community Group	Small landowners or holders (less than 10 hectares)
Impact(s)	*Positive cultural, educational, governance, social and economic welfare impact*
Type of Benefit/Cost/Risk	*Welfare benefits.land access and use.* *The project considers involving small landowners regardless of the amount of area contributed in order to ensure that benefits reach all partners*
Change in Well-being	*-Social appropriation of knowledge about the forest and biodiversity to control deforestation and degradation.* *Communities achieve long-term goals of their life plans thanks to the articulation of actions and resources.* *-Partners make decisions on the convenience of implementing productive projects.* *-Through the implementation of GAPA in productive projects, partners adopt new management practices that improve productivity, which contributes to improving family income, migration and quality of life.* *- Cultural and intergenerational change in the way of seeing and relating to nature and managing the goods and services it offers in an efficient manner.* *Installed capacities for community self-management.* *-More resilient communities in the face of climate change.* *-Claiming the right to land, peaceful environment.* *- Creation or increase of territorial governance capacity*

Community Group	Medium landowners or holders (51 to 100 hectares)
Impact(s)	*Positive cultural, educational, governance, social and economic welfare impact*

Type of Benefit/Cost/Risk	*Welfare benefits.land access and use.* *The project considers involving small landowners regardless of the amount of area contributed in order to ensure that benefits reach all partners.*
Change in Well-being	*Reduction of rural poverty and unsatisfied basic needs.* *Creation or increase of territorial governance capacity.* *This group achieves its goals related to its long-term life plans thanks to the articulation of actions and resources.* *-Partners make decisions on the convenience of implementing productive projects.* *-Through the implementation of GAPA in the productive projects, the partners adopt new management practices that improve productivity, which contributes to improving family income, migration and quality of life.- Cultural and intergenerational change in the way of seeing and relating to nature and managing the goods and services it offers efficiently.*

Community Group	Large Landowners and holders (more than 101 hectares)
Impact(s)	*Identify impact(s): Positive impacts on ecosystems and communities, as well as cultural, educational, governance, social and economic wellbeing*
Type of Benefit/Cost/Risk	*Activities will support the design of specific incentives aimed at reducing deforestation and promoting conservation activities on large tracts of land, taking into account the cost of productivity per hectare that is attractive to the partner.*
Change in Well-being	*- Partners make decisions on the convenience of implementing productive projects.* *-Through the implementation of GAPA in productive projects, partners adopt new management practices that improve productivity.* *- Cultural and intergenerational change in the way of seeing and relating to nature and managing the goods and services it offers in an efficient manner.*

Community Group	Vulnerable groups: women heads of household, elderly, children and adolescents, day laborers, victims of violence
Impact(s)	*Positive impacts. Vulnerable groups are often marginalized and their roles limited to certain activities and excluded from participation in activities and decision-making regarding family and community dynamics. It is expected that by joining the project, these groups will be called upon to have a voice and vote in the project*
Type of Benefit/Cost/Risk	*Vulnerable groups will have active and equal participation in the proposed project activities, thus emphasizing their relevance*

	and contribution to the project, vindicating their rights and strengthening their capacities and skills.
Change in Well-being	*Empowerment and strengthening of vulnerable groups within the family and community groups*

4.2.2 Negative Community Impact Mitigation (CM2.2)

The main negative impacts on the community are related to the livelihood of those communities and people, whose income derives from activities that are no longer allowed by this project, such as logging. These risks are expected to be mitigated by upgrading their existing activities by making investments, studies and training to increase yield and income and thus reduce the need to deforest to increase their income.

Some others, related to hunting or uncontrolled forest fires, will be mitigated by consolidating forest governance, adopting good production practices through training, and improvingknowledge and skills.

There are no project activities that threaten HCVs in the community.

4.2.3 Net Positive Community Well-Being (CM2.3, GL1.4)

Within the net positive welfare of the community, the following changes are expected to be achieved with the implementation of the activities:

- *For objective 1. Training and education for the improvement of individual, collective and organizational capacities of the project partners.*

The following results are expected:

1. Coordinating Committees have the necessary skills to manage projects, manage resources, formulate business plans and follow up on investments.
2. Project partners develop skills at the personal, family and business levels.
3. Project partners form communities of knowledge on forest governance, community organization and associativity, sustainable production and consumption.
4. Project partner families define short, medium and long term objectives and goals, and strategies to achieve them, in order to improve their quality of life and become more resilient to climate change.
5. Project partner families form a learning community to build and value knowledge.
6. Generate roots in the partners and communities on the implementation of good livestock, agricultural and environmental practices.
7. To increase the level of knowledge and sensitivity to the impacts generated by human activity on ecosystems.

- *For objective 2: Support the formalization of property ownership through ownership, titling and judicial processes.*

The following results are expected:

1. Appropriation and valuation as one's own of productive spaces and forests in formalized properties.

2. Consolidate the territorial governance of the project partners, and strengthen citizen awareness through knowledge management and learning to generate an intergenerational culture for the care and sustainable management of the forests.

- *For objective 3: Implement management actions to advance in the consolidation and adoption of sustainable production processes linked to the conservation and use of forests, improving traditional production systems.*

The following results are expected for objective 3:

1. Coordinating committees strengthened with planning instruments that support their operability.
2. Increased knowledge and social control of the forest and biodiversity on their land.
3. A more informed community with the capacity to influence project decisions.
4. Communities and other stakeholders are aware of the status of the project and communicate it assertively.
5. Complementarity of project actions
6. Project activities are in line with environmental determinants.
7. Sustainably managed farms
8. Capacities for forest harvesting as a long-term sustainable action.

- *For objective 4 seeks to promote an economy based on sustainable productive projects based on integrated rural development, contributing to the closing of the agricultural frontier and the improvement of forest goods and services.*

The expected results of Objective 4 are:

1. Creation of consensus on the needs for support to productive projects and the prioritization of these.
2. Productive activities and their financing included within the strategic plans.
3. Guarantee the participation of the partners in the definition of the productive projects: "The partners have a guide that allows them to implement good agricultural and environmental practices that guarantee the sustainability of the productive projects.
4. Decrease dependence on agrochemicals and rationalize their use.
5. The coordinating committees are aware of the members' agricultural activities and technical assistance needs.
6. The Coordinating Committees have a document that allows them to manage resources (human, technical and financial) for the targeting of technical assistance and agricultural extension activities.
7. The Coordinating Committees identify gaps in production systems and alternative solutions.
8. Technical assistance and agricultural extension activities contribute to the development of members' capacities and skills by strengthening aspects such as administration, management and process development, with a view to improving competitiveness and agricultural productivity.
9. To guarantee the variety of products in the farm of the partners that contributes to the decrease of the dependency to a single productive system.
10. Open the possibility of new business opportunities and sources of income, facilitating the creation of new products and services.
11. Increase in employment opportunities. Fair and equitable distribution of economic benefits.
12. Facilitate marketing and distribution channels and create alliances with direct buyers to reduce intermediation and increase profits for the partners. Transforming products with

added value and generating competitive advantages in the market with the development of production lines.

4.2.4 High Conservation Values Protected (CM2.4)

The present and future well-being of the community depends on the possibility of improving the current dynamics of soil use, because livelihoods based mainly on livestock and agriculture are based on cultural practices that lead to the progressive degradation of soils, which motivates increased deforestation to access new soils.

The project will provide technical assistance and the necessary technological packages to

improve productivity and thus prevent families from having to deforest in order to access new land for cultivation. This will ensure livelihoods for the community.

All project activities will respect national, regional and municipal environmental determinants and land use and management guidelines, so that protected areas and other areas with high conservation values for the local communities will be better preserved indirectly, thanks to the economic alternatives that the project will generate for the communities. Also, as many of the project areas are located in the buffer zones of, for instance national and regional parks.

Regarding the presence of sacred, cultural and archaeological sites, most people agree that there is no presence of these sites. However, the members of the community consider the Serranìa de la Macarena, rivers and spas as spaces of cultural importance and the lagoons as places of special interest that should be consolidated as reserves for the region due to the presence of flora and fauna.

It is important to clarify that there is no presence of indigenous groups or Afro-descendants. The population is mostly settlers who came from different areas of the country to look for a job opportunity and productive land for their usufruct.

4.3 Other Stakeholder Impacts

4.3.1 Impacts on Other Stakeholders (CM3.1)

- Positive

  Mayors' offices, the governor's office and environmental authorities benefit because the project contributes to the fulfillment of their jurisprudential mandates and institutional goals to reduce deforestation.

  Rural development and post-conflict agencies can benefit by strengthening the communities' productive projects for alternative rural development.

  All the region will be beneficiated by the conservation of buffer areas around water supplies as well as interconnectivity on other ecosystem services.

- Negatives

  Collection center, by increasing productivity and promoting value chains, would affect current intermediaries in product marketing.

  Potential conflicts between sawmillers and communities committed to conservation.

The relationship between the community and the environmental authorities could be weakened by the empowerment of the community in the governance of their forests.

Indigenous communities might be affected by not been allowed to hunt or cut trees on the lands of the partners of the project.

4.3.2 Mitigation of Negative Impacts on Other Stakeholders (CM3.2)

Intermediaries in the commercialization of products: transporters and traders: promote fairer conditions among stakeholders to involve the same intermediaries in some links of the chain, promote strategic alliances between partner organizations.

Sawmillers: promote social dialogue to prevent conflicts within the communities, environmental education for sawmillers and green employment alternatives within the framework of the partners' productive projects.

Environmental authorities: continue dialogue from the project to the authorities will identify and potentialized synergetic processes that benefit both, diminishing possible conflicts.

