REDD+ NONUYA DE VILLAZUL “Mo Fiivo Jagaba Imibachu Baj+ - Bosque que purifica el aire de vida” PROJECT

Document prepared by:

Name of the project	REDD+ NONUYA DE VILLAZUL “Mo fiivo Jagaba Imibachu Baj+ - Bosque que purifica el aire de vida” Project
Project holder	NONUYA DE VILLAZUL INDIGENIOUS RESERVE
Account holder	CO2 SOSTENIBLE SAS
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Other project participants	YAUTO SAS CO2 SOSTENIBLE SAS

	QUYE WYNA SAS
Version	2.1
Date	03/10/2025
Project type	AFOLU REDD+
Grouped project	The REDD+ NONUYA DE VILLAZUL "Mo fiivo Jagaba Imibachu Baj+ - Bosque que purifica el aire de vida" Project is not a grouped project.
Applied Methodology	Quantification of GHG Emission Reductions REDD+ Projects BCR0002, version 4.0
Project location (City, Region, Country)	Colombia Departmental Townships Miritíi-Paraná, and Santander, Amazonas Department.
Starting date	(01/01/2021)
Quantification period of GHG emissions reduction	(01/01/2021 to 31/12/2060)
Estimated total and average annual GHG emission reduction/removals amount	The total amount of GHG emissions reductions is 95,624,899 tco2e The estimated average annual amount of GHG emission reductions/removals are: 2,390,622 tco2e

Sustainable Development Goals	SDG 1, SDG 2, SDG 3, SDG 4, SDG 5, SDG 6, SDG 7, SDG 8, SDG 11, SDG 13, SDG 15, SDG 16.
Special category, related to co-benefits	

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1 Project type and eligibility

1.1 Scope in the BCR Standard

The project is eligible under the scope of the BCR Standard by meeting the following condition: Quantifiable GHG emission reductions and/or removals generated through implementation of GHG removal activities and/or REDD+ activities (AFOLU Sector).

The scope of the BCR Standard is limited to:	
The following greenhouse gases, included in the Kyoto Protocol: Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_2O).	
GHG projects using a methodology developed or approved by BioCarbon, applicable to GHG removal activities and REDD+ activities (AFOLU Sector).	
Quantifiable GHG emission reductions and/or removals generated through implementation of GHG removal activities and/or REDD+ activities (AFOLU Sector).	X
GHG projects using a methodology developed or approved by BioCarbon, applicable to activities in the energy, transportation and waste sectors.	
Quantifiable GHG emission reductions generated through implementation of activities in the energy, transportation and waste sectors.	

- The REDD+ NONUYA DE VILLAZUL "Mo fiivo Jagaba Imibachu Baj+ - Bosque que purifica el aire de vida" Project, that falls into the category of REDD+ project as the project area is located in an area where the land cover has been forest for more than 10 years prior to the project start date.
- The project is not located in wetlands areas or on organic soils (see section Eligible areas within GHG project boundaries (AFOLU sector projects)) and carbon stocks in the baseline scenario are likely decrease or remain stable in the absence of the project (see section Identification and description of the baseline or reference scenario),
- The identified causes of deforestation include, among others, Livestock production, expansion of the agricultural frontier, mining and timber extraction(see Causes and agents of deforestation and forest degradation analysis);

- The causes of forest degradation identified includes selective logging, fuelwood extraction, forest fires, forest grazing, and expansion of the agricultural frontier – illicit crops2 (see Causes and agents of deforestation and forest degradation analysis);
- No reduction in deforestation or forest degradation is expected to occur in the absence of the Project (see Identification and description of the baseline or reference scenario);
- The carbon stock in the organic matter of soil, the litter and deadwood in project boundary may decrease or remain stable ;
- The quantification of GHG other than CO_2 are included in the quantification of emissions caused by forest fires during the monitoring period.

1.2 Project type

Activities in the AFOLU sector, other than REDD+	
REDD+ Activities	X
Activities in the energy sector	
Activities in the transportation sector	
Activities related to Handling and disposing of waste	

1.3 Project scale

N/A.

2 General description of the project

The problem of deforestation in Colombia is one of the country's most challenging issues, according to Güiza Suárez, Montoya Soto, Botero García, Benítez Tapia, & Cante Puentes (2021), it is estimated that between 1990 and 2018, the country lost more than 6500,000 hectares of natural forest to deforestation, 49% of which occurred in the departments of Meta, Caquetá, Putumayo, Guaviare and Nariño. In these areas of high deforestation, according to the Alexander von Humboldt Research Institute for Biological Resources, 2697 species have been recorded (569 animals and 2128 plants), of which five are critically

endangered, six are endangered and twenty are considered vulnerable species according to the classification of the International Union for Conservation of Nature -IUCN-.

The main objective of the project REDD+ NONUYA DE VILLAZUL is to reduce deforestation in the Amazon and Caquetá regions, while preserving the traditional knowledge and cultures of indigenous peoples. Similarly, by reducing deforestation, the project aims to reduce the emissions associated with this activity and promote the conservation of the forest and its biodiversity.