Even though the indigenous community located near the project area has shown no interest on participate on informational meetings, communication channels will continue to be pursued and campaigns on not hunting inside private property will be implemented. Nevertheless, ethnical rights must be respected and fulfilled according to Law 21 1993.

4.3.3 Net Impacts on Other Stakeholders (CM3.3)

The project will provide opportunities for these stakeholders to have access to business participation alternatives under new conditions that guarantee win-win conditions for all interested parties.

It is planned to characterize these other stakeholders during the first years of the project to determine in each case the alternatives for participation and negotiation.

4.4 Community Impact Monitoring

4.4.1 Community Monitoring Plan (CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

The monitoring plan was designed to comply with the requirements given by the CCB standard in its Community component. The impact of the indicators defined for this monitoring plan are directly related to the secondary objectives of the project and the results of these will have a direct relationship with the main objective, reduction of deforestation in the project area.

The monitoring is divided into two types, based on the type of data collected, the periodicity and frequency of data collection:

- ODS Survey: to be conducted every 3 years, it seeks to make a direct collection of information, starting with a baseline, which will allow to determine the changes in the welfare of the communities part of the project, such as those located in the leakage belt.
- Oversight and Coordinating Committee Report: This report will be annual and will include the effectiveness of the measures implemented, the impacts generated, the status of compliance with safeguards, conflict resolution, etc.

The plan also addresses the monitoring of areas of high cultural and social economic conservation value.

The plan also defines the manner in which the results will be disseminated and how the results will be made public, in accordance with agreements with the community and security and privacy issues.

Please consult the Monitoring Plan document on the Annex 4.4.1

4.4.2 Monitoring Plan Dissemination (CM4.3)

1. The community monitoring plan contemplates different sources of information and means of verification, a frequency of measurement and reporting, and finally a responsible for achieving and reporting the results.
2. Monitoring of project outcomes and impacts (theory of change indicators and SDG survey).
3. Monitoring of compliance with environmental and social safeguards in all project activities, including gender, generation and minorities
4. The channels described on the general section will be used for the dissemination of results.

4.5 Optional Criterion: Exceptional Community Benefits

The project will not look for exceptional community benefits for the moment, nevertheless, some items have been included as the project objectives lined up with those.

4.5.1 Exceptional Community Criteria (GL2.1)

4.5.2 Short-term and Long-term Community Benefits (GL2.2)

4.5.3 Community Participation Risks (GL2.3)

Considering the context in which the project is developed, some participation risks have been identified with the partner organizations:

1. A low capacity for participation and incidence of the owners/landowners who contribute less forest.

2. Influence of large landowners and absentee landowners in decision-making instances to the detriment of the interests of the majority and the most vulnerable.

3. Concentration of power in traditional leaders due to the lack of new leadership.

4. Corruption and diversion of resources.

5. Stigmatization and targeting of leaders by illegal groups.

In order to guarantee access to information and participation of all members of the partner community, especially small landowners, the project contemplates a governance scheme, a communication strategy and a mechanism to address complaints and claims.

At the beginning of implementation, governance mechanisms will be formalized to ensure the flow of information, social control and the effective participation of all project partners, especially the most vulnerable groups.

In addition, new leadership will be strengthened to promote the rotation of leaders and the oversight committees will be strengthened so that they can effectively exercise social control over the project and monitor compliance with safeguards.

The information referred to the governance structure contained in the EstructuraGobernanzaProyectoREDD+SdM_V2 annex to the document.

4.5.4 Marginalized and/or Vulnerable Community Groups (GL2.4)

Community Group 1	Women heads of household
Net positive impacts	Positive impacts, such as training and inclusion in project activities. Improved living conditions and income. Gender equity.
Benefit access	The project will seek the involvement of women heads of household in training and activities related to production lines, governance and land formalization. It will seek spaces and guarantee access to benefits with voice and vote for the empowerment of this group
Negative impacts	No negative impacts on this community group are expected, however, access to information, training and empowerment of women in the chauvinistic context of the territory may generate opposition from couples and families, which is why the project activities are expected to be addressed within the family nucleus.

4.5.5 Net Impacts on Women (GL2.5)

The project adopts a gender approach that will be reflected in the direct benefits to women, and will particularly focus on achieving the following indicators:

1. In tenure formalization processes, it is expected that at least 50% of the titles supported by the project will be in the name of women.
2. At least 20% of the composition of the coordinating committees should be made up of women during the first 4 years of the project.
3. By the fifth year, at least 40% of the participants in the coordinating committees shall be women.
4. At least 40% of participants in training processes are women

4.5.6 Benefit Sharing Mechanisms (GL2.6)

It was determined that the distribution will be generated by effort, i.e. by reduction of verified emissions in each municipality. Subsequently, this analysis will be made and the benefits will be generated by reduction of verified emissions in each geographical area corresponding to the Veredal Nuclei.

For the first verification, each adherent member will be assigned sustainable productive actions, according to their choice and the strategic planning of the committees, by coefficient, relating the amount of hectares committed.

From the second verification onwards, it will be done at the three levels (municipality, rural nucleus, adherent partner) by effort, i.e. by emission reductions generated and verified.

Further information in Annex 4.5.6_CO_DistribucióndeBeneficiosSdM_V2.

4.5.7 Benefits, Costs, and Risks Communication (GL2.7)

Section 2.3.2 describes the channel that will be used. Section 2.3.3 describes the informational meetings, were these topics were addressed. Contracts contain information regarding benefits and costs, and risks (considered under major event).

Please refer also to 2.3.4 Community costs, risks and benefits and Annex 2.3.4 Community cost, risk and benefits.

4.5.8 Governance and Implementation Structures (GL2.8)

Information on this is explained under section 2.4.1

4.5.9 Smallholders/Community Members Capacity Development (GL2.9)

Through the training and capacity building program aimed at both leaders and those directly responsible for implementation, as well as all partners for training in best practices and the farmer-to-farmer training methodology.

As mentioned in the previous chapter on theory of change, a training and leadership program will be developed for project partners in the four municipalities. It is expected that the project partners will develop personal, family and business competencies and will form communities of knowledge on forest governance, community organization and associativity, sustainable production and consumption within the productive lines so that they can formulate, implement and manage projects making an efficient administration of available resources to make investments to curb deforestation

5 BIODIVERSITY

5.1 Without-Project Biodiversity Scenario

5.1.1 Existing Conditions (B1.1)

The methodology used to generate the baseline and, in turn, estimate the changes in biodiversity is based on the identification of potential species in the project area. Potential species are defined by searching certified databases for this purpose in the country and reviewing scientific literature. Based on this information, lists of species that have been reported in ecosystems, forests, semi-natural areas or other types of cover similar to those found within the project area are generated.

To establish the current state of biodiversity in the project area, three taxonomic groups have been considered that have abundant information in the country. Specifically, four classes mammalia, reptilia, amphibia and birds. It should be noted that these taxonomic groups are widely used in the baseline characterization for environmental studies in Colombia, mainly those that include the perspective of environmental impact assessment (MADS, 2018).

In Colombia, the main sources of information that are also associated with cartographic products areSistema de información sobre biodiversidad en Colombia. Disponible en: https://sibcolombia.net/

- Online scientific collections (Not always available for download) from Instituto de Ciencias Naturales – ICN de la Universidad Nacional de Colombia Available on: http://www.biovirtual.unal.edu.co/es/colecciones/

- Online Databases from investigación de Recursos Biológicos Alexander von Humboldt. Disponible en: http://catalogo.humboldt.org.co/pages.pl?p=bases

In particular, for the bird group, databases were reviewed in the eBird of the Cornell Lab Ornithology project (available on: https://ebird.org/home). Also, were used printed books like: “The field guide to the of Birds of Colombia" (Mc Mullan and Donegan, 2014), "A Guide to the Birds of Colombia" (Hilty and Brown, 2001), the "Guía Ilustrada de la avifauna colombiana" (Ayerbe-Quiñones, 2018), the "Guía de las especies migratorias de la Biodiversidad Colombiana" (Naranjo et al., 2012) and the "Updated list of endemic and near-endemic birds of Colombia" (Chaparro-Herrera et al., 2013) (SEE ANNEX_BIO/ BIBLIOGRAPHY AND REFERENCES)

For the characterization of the mammal group, sources were consulted such as the lists on species and classification given by: Eisenberg, 1989, Emmons, 1997, Muñoz, 2001, (Gardner, 2008), (Mantilla, 2009), (Defler, 2010), (Solari et al., 2013), (Ramírez-Chaves et al., 2016), and (Díaz et al., 2016), likewise, the checklist of Mammals of Colombia of the Colombian Society of Mammalogy (Ramírez-Chaves et al., 2019), published in the Colombian Biodiversity Information System - SIB and the contents of Solari et al., 2013 were consulted. (SEE ANNEX_BIO. In addition to e-books or PDF documents, inside compressed file there is a document in the Darwin Core -**DwC-A** -format)

The potential herpetofauna for the municipalities to be studied was consulted from previous research and work, scientific literature and environmental impact studies conducted in the area, as well as official virtual catalogs above mentioned (ICN, 2020; IAvH-R, 2020), databases and scientific collections,

As a result of this database review, a general result was obtained for the municipalities of Puerto Concordia, Puerto Rico, Vista Hermosa and Puerto Lleras, with the highest representation of species in the group of birds, followed by mammals, reptiles and finally amphibians, with the highest representation of number of potential species in the municipality of Puerto Lleras.

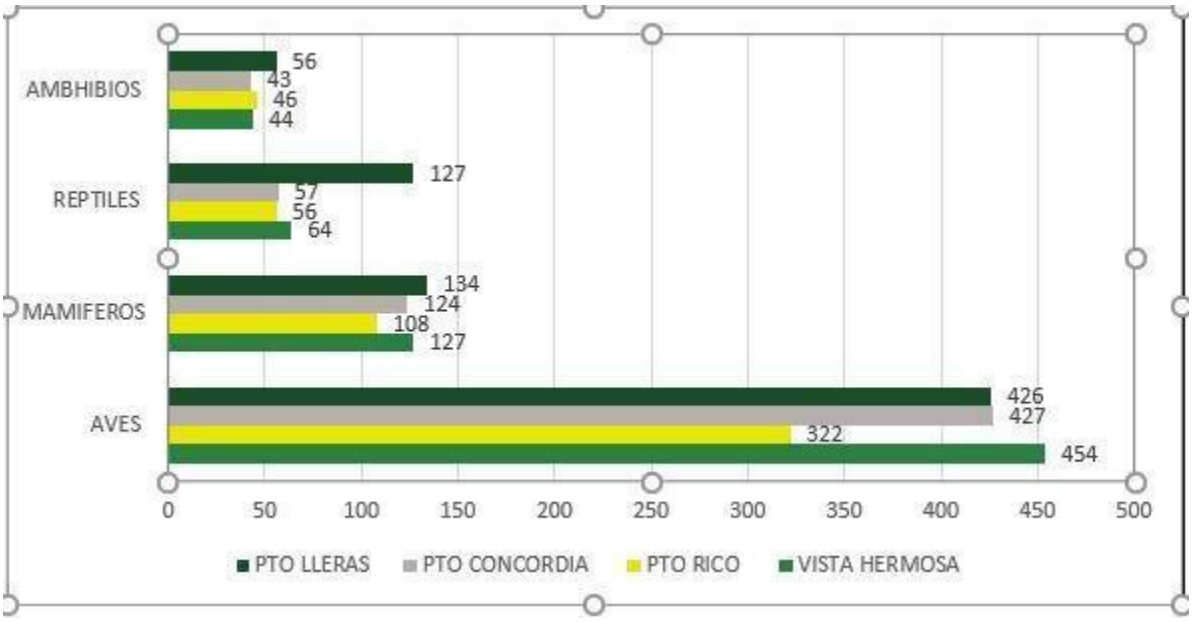


Figure 28. Number of potential species per fauna group in the monitoring municipalities

The municipality of Puerto Lleras had the highest number of species reported, with a total of 743 species for all groups of fauna (birds, mammals, reptiles and amphibians), followed by Vista

Hermosa with a total of 689 potential species, Puerto Concordia with a total of 651 and finally Puerto Rico with 532 potential species.

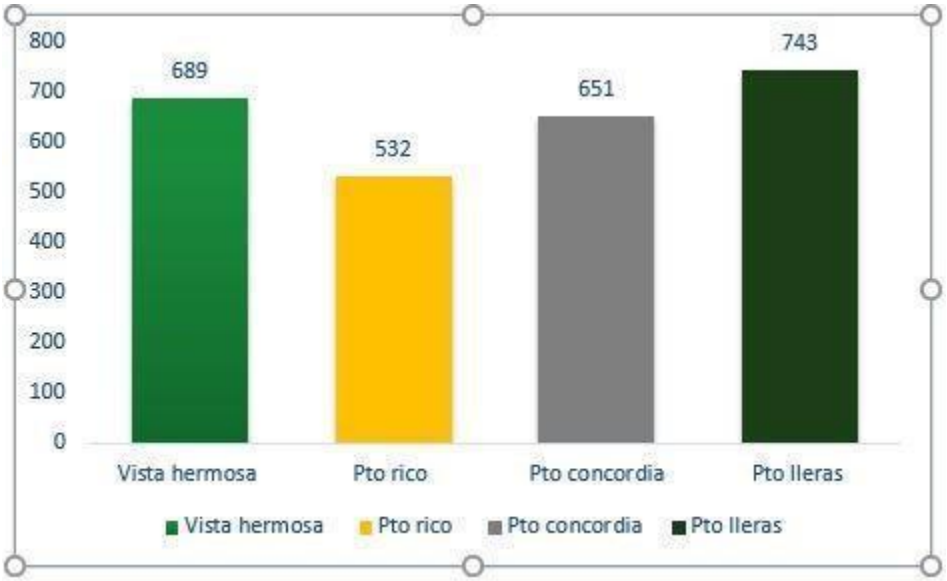


Figure 29. Total of potential species per municipality

The analysis of forest species diversity was obtained from 168 plots (50 x 50m equivalent to 0.25 ha) described in Section 3.2.1 Baseline Emissions. The total number of species was 307. The municipality of Vista Hermosa was the one in which the greatest number of species and abundances was identified (SEE ANNEX_BIO/ Forest species and richness_ Project area).

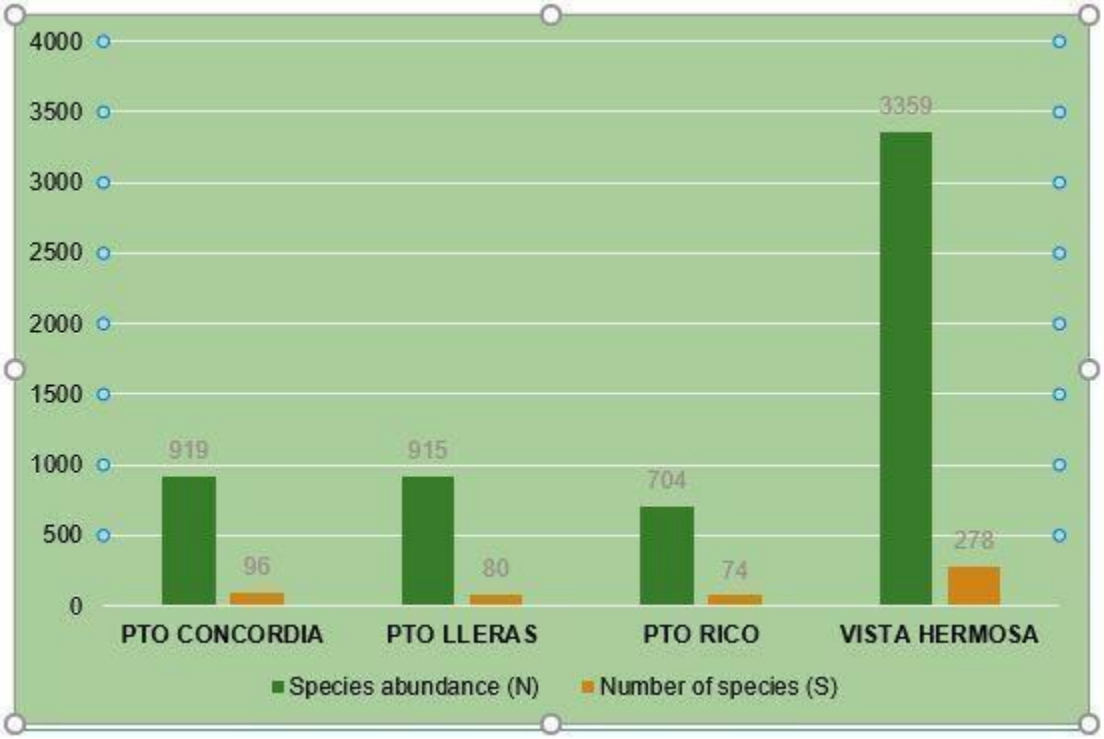


Figure 30. Abundance of forest species from the sampling

Simpson's Index shows the probability that two individuals taken at random from a sample are of the same species; while Shannon's index expresses the uniformity of importance values across all species in the sample, thus measuring dominance. However, Simpson's Index is strongly influenced by the importance of the most dominant species, this index varies between 0 and 1, when diversity is low it tends to 1.

The values for the Simpsons index are similar compared to the samples taken in each municipality. However, Vista Hermosa and Puerto Concordia have a higher Shannon index, which is related to the greater number of species.

Table 25. Summary of variables for analysis of forest species in project areas

ATTRIBUTE	MUNICIPALITIES			
	PTO CONCORDIA	PTO LLERAS	PTO RICO	VISTA HERMOSA
Species abundance (N)	919	915	704	3359
Number of species (S)	96	80	74	278
DBH average (m)	0.192	0.183	0.19	0.19
Height average (m)	13.43	12.63	13.02	13.02
Species richness	13.92	11.59	11.13	34.12
Alpha diversity (Shannon)	1.68	1.46	1.49	1.99
Simpson dominance	0.03	0.06	0.05	0.02
Simpson diversity	0.97	0.94	0.95	0.98
Beta diversity	0.24			

Source: Allcot, 2021

The available databases for estimating the average carbon content in the biomass pool only use denomination down to genus level and, if possible, down to species level. For this reason, we searched for the most probable species of trees in the region that are related to the genus (**Table** 23).