On the other hand, the project is located entirely on the department of Amazonas in Colombia, specifically in the townships of Mirití-Paraná and Santander. According to the geo referencing data, the total area of the project is established at 264.625,45 ha, which is composed of native very humid tropical forest, without the existence of secondary vegetation since the land has not been cleared of native ecosystems within the last 10 years before the project start date.

In summary, the crediting period of the project is 40 years. The start date is 01/01/2021.and the crediting period is expected to end on 31/12/2060. A reduction of 95,624,899 TCO2e of GHG is expected over the project lifetime (with an average of 2,390,622 TCO2e per year).

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

- ✓ BioCarbon Registry requirements and tools. Standard. BCR Standard version 3.4 June 28, 2024
- ✓ Methodological document AFOLU sector Quantification of GHG Emission Reductions from REDD+ Projects BCR0002 version 4.0 May 27, 2024
- ✓ BCR Tool. Sustainable Development Goals (SDGs). Version 1.0. July 13, 2023
- ✓ Tool to demonstrate compliance with REDD+ safeguards. Biocarbon Registry. Version 1.1. January 26, 2023.
- ✓ BCR Tool. Avoiding double counting (ADC). Avoid double counting of emissions reductions/removals. Biocarbon Registry. Version 3.0. April 7, 2025.
- ✓ BCR Tool. Monitoring, reporting and verification (MRV). BCR carbon credits are quantified, monitored, reported and verified. Biocarbon Registry. Version 2.0. June 23, 2025.
- ✓ Sustainable Development Safeguards (SDSs Tool). BIOCARBON CERT. Version 2.0. June, 2025.
- ✓ Biocarbon Tool. Identification of a Baseline and Demostration of Additionality. BCR Projects generate Verified Carbon Credits (VCC) that represent emissions reductions, avoidance, or removals that are additional. Version 1.0. July 25, 2025.

- ✓ Permanence and Risk Management. BCR Tool. BCR Project holder take actions to ensure the Project benefits are maintained over time. Version 2.0.June 3, 2025.
- ✓ Decree 926 of 2017
- ✓ Resolution 1447 of 2018
- ✓ Resolution 831 of 2020
- ✓ Decree 446 of 2020
- ✓ Resolution 471 of 2020
- ✓ ISO 14064-2
- ✓ ISO 14064-3

2.1 GHG project name

REDD+ NONUYA DE VILLAZUL "Mo fiivo Jagaba Imibachu Baj+ - Bosque que purifica el aire de vida" Project.

2.2 Objectives

The project pursues the following general objective:

Reduce GHG emissions associated with deforestation and forest degradation through activities that promote the conservation and care of the ecosystem and its diversity, in addition to respecting and preserving traditional knowledge and cultures.

2.2.1 Specific objectives:

- Climate objective: To halt and mitigate climate change by reducing forest degradation and unplanned deforestation, and restoring already degraded areas. in 264,625.45 ha of native forest in the municipality of Miritíi-Paraná, Amazonas.

- Community objective: To promote the sustainable development of local communities and generate income for families by:

    a) Preserve the culture and ancestral knowledge of the indigenous reservation of "*Nonuya de Villazul*".
    b) Developing production systems compatible with nature conservation, ancestral knowledge, and community well-being, guaranteeing food security for the communities living in the Indigenous Reserve.
    c) Strengthening forest governance and mechanisms to revitalize ancestral knowledge and cultural practices.

d) Contributing to improving the living conditions of the communities living in the Indigenous Reserve.

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

2.3 Project activities

For the collective and participatory definition of this project, an arduous community process was carried out. In this process, he carried out a stage prior to the formulation, which was the socialization in the territory and in front of the assembly of the Peña Roja and Villazul communities. In this space, the agreement to be signed between the reservation and the company was presented (See contract annex). To this end, the content was translated so that the entire population understood what the project was about and what was being agreed. Likewise, doubts that people had were solved. In the same framework, the prior, free and informed consent of the communities to carry out the project was ratified (see annex consent to the nonuya reservation of Villazul). In the same way, several presentations were made to explain what REDD+ projects consist of. This socialization addressed topics such as key concepts, the operation of the mechanism, the history of REDD+ projects, the current political and commercial context, the SDGs, the Cancun safeguards and their national interpretation, among other fundamental aspects to understand the projects to be formulated. To ensure the population's understanding of the content, several spaces were held to ask the population questions about the topics addressed (See annex, presentations and annex photos).

The formulation stage was also carried out in the territory, with the assembly of the two communities involved, and here the traditional and political authorities, women and the entire population in general also participated (see annex, lists of assistance, socializations and workshops). The first workshop was the realization of problem and solution trees that sought to highlight, from the local perspective, situations that occur in the territory and strategies for improvement. (See annex trees of problems and solutions). A livelihoods and livelihoods workshop was also held that explored the livelihood activities of people in the reservation. This was related to a third workshop called Drivers of Actions and Agents of Deforestation in which it was possible to observe some dynamics that generate environmental effects such as logging of wood, mining, lack of livelihood opportunities, weakening of self-governance, livestock, among others (see annex means and ways of life and annex motors and agents). These context workshops were complemented with territorial mapping to identify spaces of cultural importance and locate some of the dynamics described above (see mapping).