Table 26. Forest species categorized as Endangered (EN) or Critically Endangered (CR)

FAMILY	SPECIE	COMMON NAME	EVALUATED SPECIE	UICN
APOCYNACEAE	*Lacmellea sp*	Cerillo	*Lacmellea bahiensis*	EN
BURSERACEAE	*Dacryodes sp*	Caraño	*Dacryodes colombiana*	EN
BURSERACEAE	*Tetragastris sp*	Cariaño	*Tetragastris catuaba*	EN
CLUSIACEAE	*Chrysochlamys sp*	Jorco	Chrysochlamys pavonii	CR
EBENACEAE	*Diospyros sp*	Nanciguiste	*Diospyros esmereg*	EN
LAMIACEAE	*Aegiphila sp*	Manú blanco	*Aegiphila lopez-palacii*	EN
LAURACEAE	*Aiouea sp*	Aguacate Mico	*Aiouea benthamiana*	EN
LAURACEAE	*Caryodaphnopsis sp*	Cocobola	*Caryodaphnopsis parviflora*	EN
LAURACEAE	*Ocotea sp*	Laurel/Arenillo/Laurel Perro	*Ocotea pachypoda*	CR

FAMILY	SPECIE	COMMON NAME	EVALUATED SPECIE	UICN
LAURACEAE	*Rhodostemonodaphne sp*	Laurel	*Rhodostemonodaphne velutina*	CR
LECYTHIDACEAE	*Eschweilera cabrerana*	Cabo de hacha	*Eschweilera cabrerana*	EN
LECYTHIDACEAE	*Eschweilera sp*	Arenillo/Cargadero	*Eschweilera compressa*	CR
LEGUMINOSAE	*Brownea sp*	Palo Cruz	*Brownea santanderensis*	EN
LEGUMINOSAE	*Dialium sp*	Tres tablas	*Dialium rondoniense*	EN
LEGUMINOSAE	*Machaerium sp*	Nacedero	Machaerium cultratum	CR
LEGUMINOSAE	*Mimosa sp*	Dormidero	*Mimosa loxensis*	EN
MAGNOLIACEAE	*Magnolia sp*	Alma negra	*Magnolia cespedesii*	CR
MALPIGHIACEAE	*Byrsonima sp*	Nance	*Byrsonima frondosa*	EN
MALVACEAE	*Herrania sp*	Cacaotillo	*Herrania umbratica*	CR
MORACEAE	*Perebea sp*	Leche Chiva	Perebea glabrifolia	CR
PRIMULACEAE	*Clavija sp*	Durazno de Monte	*Clavija cauliflora*	EN
VOCHYSIACEAE	*Erisma sp*	Guayabeto	*Erisma fuscum*	EN

Source: Allcot, 2021

5.1.2 High Conservation Values (B1.2)

High Conservation Value	*Species (HCV) of Mammals in the municipalities of Puerto lleras, Puerto Concordia, Puerto Rico and Vista Hermosa*
Qualifying Attribute	According to Brown et al (2013) (SEE ANNEX_BIO/ BIBLIOGRAPHY AND REFERENCES) a category to define HCV is HCV 1: Species Diversity. It is defined as: "Concentration of biological diversity including endemic species, and rare, threatened or endangered (**RTE**) species that are significant at global, regional or national levels" (Brown et al, 2013. Pag. 25). Threatened and endangered species can include species classified by IUCN as Vulnerable (VU), Endangered (EN) and Critically Endangered (CR) at a global or regional level, or whose trade is regulated under international agreements (e.g. CITES), as well as nationally protected species. IUCN Red Listing remains incomplete and many RTE species have not yet been assessed by the IUCN Species Survival Commission. In some countries, especially those lacking national IUCN red lists or nationally protected species lists, expert consultation is needed to learn if any such species might be present (Brown et al, 2013. Pag. 26). **1.1 According to the databases consulted by SIB Colombia and the Instituto de Investigación de Recursos Biológicos of the 134 potential mammal species for the four municipalities of interest, about 25% (34 species) are in threatened**

categories according to the International Union for Conservation of Nature (IUCN 2010) and the specific Red List for Colombia.

Within the families with the highest number of species in the threat categories, the most representative are found in the Felidae family represented by the feline group with five (5) species, followed by the Mustelidae family (also called weasels) with four (4) species.

The diversity of mammals produces a range of processes such as: herbivory, predation and decomposition. These processes influence other elements of biodiversity. For this reason, it is important to recognize the conservation value of these species, paying particular attention to those endemic species with reduced habitats and in a state of threat (Kerley et al.2003).

Another endangered large mammal species is *Tapirus terrestris* (Danta). This species has been classified as vulnerable in IUCN red lists (2019-3), however Resolución 1912/2017 (Ministerio de Ambiente y Desarrollo Sostenible – **MADS**, environmental regulation) has categorized this species as Critically Endangered. The causes of population reduction are mainly habitat loss.

According to the National Program for the conservation of the Tapirus genus in Colombia, this species, which has the characteristic of having long-lived individuals, low rates of increase and long periods between generations, are more vulnerable to extinction than those with shorter life cycles, high rates of increase and short time between generations. This implies that this species cannot easily recover from a continuous extraction of its individuals. Under these conditions, these species are more susceptible to overhunting, since even with moderate hunting pressures, populations tend to decline rapidly (MAVDT, 2005).

Among the main factors that threaten the survival of *Tapirus terrestris* in Colombia are: loss and/or deterioration of habitat, hunting, competition with introduced species such as cattle, the public order situation and infrastructure development (MAVDT, 2005).

The loss of vegetation cover and the absence of natural prey can mean a reduction in the populations of these animals. Despite being highly adaptable without natural prey, they are more likely to attack domestic animals and therefore more susceptible to being hunted. Hunting of these animals is frequent in the area, much more so than the other species. Under different conservation figures, mammal species are often considered as "focal", whose habitat needs and ecosystem function ensure the persistence of other species (Lambeck 1997).

The threats identified within the municipalities of interest were river contamination (e.g. due to agrochemicals, mercury used in mining), mining, large-scale monocultures (e.g. oil palm plantations), deforestation and expansion of the agricultural frontier.

In addition, the effect of fire on forest composition and the interruption of biological corridors has been considered. (Armenteras et al. 2009). Although the communities have for many decades engaged in controlled fires to adapt the natural savannahs for livestock or agriculture, the use of indiscriminate burning has had a significant negative impact on the natural forests, and in turn on the fauna that inhabits them.

The following are the mammalian species considered as HCV. Following the recommendations of Brown et al (2013), the endangered (**EN**) or critically endangered

(**CR**) categories of the IUCN red list were considered. Additionally, this selection was complemented with the environmental regulations on endangered species in Colombia (Resolution 1912 of 2017, MADS).

Table 24 Mammal species categorized as Endangered (EN) or Critically Endangered (CR)

FAMILY	SPECIE	COMMON NAME	CATEGORY		
			UICN (2019-3)	Res 1912 de 2017	CITES (Vigor 26 nov/2019)
Mustelidae	*Pteronura brasiliensis*	Nutria de Agua	EN	EN	I
Tapiridae	*Tapirus terrestris*	Tapir, Danta	VU	CR	II

In addition, there is also evidence of the presence of four (4) species of high ecosystem value in the project areas, although they are not classified in categories of high risk of extinction, but due to the impact on their populations and if there are no effective actions for their conservation, they will most likely change their classification in the coming years. In particular, medium and big cats, a species of otter and the reported sighting of a harpy eagle, the following are the species of conservation concern (**Table 25**).

Table 25 Species of mammals with high ecosystem value in the project area

FAMILY	SPECIE	COMMON NAME	CATEGORIA AMENAZA		
			UICN (2019-3)	Res 1912 de 2017	CITES (Vigor 26 nov/2019)
Mustelidae	*Lontra longicaudis*	Nutria	NT	VU	I
Felidae	*Panthera onca*	Jaguar	NT	VU	I
	Leopardus wiedii	Tigrillo, Canaguaro	NT	VU	II
	Leopardus pardalis	Canaguaro	LC	N/A	I

Focal Area	*The forests that are part of the project are habitats of the species that have been selected as HVCs. During the life of the project, more detailed information on the use of these forests by these species should be collected.* *In the case of Tapirus terrestris (Danta), the project areas will conserve the species habitat, reduce or totally avoid hunting for meat and capture of females in the reproductive stage.*

High Conservation Value	*Endangered forest species identified in the municipalities of Puerto Lleras, Puerto Concordia, Puerto Rico and Vista hermosa*
Qualifying Attribute	According to Brown et al (2013) (SEE ANNEX_BIO/ BIBLIOGRAPHY AND REFERENCES) a category to define HCV is HCV 1: Species Diversity. It is defined as: "Concentration of biological diversity including endemic species, and rare, threatened or endangered (**RTE**) species that are significant at global, regional or national levels" (Brown et al, 2013. Pag. 25). Threatened and endangered species can include species classified by IUCN as Vulnerable (VU), Endangered (EN) and Critically Endangered (CR) at a global or regional level, or whose trade is regulated under international agreements (e.g. CITES), as well as nationally protected species. IUCN Red Listing remains incomplete and many RTE species have not yet been assessed by the IUCN Species Survival Commission. In some countries, especially those lacking national IUCN red lists or nationally protected species lists, expert consultation is needed to learn if any such species might be present (Brown et al, 2013. Pag. 26). In the project areas, forest species categorized in the most threatened categories have been identified (**Table 26**) This means that by avoiding deforestation in these areas, the conservation of these species is largely assured. *Table 26 Forest species categorized as Endangered (EN) or Critically Endangered (CR)*

EVALUATED SPECIE	COMMON NAME	UICN
Lacmellea bahiensis	Cerillo	EN
Dacryodes colombiana	Caraño	EN
Tetragastris catuaba	Cariaño	EN
Chrysochlamys pavonii	Jorco	CR
Diospyros esmereg	Nanciguiste	EN
Aegiphila lopez-palacii	Manú blanco	EN
Aiouea benthamiana	Aguacate Mico	EN
Caryodaphnopsis parviflora	Cocobola	EN
Ocotea pachypoda	Laurel/Arenillo/Laurel Perro	CR
Rhodostemonodaphne velutina	Laurel	CR
Eschweilera compressa	Arenillo/Cargadero	CR
Brownea santanderensis	Palo Cruz	EN
Dialium rondoniense	Tres tablas	EN
Machaerium cultratum	Nacedero	CR
Mimosa loxensis	Dormidero	EN
Magnolia cespedesii	Alma negra	CR
Byrsonima frondosa	Nance	EN

		Herrania umbratica	Cacaotillo	CR
		Perebea glabrifolia	Leche Chiva	CR
		Clavija cauliflora	Durazno de Monte	EN
		Erisma fuscum	Guayabeto	EN
Focal Area	Based on the sampling carried out in the project areas, it is quite likely to find the forest species categorized as threatened. During the life of the project, more detailed information on these species should be collected. First of all, a more precise taxonomic identification. Secondly, to carry out studies on the use of these species by the communities. Finally, consider population and phenological studies and propagation strategies for these specie			

High Conservation Value	*Wetlands (lakes and flooded areas) identified in the project areas from municipalities of Puerto Lleras, Puerto Concordia, Puerto Rico and Vista Hermosa*
Qualifying Attribute	According to Brown et al (2013) (SEE ANNEX_BIO/ BIBLIOGRAPHY AND REFERENCES) a category to define HCV is HCV 3: Rare, threatened, or endangered ecosystems, habitats or refugia (Brown et al, 2013. Pag. 34). HCV 3 includes ecosystems, habitats or refugia of special importance because of their rarity or the level of threat that they face or their rare or unique species composition or other characteristics. To define rare ecosystems, one must consider the presence of similar ecosystems in the same biogeographic region and/or country. The size, age, structure and species composition of an ecosystem may also be important criteria. For example, an ecosystem that is common in one area or country may be scarce and fragmented (rare and threatened) in another country (Brown et al, 2013. Pag. 34). Based on the analysis carried out in the POMCA (in English could be defined as watershed management plans) of the Middle and Lower Ariari River, on strategic areas and ecosystems (CORMACARENA, 2016), the variety of these types of ecosystems is highlighted, receiving names such as lagoons, “Madreviejas”, “Caños”, “Acequias”, swamps, “Morichales”, marshes, and beaches, among others. It should be noted that this type of ecosystems and unique habitats were identified within the project area. These habitats are regionally known as Morichales. The "Morichales" are a hydrobiological-ecological system consisting of populations of the palm species called *Maurita Flexuosa* (Moriche), due to its structural complexity, provide a wide range of habitats and microclimates and, in this sense, support branched and complex trophic chains, both terrestrial and aquatic (Lasso, Rial, & González-B, 2013). The physicochemical characteristics of their waters and the particularity of their ichthyofauna make them what has been called "ichthyogeographic islands"; therefore, their disappearance will deprive us of three irreplaceable functions for man: water reserves, biodiversity conservation corridors and carbon sinks (Lasso, Rial, & González-B, 2013).

	Additionally, as part of the carbon storage estimations, sampling was carried out in Morichales, in the municipalities of Puerto Lleras and Puerto Rico. In particular, three (3) plots were established, with an area of 0.1 ha each. • Two plots for the municipality of Puerto Lleras, Vereda El Santuario. The most dominant species is Maurita Flexuosa (Moriche), other tree species found are: Hieronyma alchorneoides (Pantano), Inga sp (Guamo de monte), Ficus sp (Caucho), Nectandra sp (Laurel), Protium sp (Anime, Vara Blanca, Cariaño), Alchornea sp (Palo de agua, Mora Blanca, Corcho)., Miconia sp (Tuno Blanco), Euterpe sp (Asai), and Schefflera sp (Tortolito) • One plot for the municipality of Puerto Rico, Vereda La Sultana. The most dominant species are Euterpe precatoria (Asai) y Maurita Flexuosa (Moriche). Forest species found were Hirtella sp, (Escobilla), Protium sp (Anime, Vara Blanca, Cariaño), Crepidospermum sp (Gallino), Pera sp (Arenillo, Negrito) and Xylopia sp (Yarumo).
Focal Area	Morichales are habitats or refugia of special importance because of their rarity or the level of threat that they face or their rare or unique species composition or other characteristics. Within the project areas are identified Morichales, these were mapped and plots were made as part of the estimation of carbon sequestration. Specifically in the municipality of Puerto Lleras, El Santuario, Agua Linda and Candilejas. In the municipality of Puerto Rico, Veredas La Sultana, Barranco Colorado, Caño Raya, Caños Negros, El Darién, La Primavera and La Unión.

5.1.3 Without-project Scenario: Biodiversity (B1.3)

To evaluate the potential impact on biodiversity in the without-project scenario, the main drivers of biodiversity loss were considered. These drivers of loss were obtained using the biodiversity report prepared by the Alexander von Humboltd Biological Resources Research Institute, the guidelines of the Ministry of Environment and Sustainable Development and the results of the monitoring of deforestation in Colombia (IDEAM, 2020). In particular, direct drivers are identified, such as: logging, poor extensive cattle ranching practices, illegal mineral extraction, unplanned transportation infrastructure, agricultural expansion in unpermitted areas, and illegal logging. In addition, the workshops with the communities verified the occurrence of these drivers of loss and identified their causes.

In the project area there is evidence of habitat loss and degradation, especially those represented in forests and semi-natural areas. One of the main reasons for this impact on biodiversity is the change in land use from forest cover to agricultural and/or livestock use.

In this regard, Morrison and collaborators (2011), highlighted that habitat loss induced by human activities has been considered as the main threat to 85% of all species classified as threatened in the red list of the International Union for Conservation of Nature - IUCN (IUCN, 2015). Therefore, if the main objective is to prevent the extinction of species, the most important strategy is to prevent them from being at risk of extinction, since once the species are threatened, without taking timely actions for their conservation, the situation will become increasingly critical and irreversible.

In this sense, the continued loss of habitat caused by increased deforestation in the without-project scenario will affect the populations of identified potential wildlife species, many of which are listed

at different levels of extinction threat by the IUCN and reported by government authorities and research centers in Colombia.

Additionally, deforestation increases habitat fragmentation processes, worsening habitat connectivity. In this context, in degraded and fragmented habitats, plant species have little chance of persisting and finding the climatic conditions required for their development (Ash, Givnish, & Waller, 2017).

The wildlife study conducted during the diagnostic phase of the POMCA of the Middle and Lower Ariari River, exposes two causes of the affectation to bird populations in the municipalities where the Project is circumscribed. The first cause, specifically related to species categorized as threatened, is trade and illegal trafficking, for example, species that are used as pets such as the Alcaraván and most Psittaciformes are reported The second cause, is hunting, the case of Agamia agami, Mitu tomentosum and Odontophorus gujanensis is reported (CORMACARENA, 2016).

(*Burhinus bistriatus*) and most Psittaciformes are reported. The second cause is hunting, the case of *Agamia agami* (Garza agami), *Mitu tomentosum* (Paujil) and *Odontophorus gujanensis* (Cordornis) is reported (CORMACARENA, 2016).

Among the mammals, species used as food were found, including: *Dasypus novemcinctus* (Armadillo), *Cunilus paca* (Lapa) and *Dasyprocta punctata* (Guatin). Other species are hunted because they compete for resources with the communities, for example, *Cerdocyon thous* (Zorro) and *Didelphis marsupialis* (Zarigueya) (CORMACARENA, 2016).

Many of species mentioned are sensitive to habitat destruction and deforestation, which means that they do not adapt well to disturbed habitats and are easy prey for natural predators and hunting. This species needs well-preserved habitats that provide refuge from predators and watercourses (Rodríguez-Mahecha et al., 2006).

The terecay turtle (*Podocnemis unifilis*) has been the object of commercial exploitation and massive consumption of eggs and adults, the constant plundering of nests, the illegal commercialization of turtles as pets, has generated that today it is the second most important food source according to reports by: Medem 1969, Paez and Bock 1997, Ojasti and Dallmeier 2000, MMA 2002. In the seizure statistics, *Podocnemis unifilis* is the second species at the national level and the first for its distribution region. According to the databases of the regional autonomous corporations, between 2006 and 2011, 3,850 seizure records were obtained. In order of importance, the most recorded seizures were concentrated in eggs, individuals and shells (Morales-Betancourt et al. 2012).

Illegal trade and trafficking or hunting of wildlife species in the non-project scenario can lead to population declines and even local extinction of species of ecosystem interest. Forest conservation projects and the economic incentives that can be derived from them can focus on raising awareness about the importance of these species and prevent these practices from continuing to be carried out in contravention of regulations or in an unsustainable manner and, above all, perpetuating themselves culturally.

It should be pointed out that Colombian legislation protects wildlife species from trafficking, in Decree 1076 of 2015 (MADS), article 2.2.2.1.2.2.1.6 "the wildlife found in the national territory belongs to the nation, except for the species of zoo farms and privately owned hunting preserves" in that sense its administration and care also corresponds to the State entities.