In the same way as the context described above was identified, the socio-environmental care strategies and actions that the communities have carried out in recent years were analyzed and compiled. This exercise resulted in the construction of a timeline (See timeline annex). This line was also built in a participatory manner, it began with a dialogue on the subject in a masonry, it was reflected in a community work sheet and evidence was collected from communication between all the members of the assembly.

Based on the context identified in the previous workshops, a workshop will be held on profitable productive alternatives that could provide a solution to the dynamics that cause deforestation and forest degradation (See annex profitable productive alternatives). Likewise, a prioritization of the activities that are planned to be developed through the project was made, based on the trees of problems and solutions carried out. It was also analyzed to which safeguards and SDGs these activities contribute and how the activities contribute to curbing degradation and deforestation (See annex prioritization).

In order to comply with the proposed activities, a mapping was carried out collectively with their implementation areas that took into account the workshop in which the other mapping was carried out (See annex implementation areas). In the same way, the possible socio-environmental impacts that may arise from the implementation of the project were analyzed (See annex impacts). Four investment baskets and the percentage of resources that will correspond to each one were also determined (See cake annex). Once the above was consolidated, the name of the project was defined, for which alternatives in their own language were taken into account. However, a name was defined in Spanish since several languages are spoken in the reservation (See annex name of the project).

Finally, the election of the committee was held. For this, the reservation determined that one person from each community would be chosen for the coordination of the four baskets, that is, 8 people. To this end, the participants dialogued internally between each community. Subsequently, common positions such as the financier, the legal representative and the general coordinator were chosen. The above was carried out among the entire assembly taking into account the skills and studies that the candidates had (See annex of committee elections).

From each of the formulation activities, products such as matrices and maps were obtained that can be seen in the annexes mentioned correspondingly. The systematization of the defined activities is presented below.

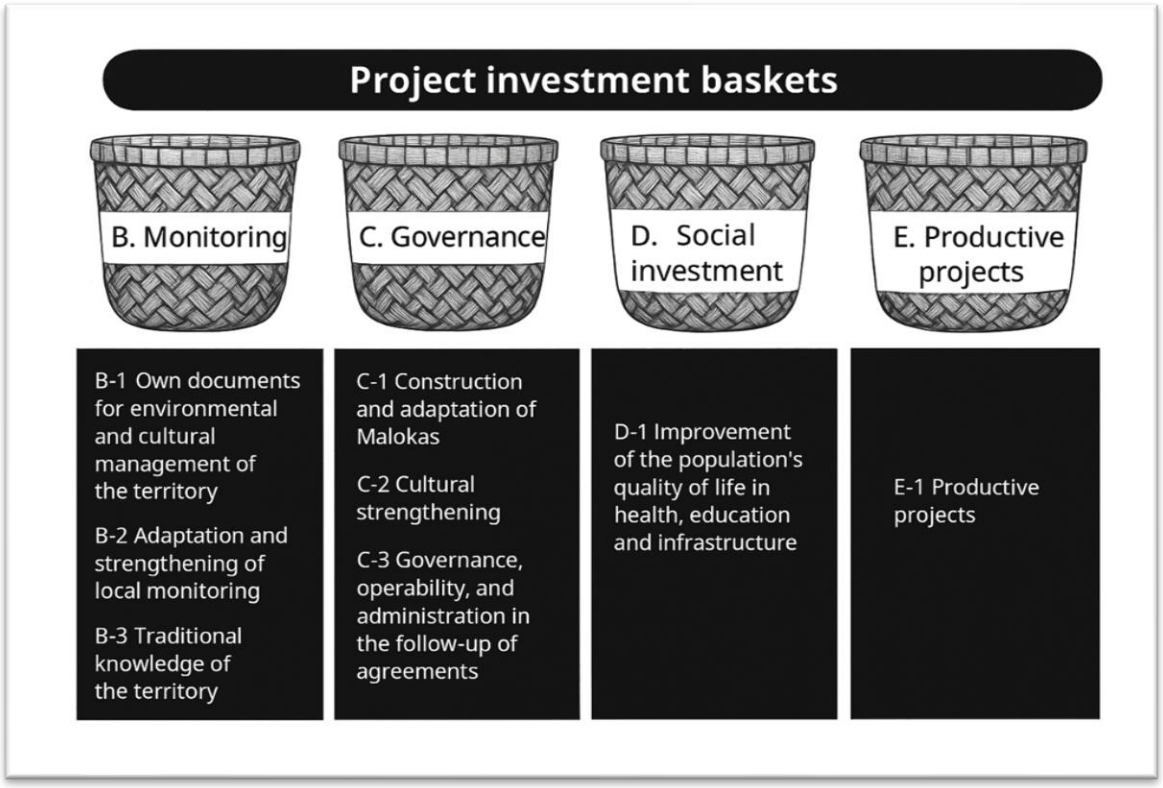


Illustration 1. Project investment baskets and activities.

Below are the tables with the description of the project activities presented in the previous illustration.

Activity ID	**B-1 Documents for the environmental and cultural management of the territory**
Description of the REDD+ activity	Consolidation and implementation of environmental and cultural management documents
Relationship of activity with direct or underlying cause	Environmental, cultural and territorial management tools allow improving one's own governance and avoiding effects on the territory.

Compliance with Territorial Management Plans.	The Nonuya Indigenous Reservation of Villazul currently has a Cultural Environmental Management Plan last updated in 2022. This activity is aligned with the first objective of this plan, which is: "*To guarantee permanence, territorial and environmental stability through the construction and implementation of an environmental management plan that is based on traditional knowledge of the territorial context, knowledge and practice of activities typical of the culture, as well as important aspects of Western culture*".
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.
Responsibility and role of actors involved in implementation	• Quye Wyna: technical support • Yauto: implementers • Local communities: implementers

Indicators to report progress					
Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
% Progress in the consolidation of the cultural management plan	**B.1.1.**	Product	Have the consolidated document of the cultural environmental management plan.	%	What a Wyna Yauto Community Representative
# Of own documents for cultural and environmental management	**B.1.2.**	Product	Create and implement documents for the environmental management of the territory	#	What a Wyna Yauto Community Representative

Activity ID	**B-2 Conditioning and Strengthening of Own Monitoring.**
Description of the REDD+ activity	Adaptation of spaces, equipment and acquisition of transport for the monitoring equipment

Relationship of activity with direct or underlying cause	The acquisition of equipment and adaptation of spaces for monitoring allows for better monitoring of what is happening within the territory. This way it will be easier to observe if there are actions that affect the environment.
Compliance with Territorial Management Plans.	In the Cultural Plan for Environmental Management of the reservation, the need to *"Strengthen teaching and learning spaces. Maloca, chagra, monte, río and escuela through the development of a work plan with a mechanism of community participation where the use of the own language is promoted."* This activity contributes to the monitoring of the territory and therefore to the strengthening of these spaces.
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.
Responsibility and role of actors involved in implementation	• Quye Wyna: technical support • Yauto: implementers • Local communities: implementers

Indicators to report progress					
Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
# of implements and/or equipment acquired and/or adequate spaces	**B.2.1**	Product	Strengthening community monitoring through the acquisition of necessary monitoring equipment	#	What a Wyna Yauto Community Representative

Activity ID	**B-3 Traditional knowledge of the territory**
Description of the REDD+ activity	Identification, characterization, control, surveillance and care of the reserve's ecosystems, species and special management zone
Relationship of activity with direct or underlying cause	Knowing the characteristics of the territory both from the physical-biological and from the spiritual-cultural allows us to detect more easily and quickly any effects that may be happening. In this sense, it will be possible to identify

	deforestation and degradation actions before the magnitude is great and there is an irreversible impact.
Compliance with Territorial Management Plans.	In the Cultural Environmental Management Plan last updated in 2022, a description of the characteristics of the territory within the reservation is made. In this sense, this activity is related to the following objective of said plan: *"To guarantee the exercise of territorial and environmental autonomy through planning, management and execution of plans, programs and projects as a proposal for governance and administration of traditional knowledge that is oriented to the construction of alternative models of life of our peoples"*.
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.
Responsibility and role of actors involved in implementation	• Quye Wyna: technical support • Yauto: implementers • Local communities: implementers

Indicators to report progress

Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
# of people participating in the territorial characterization activities	**B.3.1**	Impact	Participation in territorial characterization activities	#	What a Wyna Yauto Community Representative
# of women participating in territorial characterization activities	**B.3.2**	Impact	Women's participation in territorial characterization activities	#	What a Wyna Yauto Community Representative
# of activities carried out for the characterization, identification, control and territorial care	**B.3.3.**	Product	Carrying out territorial characterization activities	#	What a Wyna Yauto Community Representative

Activity ID	**B-4 Monitoring of plots and forests**
Description of the REDD+ activity	Plot formation and monitoring of forests and reservation plots
Relationship of activity with direct or underlying cause	Knowing the characteristics of the territory allows us to detect more easily and quickly the effects that may be happening. In this sense, it will be possible to identify deforestation and degradation actions before the magnitude is great and there is an irreversible impact. In addition, this activity will allow the amount of carbon stored by the forests of the reservation to be measured more accurately, generating awareness of its value that prevents deforestation and degradation.
Compliance with Territorial Management Plans.	The creation of plots and the formation of a monitoring team to monitor the plots is in line with the following objective of the Cultural Environmental Management Plan: *"Identify conservation mechanisms through the use of own knowledge, cultural practices and coexistence with the different ecosystems".*
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.
Responsibility and role of actors involved in implementation	• Quye Wyna: technical support • Yauto: implementers • Local communities: implementers

Indicators to report progress					
Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
# people participating in activities (workshops, meetings, workshops, trainings) of monitoring plots and forests	**B.4.1.**	Impact	Carrying out monitoring activities on plots and forests	#	What a Wyna Yauto Community Representative
# Women participating in activities (workshops, meetings, workshops,	**B.4.2.**	Impact	Women's participation in monitoring activities	#	What a Wyna Yauto Community Representative

trainings) of monitoring plots and forests					
# of activities for the formation or monitoring of implemented permanent plots or forests	**B.4.3.**	Product	Monitoring of the territory through the establishment and monitoring of plots	#	What a Wyna Yauto Community Representative

Activity ID	**C-1 Construction and adaptation of Malokas**
Description of the REDD+ activity	Construction and/or adaptation, provision of cultural spaces
Relationship of activity with direct or underlying cause	This activity promotes the strengthening of the territory's own governance. From the maloca, the grandparents protect and manage the resources that are in it. Thus, it will be possible to prevent and manage the presence of external actors that may generate degradation or deforestation and it will be possible to protect the resources that are in the territory, managing them in a traditional and sustainable way.
Compliance with Territorial Management Plans.	Among the objectives of the management plan is the importance of having as a foundation the traditional knowledge of the territorial context, the knowledge and practice of activities typical of the culture. In addition, it seeks to strengthen self-knowledge, territorial and environmental autonomy through the governance and administration of traditional knowledge and through cultural practices. For this reason, the activities of the governance basket are related to the management plan since they allow strengthening one's own governance, traditional knowledge and administration systems, and spaces of cultural importance.
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.