5.2 Net Positive Biodiversity Impacts

5.2.1 Expected Biodiversity Changes (B2.1)

Biodiversity Element	As recommended by Brown et al (2013), HCV 1 "Species Diversity" category was considered. Therefore, habitats in which species categorized as at risk of extinction (EN and CR) have been identified will be conserved. In addition, indirect positive impacts will be related to the conservation of species likely to be found within the project areas such as: Priodontes maximus (Armadillo), Pteronura brasiliensis (Nutria de Agua), and Tapirus terrestris (Danta), Additionally, species of high ecosystemic value but classified at high risk of extinction will be conserved, such as: Lontra longicaudis (Nutria), Panthera onca (Jaguar), Leopardus wiedii (Tigrillo), and Leopardus pardalis (Canaguaro).
Estimated Change	An expected change is to avoid the loss of individuals of these species. By avoiding the deforestation and degradation evident in the Without Project scenario manifested in sustained annual losses of cover, it is considered that positive effects will be generated for the populations of threatened wildlife. As detailed in section 5.1.3, there is evidence of hunting related to some of the HVC species A direct and immediate benefit is the agreement not to hunt, mainly within the project area. The project aims to generate environmental education campaigns regarding the damage caused by hunting on the populations of these species. For example, the serious effects of hunting on species such as *Tapirus terrestris* (Tapir). The regional environmental authority has a high pressure of use on forest species of high commercial value, mainly for the commercialization of valuable timber (CORMACARENA, 2019). This type of benefit to species populations will be evidenced in the biodiversity monitoring planned for the project.
Justification of Change	Preliminary information is available on sightings of these species inside and outside the project areas, as well as reports of damage to these species. The project can generate positive and measurable changes in the short term. For example, community monitoring will allow us to learn more about the status of endangered fauna populations.

Biodiversity Element	As recommended by Brown et al (2013), HCV 3 "Rare, threatened, or endangered ecosystems, habitats or refugia" category was considered. In this context, given that the Project seeks to reduce deforestation, it is expected that, by the end of its useful life, at least 50,000 ha at risk of deforestation will remain standing, thus

	generating areas and corridors for species to reduce their risk of disappearing. As mentioned in section 5.1.3 the "Morichales" are a hydrobiological-ecological system that provide a wide range of habitats and microclimates and, in this sense, support branched and complex trophic chains, both terrestrial and aquatic (Lasso, Rial, & González-B, 2013). Its preservation is a priority because if it were to disappear, we would be deprived of three irreplaceable functions for man: water reserves, biodiversity conservation corridors and carbon sinks (Lasso, Rial, & González-B, 2013).
Estimated Change	This type of benefit can be easily measured with the interpretation of free remote sensing imagery that is updated year after year. For example, Sentinel 2 provided by the European Space Agency. Since information from vegetation sampling in this unique habitat type is available, monitoring can be carried out using these plots as a reference. In addition, by conserving forests near major water sources, habitat fragmentation is reduced, improving the connectivity of forest patches and semi-natural areas. Indirectly, the sighting of species whose main habitat is the moriche can be used to demonstrate their conservation or serve as an input to propose other types of actions.
Justification of Change	Preliminary information is available on sightings of these species inside and outside the project areas, as well as reports of damage to these species. The project can generate positive and measurable changes in the short term. For example, community monitoring will allow us to learn more about the status of endangered fauna and flora populations.

5.2.2 Mitigation Measures (B2.3)

Major negative impacts on biodiversity come from deforestation, linked to loss of habitats, interconnectivity, food supply and hunting.

Regarding hunting, which is not always related to food supply, but sometimes related to misconceptions from cultural aspects, or by not knowing the role of the specie on the ecosystem, or the absence of alternatives to maintain animal away from crops or houses. For these, capacity sessions and the design of a capacity program will reduce the impact on the ecosystem.

Also, campaigns directed to external stakeholders, such indigenous communities, might help to reduce impacts on the biodiversity.

5.2.3 Net Positive Biodiversity Impacts (B2.2, GL1.4)

In addition to the protection of carbon reservoirs represented in the biomass of forest cover in the project area and the ecosystem service of habitat provision offered by these areas, the identification of species categorized as threatened in the IUCN red lists in the classes of Birds, Mammalia,

Reptilia, and Amphibia is highlighted. In addition, some of the potential species identified have been catalogued as endemic or near-endemic.

In turn, because the conservation of forested areas reduces the effect of habitat fragmentation that is evident in the department of Meta. If the patches that serve as habitats for species cover large areas, it is likely to increase the heterogeneity of the landscapes. In the case of amphibians, it has been found that this has improved resilience to climate change, attenuating the risk of local extinctions among patches with extreme climatic events (Piha, Louto, Piha, & J, 2007).

5.2.4 High Conservation Values Protected (B2.4)

The Project does not propose to make changes in native ecosystems and the productive projects will be generated under agroecological sustainability logics and in areas that are already deforested.

5.2.5 Species Used (B2.5)

No species will be brought to the project area, as the forest will not be enriched. As for the sustainable activities, species and varieties will be selected under parameters of protection of the forest, no invasive

5.2.6 Invasive Species (B2.5)

No invasive species will be brought to the project area. The presence of *Gmelina Arborea* (Teca) and *Acacia Mangium* (Acacia) plantations has been reported in the project reference area. These species are used in the Llanos Orientales region of Colombia for commercial reforestation. However, colonization of these species in natural forests has not been reported. In addition, there are no reports of these species behaving as alien or invasive species.

Monitoring of the presences and impact on the project area will be performed during inventories.

5.2.7 Impacts of Non-native Species (B2.6)

Species	N.A
Justification of Use	N.A
Potential Adverse Effect	N.A

5.2.8 GMO Exclusion (B2.7)

According to the lines of the project no GMO will be used on the project.

5.2.9 Inputs Justification (B2.8)

Name	N.A
Justification of Use	N.A
Potential Adverse Effect	N.A

5.2.10 Waste Products (B2.9)

Although no definitive list exists, the project has designed an initial manual for solid waste product final management, which establishes measures for separation, storage, collection, transportation and final disposal for the integrated management of solid waste generated during the life cycle of the project, in order to prevent damage to soil, water, air and landscape.

- It is based on 6 actions
- Action 1 Training: training and education strategies
- Action 2: Waste generation and sorting
- Action 3 Temporary storage
- Action 4: Collection and transportation
- Action 5: Final disposal
- Action 6: Management and utilization of harvest, post-harvest and livestock and animal husbandry waste and has these indicators planned

GOAL	INDICATOR	MEASURING
Training of at least 60% of the project partners in year 5. At least 80% of project partners trained by year 20.	Training: training and education strategies	(Number of members trained in separation, management and disposal of solid waste of all types / Number of project members) *100.
50% of solid waste sorted by year 5 Sorting of 100% of the waste generated in the project in year 20.	Waste generation and classification	(kg of non-hazardous solid waste sorted/kg of non-hazardous solid waste generated) *100
		(kg of hazardous and special solid waste sorted/kg of hazardous and special solid waste generated) *100
Proper disposal of non-usable and usable solid waste	Final disposition	(kg of non-hazardous solid waste properly disposed of/kg of non-hazardous solid waste generated)*100
		(kg of hazardous and special solid waste properly disposed of/kg of hazardous and special solid waste generated)*100

5.3 Offsite Biodiversity Impacts

5.3.1 Negative Offsite Biodiversity Impacts (B3.1) and Mitigation Measures (B3.2)

Negative Offsite Impact	Mitigation Measure(s)
There are forest species of high commercial value that are frequently harvested and were identified within the project areas. It is possible that the harvesting of these species will increase outside the project areas. Environmental education activities have been proposed to communities near the project areas to stop or reduce the overexploitation of forest species.	The project areas can be sources of seed and seedlings for the propagation of species of high commercial value and ecosystemic importance

Negative Offsite Impact	Mitigation Measure(s)
Wildlife hunting is another activity that may increase outside the project areas.	Since hunting activities will be restricted within the project areas, it is possible that the same communities within the project will carry out this activity in forests outside the project area. It is necessary to carry out environmental education campaigns and coordinate strategies with regional environmental authorities that focus on reducing these types of practices.

There is a risk of leakage of illegal activities or prohibited activities by the project to near by areas, such as deforestation, hunting, selective logging. Other possible negative impact, is that due to increase of species, people starts hunting them more, considering they are out of danger.

The main mitigation measure will be training and community communication. Training for project partners, but open for stakeholders, in order to improve their understanding of the ecosystem, and reduce the pressure over the species and the HCV.

Same condition applies for strategic ecosystem. Campaigns directed or displayed on those areas will mitigate the negative impact, nevertheless, it is important to recognize that not all the impacts will come from this project, as Vision Amazonia is also trying to generate activities on nearby territories. It is expected positive synergetic actions that help to reduce the negative impacts.

The fact of being a grouped project is itself a mitigation action, as it allows new owners to be part of the project, and so improve their incomes by protecting biodiversity.

5.3.2 Net Offsite Biodiversity Benefits (B3.3)

Positive impacts on biodiversity outside the project areas are expected to be generated mainly due to the conservation of habitats for species with extensive home ranges or home ranches, such as medium and large felines, large terrestrial fauna species (tapir) and aquatic mammals. As mentioned in previous chapters, there is a sustained and often increasing trend of deforestation in the region, affecting the habitat of these species. At the same time, the increase in human activities generates pressure on the populations of these species, especially through sport hunting for meat or skins or, on many occasions, mainly due to competition for resources, unfavorable perceptions and attitudes.

Because the project avoids habitat loss and will generate actions for the conservation of species of high ecosystem value or categorized as high risk of extinction, the areas outside the project will indirectly benefit from the provision of these ecosystem services associated with forests and semi-natural areas.

The negative impacts must be minor by the mitigation actions, and also as other program as Vision Amazonia will be in the department, it is fair to expect a larger leakage control area to be achieved and the general behavior of impact towards biodiversity to be reduced.

5.4 Biodiversity Impact Monitoring

5.4.1 Biodiversity Monitoring Plan (B4.1, B4.2, GL1.4, GL3.4)

Monitoring is the systematic collection of data and analysis of information to determine if something is changing (CIFOR 2007). Monitoring is more than a one-time assessment; information should be collected at regular intervals that are appropriate to the topic and do not involve excessive expense or burden. The information is analyzed and the results are evaluated and used in decision making.