Responsibility and role of actors involved in implementation	● Quye Wyna: technical support ● Yauto: implementers ● Local communities: implementers

Indicators to report progress					
Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
# of cultural spaces or scenarios built or adequate.	**C.1.1**	Product	Construction of stages or cultural spaces	#	What a Wyna Yauto Community Representative
# of suitable or equipped cultural spaces or stages	**C.1.2**	Product	Adaptation of cultural spaces	#	What a Wyna Yauto Community Representative

Activity ID	**C-2 Cultural strengthening**
Description of the REDD+ activity	Recover, strengthen and maintain knowledge and practices. This project includes the strengthening of the language, the preservation and strengthening of chagras, mingas, dances, among others.
Relationship of activity with direct or underlying cause	The traditional system of indigenous administration allows for the traditional use, administration and management of resources. In this sense, the care of nature and activities that do not generate deforestation and degradation is promoted and encouraged.
Compliance with Territorial Management Plans.	Among the objectives of the management plan is the importance of having as a foundation the traditional knowledge of the territorial context, the knowledge and practice of activities typical of the culture. In addition, it seeks to strengthen self-knowledge, territorial and environmental autonomy through the governance and administration of traditional knowledge and through cultural practices. For this reason, the activities of the governance basket are related to the management plan since they allow strengthening one's own governance, traditional knowledge and administration systems, and spaces of cultural importance.

Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.
Responsibility and role of actors involved in implementation	• Quye Wyna: technical support • Yauto: implementers • Local communities: implementers

Indicators to report progress					
Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
# of people participating in activities that contribute to recovering, strengthening and maintaining knowledge, cultural practices	**C.1.1**	Impact	Encourage participation in activities that contribute to cultural strengthening	#	What a Wyna Yauto Community Representative
# of women participating in activities that contribute to recovering, strengthening and maintaining knowledge, cultural practices	**C.1.2**	Impact	Encourage the participation of women in activities that contribute to cultural strengthening	#	What a Wyna Yauto Community Representative
# of activities carried out that contribute to recovering, strengthening and maintaining knowledge, cultural practices	**C.1.3**		Carry out activities that contribute to cultural strengthening	#	What a Wyna Yauto Community Representative

Activity ID	**C-3 Governance, operability and administration in the monitoring of agreements**

Description of the REDD+ activity	Improve the implementation of manuals, bylaws and accountability processes.
Relationship of activity with direct or underlying cause	The processes of monitoring and accountability, exercised through the social control of the inhabitants of the territory, constitute a fundamental tool to guarantee the care, use and administration of the territory. Its application strengthens territorial governance and contributes directly to mitigating environmental and social impacts, ensuring that decisions and actions respond to the collective interest and the protection of ecosystems.
Compliance with Territorial Management Plans.	This activity is related to the following objective of the management plan: "To guarantee the exercise of territorial and environmental autonomy through planning, management and execution of plans, programs and projects as a proposal for governance and administration of traditional knowledge that is oriented to the construction of alternative models of life of our peoples".
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.
Responsibility and role of actors involved in implementation	• Quye Wyna: technical support • Yauto: implementers • Local communities: implementers

Indicators to report progress

Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
# of accountability spaces	**C.3.1**	Product	Improve accountability	#	What a Wyna Yauto Community Representative
# of women participating and/or carrying out spaces of accountability	**C.3.2**	Product	Improving participation in accountability	#	What a Wyna Yauto Community Representative

Activity ID	**D-1 Improvement of the quality of life of the population in health, education and infrastructure.**

Description of the REDD+ activity	The quality of life strategy comprises a set of actions aimed at guaranteeing the comprehensive well-being of the indigenous communities of the reservation. In the first place, the construction of infrastructure and community facilities seeks to respond to basic needs of transportation, energy, water and collective spaces that improve habitability and strengthen community organization. Community health actions will also be carried out to provide basic medical care to the population, train local promoters and articulate traditional medicine with Western medicine to strengthen prevention and health care. Finally, the comprehensive and multicultural strengthening of education promotes school permanence, access to higher education and the transmission of knowledge in their own language, integrating traditional and academic knowledge for the benefit of the new generations. Together, these three lines of action seek to guarantee decent living conditions, improve access to essential services, and strengthen the cultural, educational, and health autonomy of communities.
Relationship of activity with direct or underlying cause	Quality of life actions seek to address structural causes that generate pressure on the territory and forests. The lack of basic infrastructure forces communities to depend on external activities and limits their living conditions, increasing vulnerability and dependence on extractive economies. In the same way, health deficiencies generate constant displacements to urban centers and weaken the capacity for self-care, increasing economic pressure on families. Finally, limitations in education reduce opportunities for young people and favor the loss of traditional knowledge, weakening cultural and territorial governance. These actions seek to reduce these direct and underlying causes, strengthening living conditions and avoiding pressure on ecosystems.
Compliance with Territorial Management Plans.	Quality of life actions are directly articulated with the Territorial Management Plans by responding to the priorities defined by the communities around the improvement of infrastructure, the strengthening of health and access to comprehensive education. The construction of infrastructure makes it possible to materialize the guidelines related to the provision of basic services and the strengthening of community spaces. Community health actions are in line with the provisions on comprehensive care, disease prevention and articulation with traditional medicine. Multicultural education, on the other hand, contributes to the preservation of one's own language, the transmission of ancestral knowledge and the academic training of new generations. Together, these measures comply with the commitments established in the Territorial Management Plans, strengthening self-determination and self-government
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.

Responsibility and role of actors involved in implementation	• Quye Wyna: technical support • Yauto: implementers • Local communities: implementers

Indicators to report progress					
Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**
# Initiatives identified, formulated and prioritized for the improvement of the quality of life.	**D.1.1.**	Impact	Identify, formulate, and prioritize initiatives to improve the quality of life of the population	**#**	What a Wyna Yauto Community Representative
# of activities implemented to improve the quality of life of the population of the reservation.	**D.1.2**	Product	Implement activities to improve the quality of life of the population	#	What a Wyna Yauto Community Representative
# of people benefited by community infrastructures, educational activities or health care	**D.1.3.**	Impact	Improve the living conditions of the inhabitants of the reservation through the construction of infrastructure	#	What a Wyna Yauto Community Representative
# of women benefited by community infrastructure, educational activities or health care	**D.1.4**	Impact	Improve the living conditions of the inhabitants of the reservation through the construction of infrastructure	#	What a Wyna Yauto Community Representative

# of people participating in meetings or workshops on educational, health, or infrastructure topics	**D.3.5**	Impact	Improvement of capacities for the implementation of projects.	#	Maguares Yauto Community Representative

Activity ID	**E-1 Productive Projects**				
Description of the REDD+ activity	The activity seeks to generate productive alternatives through a comprehensive process that combines the technical and administrative training of the participants, the construction and delivery of documents, tools and inputs necessary for their development, and the implementation of the initiatives.				
Relationship of activity with direct or underlying cause	The activity directly addresses the causes of deforestation associated with the lack of sustainable economic options and the limited generation of income within the territory. By strengthening productive projects with training, tools, and inputs, alternatives are offered that reduce pressure on the forest and reduce dependence on extractive or low-profitability practices. This promotes stable livelihoods, in line with environmental conservation and the cultural dynamics of the community.				
Compliance with Territorial Management Plans.	One of the objectives of the management plan establishes the creation and promotion of plans, programs and projects that promote economic development and food security, which is related to this activity since through the implementation of productive projects there will be economic development.				
Consultation mechanism to define REDD+ activity	Participatory workshops with the members of the reservation and approval at the general assembly.				
Responsibility and role of actors involved in implementation	● Quye Wyna: technical support ● Yauto: implementers ● Local communities: implementers				
Indicators to report progress					
Name	**ID Indicator**	**Guy**	**Goal**	**Unit of Measure**	**Measurement Manager**

# of activities of productive projects implemented	**E.1.2**	Product	Implement activities in productive projects	#	What a Wyna Yauto Community Representative
# of people participating in productive activities (workshops, trainings, implementation and follow-up)	**E.1.1**	Impact	Have installed capacities for the management of productive projects	#	What a Wyna Yauto Community Representative
# of women participating in productive activities (workshops, trainings, implementation and follow-up)	**E.1.2**	Impact	Have women trained to manage productive projects	#	What a Wyna Yauto Community Representative
# of training spaces implemented	**E.1.3**	Product	Implement training spaces in productive project management	#	What a Wyna Yauto Community Representative
# of planning and tracking tools implemented	**E.2.2.**	Product	Implement tools to plan and monitor productive projects	#	What a Wyna Yauto Community Representative

2.4 Project location

The project is located in the municipalities of, Puerto Santander and Miritií-Paraná (department of Amazonas), in Colombia, South America. It has a total area of 264.625,45 hectares, composed of native amazonian very humid tropical forest.