In turn, the participatory monitoring approach applies to activities that involve the participation of local people who do not have professional, specialized training and who have varying degrees of knowledge, experience, social roles and interests. Participatory monitoring is an ongoing process in which people in the community systematically record information about their area and take management actions in response to what they learn. (Evans & Guariguata 2008)

In this sense, participatory monitoring would allow knowing the conservation status of wildlife for groups of birds, mammals and herptiles, in the municipalities of Puerto Lleras, Puerto Concordia, Puerto Rico and Vista Hermosa, within the Project area. The general purpose of this activity is to acquire as much data as possible through the assertive participation of the communities of each municipality, providing us with ample information for the conservation of the High Conservation Value (HCV) species previously prioritized.

The participatory monitoring topics include a series of activities, where specific training will be provided to the communities that decide to participate, selecting leaders who will guide the data collection for each of the groups (birds, mammals and herptiles) guided by a professional in the area. Methods may include observation tours, installation of photo-trapping, field logs, community workshops, identification of potential species and data collection.

Importantly, participatory monitoring de-emphasizes the emphasis on externally defined and motivated programs and emphasizes the importance of a locally relevant process of information collection, analysis and use. It involves the participation of (groups of) people in aspects of monitoring in which they have not previously been involved and the creation of enabling conditions for them to define the focus, means and pace of the learning process (Guijt, 2007).

Initially, a call will be made to local managers and the community belonging to the region, opening spaces to explain the project's objectives and allowing participants to propose their own. Once the work objectives have been established, a workshop will be held to define them:

I. Best sampling points, affordable routes, permits, contacts of farm owners.
II. Establish working groups between 4 and 16 local people grouping local people according to their geographical and social affinity and we work with a total of 7 groups, one per sampling zone.
III. Field methods to be implemented and type of data to be collected.
IV. Definition of dates for training workshops for those who decide to participate.

The duration of the workshops will be defined according to the number of people who decide to participate; however, they are planned to be held twice a week for a period of one month per municipality to be worked on.

The accompaniment of the workshops will require a minimum of two professionals in the area. The participants will deliver the information collected and the topics discussed will be evaluated collectively with the community, the information on local perceptions about the fauna, the

environments and on the functioning of the methodology will be evaluated together with the community.

The project will be carried out in three phases per municipality, Phase 1 for the birds group, Phase 2 for the mammals group and Phase 3 for the herps group, the presentation of the project and selection of the working group will be carried out with the same dynamics for each phase.

- Phase one: Birds

Training workshops

The objective of the training workshops is to transfer knowledge and technologies from a scientific theoretical basis to the local participants and from the local participants to the professional team. For the participatory monitoring focused on birds, the community will be trained in the following topics:

I. Training in morphology and identification of birds, types of birds according to their diet, types of recurrent habitats according to the area to be sampled.

II. Use of field equipment such as GPS, recorder and binoculars, field guides, data collection and field forms.

III. Methodologies to be used and development of the project.

The time of execution of the workshops will be taken into account according to the number of local people who decide to take part in the project. The development of the topics to be covered will be developed in two training sessions of 50 minutes each and a third one for consultation and clarification of doubts.

- Observation, capture and monitoring of birds

Each participant will be provided with a sheet of photographs and images of bird species of high conservation value (HCV), along with a GPS and recorder. Local participants will walk transects between 2 and 20 km per day at least 3 days a week, traversing natural environments (Camino, 2014). During these routes, forms will be filled out with information on the prioritized bird species (HCV) present, georeferencing observation points.

The rapid inventory methodology (RAP) is implemented. This methodology combines different techniques, such as visual and auditory censuses in transects as well as informal surveys, each of these techniques will generate complementary elements to develop species lists and ecological information on priority species (HCV) (Angulo et al.2006).

For this purpose, individuals, tracks and nests of birds were observed and photographed (Angulo et.2006). (Angulo et al.2006) The walks were carried out during the hours of greatest bird activity: in the morning from 6:00 - 10:30 am and in the afternoon from 4:00 - 6:00 pm.

- Phase two: Mammals.

Training workshops

The objective of the training workshops is to transfer knowledge and technologies from a scientific theoretical basis to the local participants and from the local participants to the professional team. For the participatory monitoring focused on birds, the community will be trained in the following topics:

I. Mammal identification training (HCV), identification of traces (tracks, burrows, feces), types of recurrent habitats according to the area to be sampled.

II. Use of field equipment such as GPS, camera traps or photo traps and creation of baits, data collection and field formats.

III. Methodologies to be used and project development.

The time of execution of the workshops will be taken into account according to the number of local people that decide to take part in the project. The development of the topics to be covered will be developed in two training sessions of 50 minutes each and a third one for consultation and clarification of doubts.

- Observation, capture and monitoring of mammals

Likewise, each participant will be provided with sheets of mammal species to be found, GPS and camera traps. There will be reconnaissance tours of three sampling points to establish the installation of camera traps where they will be accompanied by 2 or 3 professionals.

The installation of camera traps is largely based on the TEAM Network photo-trapping manual (TEAM Network, 2011), adjusting it to the objectives of the project. The implementation plan involves the following steps: 1) formation of the appropriate field team, 2) preparation and calibration of the equipment to be used, 3) preparation of field formats, 4) travel to each of the potential camera trapping points and choosing the best site for each point, 5) obtaining latitude and longitude readings for each of the final camera trapping points, 6) camera installation.

The cameras will be installed with their respective bait or attractant, the cameras will be left in each place for a minimum of 3 days, with daily bait change in the morning hours, sampling is recommended to be carried out in a period of at least one to two months.

Observation tours will be conducted in potential wildlife sighting areas, guided by the community participants, the tours will be geo-referenced and walking transects of 1 to 1 km daily, the schedules will be in the morning from 6:00 to 9:00 hours and in the afternoon from 11:00 to 16:00 hours.

- Phase three: Hepertos

Training workshops

The objective of the training workshops is to transfer knowledge and technologies from a scientific theoretical basis to the local participants and from the local participants to the professional team. For the participatory monitoring focused on birds, the community will be trained in the following topics:

I. Training on identification of amphibians and reptiles (AVC), frequent habitation of amphibians and reptiles, ophidian management and control.

II. Use of field equipment such as GPS, tape recorder and herpetological hook, data collection and field forms.

III. Methodologies to be used and development of the project.

The time of execution of the workshops will be taken into account according to the number of local people who decide to take part in the project. The development of the topics to be covered will be developed in two training sessions of 50 minutes each and a third one for consultation and clarification of doubts.

- Observation, capture and monitoring of herpetophytes.

The biological group of herpetofauna is made up of two biological classes. It includes the amphibian class, made up of three large taxonomic orders such as Anura, Caudata, and Gymnophiona. The

second biological class is made up of reptiles, within which four orders are identified: Crocodylia, Squamata, Testudines and Sphenodontia (Angulo et al. 2006).

In order to characterize this biological group, we will use the Visual Encounter Survey (VES) methodology, which includes capture techniques by free search and search for individuals in the different microhabitats present (decomposing trunks, leaf litter, holes in the ground, under rocks, the beam and underside of leaves, among others).

The methodology to be applied will consist of daytime walks guided by the community participants, supported by 2 or 3 professionals, sampling specifically at the edges of rivers, streams, lagoons or any other body of water. In general, the timetable will be established from 8:00 to 11:00 hours and from 15:00 to 17:00 hours on average for the search of amphibians and reptiles with time variations according to the type of study to be carried out.

The capture of ophidian individuals requires the use of gloves and sheets of prioritized species that allow the participants of the region to assertively recognize the prioritized species (HCV), with the help of a herpetological cane the capture of individuals will be done, then it is deposited in a cloth bag, introducing the back part first, having the individual in its entirety inside the bag, it is folded and tied at the end.

- Data processing

The information obtained in the field will be included in a database, which will be systematized and analyzed for the elaboration of the taxonomic list of the species registered in the sampling sites of the project area, also taking into account the biological and ecological information collected from each one of them.

For the characterization of the sampling zones, the species of each taxonomic group will be grouped according to the areas previously defined for the HCV species. Similarly, the use within each of the vegetation covers will be taken into account to define the most important microhabitats to which the species' activities are linked for their survival (refuge, feeding, migration corridor and seasonal concentration).

Indicators will be constructed in terms of absence and/or presence analysis, using alpha and beta diversity indices (Simpson and Shannon) and sampling efforts for each methodology used in the field.

Monitoring on flora will be performed by forest monitoring, as described on the Annex METODOLOGÍA INVENTARIO FORESTAL_AJUSTADA 25_02_2021 in the climate section.

5.4.2 Biodiversity Monitoring Plan Dissemination (B4.3)

1. In keeping with the purpose of community monitoring of potentially identified HCV species, the reporting of information to stakeholders will be regularly disseminated in three moments:
2. Socializations carried out by the project members themselves, using presentations in different formats (Power Point, posters, infographics, among others). The community halls and/or schools will be used: differentiated presentations will be made for adults and the general public, children and young people.
3. The results of the monitoring will be presented in a free internet page and, therefore, with low storage capacity, with which, infographics of the process and the main results obtained will be presented. It will be updated each time the monitoring is completed.
4. Field guides will be designed for species identification within the project area.

5.5 Optional Criterion: Exceptional Biodiversity Benefits

5.5.1 High Biodiversity Conservation Priority Status (GL3.1)

The biodiversity workshops found evidence of the presence in the project area of three (3) species of mammals categorized as endangered (EN) or critically endangered (CR) in the IUCN red lists and in Resolution 1912 of 2017 (MADS).