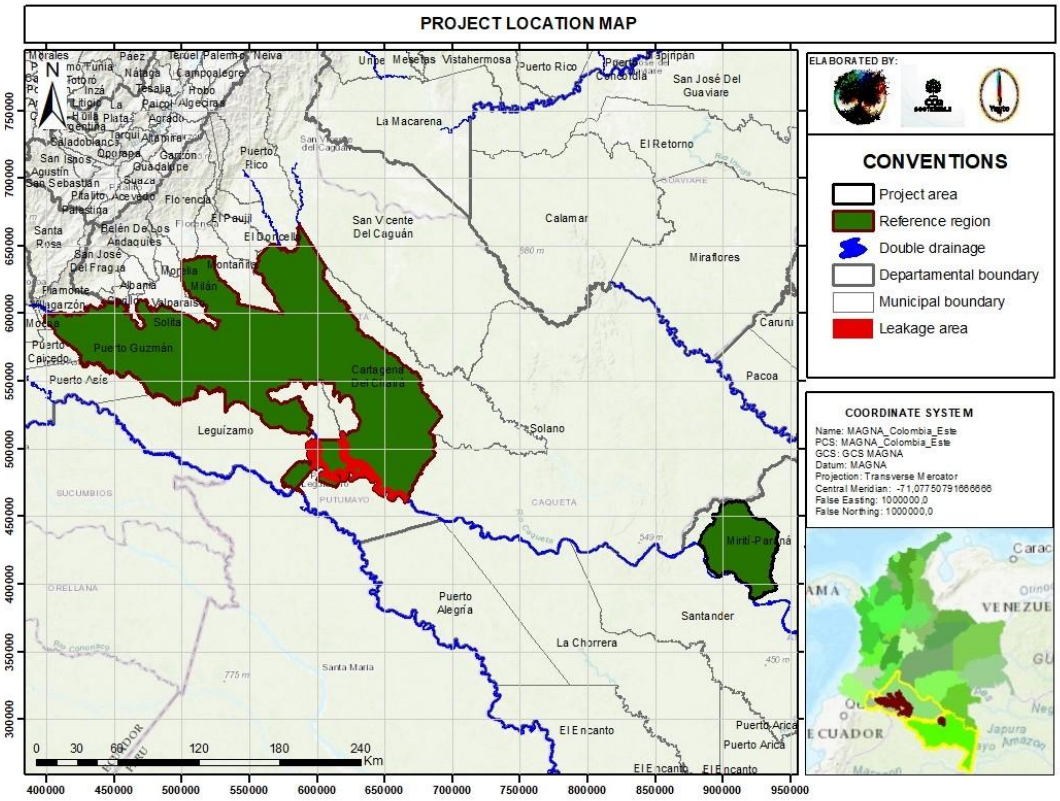


Figure 1. Project Location Map.

2.5 Additional information about the GHG Project

2.5.1 Biophysical characterization of the project area.

The following is the specific biophysical characterization for the project area.

2.5.1.1 Vegetable coverings

According to the Land Cover Shapefile (2018), The main vegetation cover in the project area is dense tall forest on dry land, followed by dense tall heterogeneous floodplain forest. (See Table 1 e Figure 2).

Table 1. Coverage classification in the reference region and project area.

Coverage	PA area (ha)
2.4.3. Mosaic of crops, pastures, and natural areas	66,84
3.1.1.1.1. Dense tall forest on dry land	242.185,11
3.1.1.1.2.1. Dense tall heterogeneous floodplain forest	17.933,48
3.1.1.1.2.3. Palm groves	1.840,86
3.1.1.2.2. Low-lying dense floodplain forest	2.063,19
3.1.3.1. Fragmented forest with pastures and crops	17,85
3.1.3.2. Fragmented forest with secondary vegetation	219,28
3.2.3. Secondary or transitional vegetation	880,03
5.1.1. Rivers	108,31
Total	265.314,95