Table 27. Mammalian species categorized as Endangered (EN) or Critically Endangered (CR)

Family	Species	Common name	Threat category		
			UICN (2019-3)	Res 1912 de 2017	CITES (Vigor 26 nov/2019)
Dasypodidae	*Priodontes maximus*	Gurre, Armadillo, Cachicamo	VU	EN	I
Mustelidae	*Pteronura brasiliensis*	Nutria de Agua	EN	EN	I
Tapiridae	*Tapirus terrestris*	Tapir, Danta	VU	CR	II

Source: Allcot, 2021, partiendo de los resultados de talleres de biodiversidad.

In addition, there is also evidence of the presence of five (5) species of high ecosystem value in the project areas, although they are not classified in categories of high risk of extinction, but due to the impact on their populations and if there are no effective actions for their conservation, they will most likely change their classification in the coming years. In particular, medium and big cats, a species of otter and the reported sighting of a harpy eagle, the following are the species of conservation concern.

Table 28. Mammalian species categorized as Endangered (EN) or critically endangered (CR)

Family	Species	Common name	Threat category		
			UICN (2019-3)	Res 1912 de 2017	CITES (Vigor 26 nov/2019)
Mustelidae	*Lontra longicaudis*	Nutria	NT	VU	I
Felidae	*Panthera onca*	Jaguar	NT	VU	I
	Leopardus wiedii	Tigrillo, Canaguaro	NT	VU	II
	Leopardus pardalis	Canaguaro	LC	N/A	I
Accipitridae	*Harpia hapyja*	Aguila Arpia	NT	N/A	I

5.5.2 Trigger Species Population Trends (GL3.2, GL3.3)

Trigger Species	Tapirus terrestris (Danta)
Population Trend at Start of Project	The species uses as habitat the forests and semi-natural areas that belong to the project. In the biodiversity workshops carried out with the communities, it was stated that the population of this species has decreased. However, there are currently no population studies of this species in the region.
Without-project Scenario	His species has been classified as vulnerable in IUCN red lists (2019-3); However, Resolution 1912 of 2017 (MADS) has categorized this species as Critically Endangered. The causes of population reduction are mainly the loss of habitats. As highlighted in the National Program for the Conservation of the Genus Tapirus in Colombia, this species that has the characteristic “of having long-lived individuals, low rates of increase and long periods between generations are more vulnerable to extinction than those with cycles of shorter lifetimes, high growth rates and short time between generations. This implies that tapirs cannot be easily recovered from continuous removal of their individuals. Under these conditions, these species are more susceptible to overhunting, since even with moderate hunting pressures, tapir populations tend to decline rapidly ”(MAVDT, 2005) For Tapirus terrestris, a gestation time of 385 to 400 days has been reported, 1 or rarely 2 young per parturition, lactation time of approximately 10 months and 30 years of longevity (determined in captivity) (MAVDT, 2005) Among the main factors that pose a threat to the survival of the Tapirus terrestris, in Colombia, are: the loss and / or deterioration of habitat, hunting, competition with introduced species, such as livestock, the situation of public order and development. infrastructure (MAVDT, 2005). In the project area, during the biodiversity workshops, with the communities in each municipality, people say they often see individuals of this species. In turn, the areas with the highest sightings within the Project areas were identified. Participants in the workshops stated that the number of individuals has decreased compared to previous years, which shows an unfavorable change in the size of the populations. In the municipalities of Puerto Concordia and Vista Hermosa, hunting for meat was reported. In Puerto Rico, the capture of pregnant females was reported to use the offspring as food. It should be noted that the hunting of females in the reproductive stage for species with K-type reproductive strategies or, in other

	words, large, long-lived and with a reduced number of offspring, are considered to have a high impact on their populations. Consequently, in the scenario without a project, the population decline trend of the species will be accentuated. Más información sobre este texto de origenPara obtener más información sobre la traducción, se necesita el texto de orige
With-project Scenario	In the project areas, the habitat of the species will be conserved, hunting for meat and capturing females in the reproductive stage will be reduced or totally avoided. The project proposes to initiate population studies of the species that are important for its conservation.

- **APPENDICIES**
  - **Appendix 1: Project Risks Table**

IDENTIFY RISK	POTENTIAL IMPACT OF RISK ON CLIMATE, COMMUNITY AND/OR BIODIVERSITY BENEFITS	ACTIONS NEEDED AND DESIGNED TO MITIGATE THE RISK
Phenomena of natural and anthropic origin	The main climatic risks that partners and ecosystems may be affected by are forest fires, floods and droughts. For its part, the Third National Communication on Climate Change - TCNCC points out "there is evidence of a high risk in the lower Amazon and southern Orinoquía region" in relation to risks due to climate change (Anex Risk analysis) The vulnerability to the climatic impacts generated by human activities are related to the current management practices of the soil, the forest and the productive systems managed in a traditional way related to cultural practices rooted by generations and the lack of governance of the territory.	According to the high risk of climate change, the municipalities of Puerto Lleras, Puerto Rico and Vista Hermosa present a high risk and Puerto Concordia between low and medium, therefore "priority attention should be directed to adaptive management of the territory" according to the TCNCC. Productive reconversion and the implementation of sustainable production systems will be worked on within the project with training activities and capacity building with partners and communities to mitigate the effects of climate change.
Public order and security	With regard to the risks generated by risky conditions for public order and security, this could lead to the suspension of the project in some areas and the objectives, goals and activities set not being met. Biodiversity: When public risk problems are generated, they could have two consequences; One is that in isolated areas, since the owners do not have access to their properties, important areas of forests are preserved, taking into account the guidelines of the groups outside the law to manage the forests sustainably, or two, the logging is intensified given the same conditions of use. access and that people outside the territory buy important extensions of forests and cut them down for livestock or other uses.	The project activities have social consensus and work has been done with local actors, organizations and formal institutions that act in the territory, therefore the activities of governance, training and productive projects are designed to adapt to changes in climate and social conditions, however, if public order problems arise, risk assessment is carried out, work is focused on low-risk areas and temporary suspension of the project by public order in medium and high risk areas, while identifying solutions with leaders and partners.

IDENTIFY RISK	POTENTIAL IMPACT OF RISK ON CLIMATE, COMMUNITY AND/OR BIODIVERSITY BENEFITS	ACTIONS NEEDED AND DESIGNED TO MITIGATE THE RISK
Leaks, felling of trees	Risk to biodiversity. In this sense, two cases can be presented: 1) the owners will use the areas outside the forests involved in the project for forest exploitation to avoid intervention in these areas. 2) The owners will use wood from the project's forest area for activities such as firewood and wood for construction or home improvement.	The monitoring of forest areas linked to the project, for which the Community Action Boards have an important role, will be part of the control of extractions in a manner. Another aspect to take into account as a control measure is that through Decree 1791 of October 4, 1996, which regulates forest use in Colombia, so that owners can extract wood from the areas surrounding the The project must apply for a forest use permit from the resource administrator Corporation, in this case Cormacarena. The Decree classifies the uses as unique, persistent and domestic, the latter are those that are made exclusively to satisfy vital domestic needs without their products being marketed. The norm indicates that a domestic use will not require a use permit and that it is classified as domestic if it does not exceed 20 m3 per year. Therefore, if the logging activities for the consumption of firewood and housing arrangement are transferred to other forests of the owner, it is expected that this will not affect the biodiversity of the forest ecosystem thanks to a sustainable use that is the norm.
Carbon market fluctuations	There are risks in the carbon markets since they can fluctuate and not meet expectations in relation to the desired income, which would have the following impacts: In the community since it would continue with the current trend in relation to deforestation and ways of life.	The uncertainty generated by the fluctuation of the carbon markets is solved by guaranteeing the resources during the formulation and implementation until the expected income is received and by formulating projects to manage resources

IDENTIFY RISK	POTENTIAL IMPACT OF RISK ON CLIMATE, COMMUNITY AND/OR BIODIVERSITY BENEFITS	ACTIONS NEEDED AND DESIGNED TO MITIGATE THE RISK
	In the climate: CO_2 emissions would remain according to the current trend or increase taking into account that there is no mechanism that allows incentives to conservation or a process of governance and cultural change. In biodiversity: the forests and ecosystems present in the region would disappear or be degraded, losing the flora and fauna of the region and environmental goods and services offered by the ecosystem.	with private companies and cooperation organizations through calls. Sustainable actions do not only expect to be financed with carbon credits. The project has the necessary financial resources before the project reaches breakeven.
Dilation and impact on the implementation of the training program	Difficulties for the implementation of training caused by the pandemic, weather, or public order, which leads to modifying the methodology and schedule of activities.	Structure flexible training programs and methodologies for members according to their resources and availability. The project will maintain communication with the partners informing in time about changes and status.
Corruption	Information manipulation and limitations.	Application of the ALLCOT code of conduct, proper handling of information, limitation of handling of sensitive information
Communication	Channels and mechanisms not adequate enough to guarantee information, communication and participation of all project partners	Establish a communication strategy between several levels in a reciprocal way; ALLCOT, Coordinating Committees, village nuclei, villages and leaders. Having open media, motivated and trained people. socialize and popularize the mechanism for citizen participation and attention.
Non-permanence of results	Emission reductions can be lost, therefore the established commitments are not met, either due to future deforestation or due to natural causes such as forest fires.	Constant training that remembers that this is generated by results, each year it will be measured. The same population is in charge of "valuing" the standing forest. 22% buffer