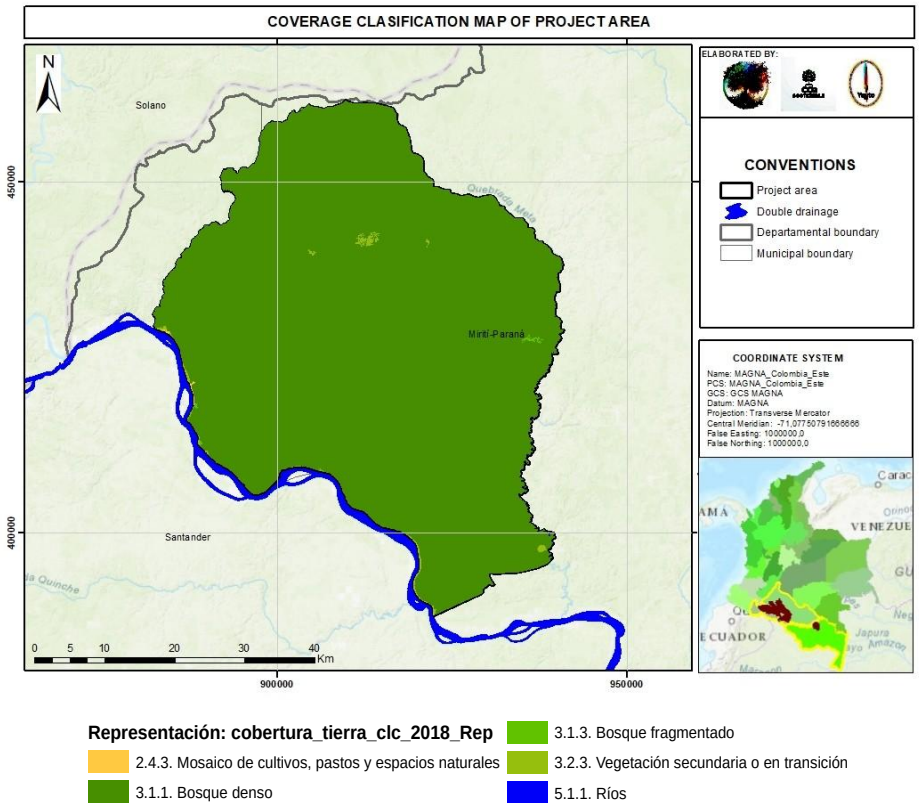


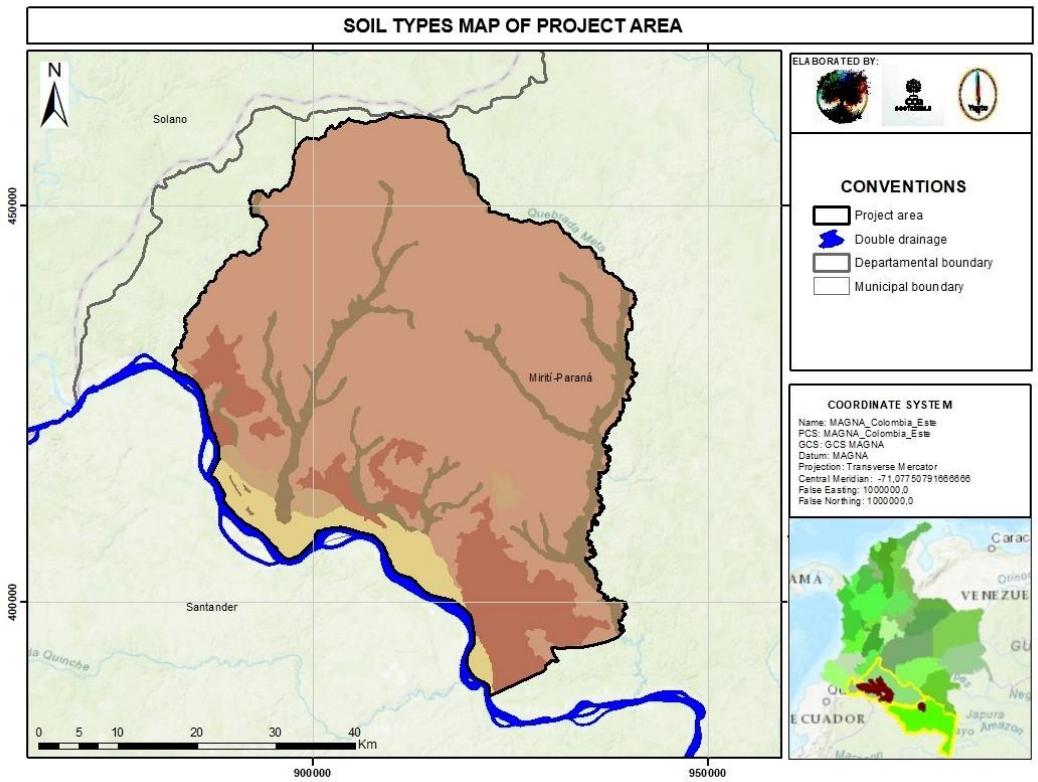
Figure 2. Coverage classification map in the project area.

2.5.1.2 *Geology, geomorphology and soils*

Based on the information provided by the IDEAM 2023 shapefile of continental and coastal marine ecosystems, the predominant soils in the project area are of the type Typic Paleudults, Typic Hapludults, Oxic Dystrudepts, followed by Typic Udifluvents, Aquic Udifluvents, Fluventic Eutrudepts, Aquic Dystrudepts and Typic Endoaquepts, Typic Fluvaquents, Fluvaquentic Eutrudepts (see Table 2 e Figure 3).

Table 2. Soil classification in the reference region and project area.

Soil	PA area (ha)
N.A.	108,40
Oxic Dystrudepts, Typic Hapludults, Typic Haplaquox	4969,83
Typic Endoaquepts, Typic Fluvaquents, Fluvaquentic Eutrudepts	14643,90
Typic Endoaquepts, Typic Fluvaquents, Terric Haplohemists	171,60
Typic Hapludoxs, Oxic Dystrudepts, Typic Dystrudepts	31852,53
Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	188079,04
Typic Udifluvents, Aquic Udifluvents, Fluventic Eutrudepts, Aquic Dystrudepts	25489,64
Total	265314,95



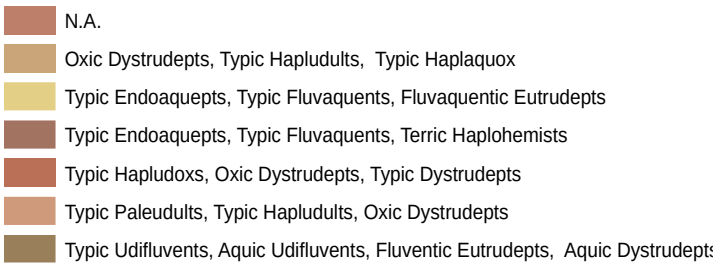


Figure 3. Soil types map of Project area.

2.5.1.3 Climate

Based on information provided by the IDEAM 2023 shapefile of continental and coastal marine ecosystems, the only climate classification present in the project area is Warm humid (See Table 3 e Figure 4).

Table 3. Climate classification in the project area.

Climate	PA area (ha)
Warm humid	265.314,95
Total	265.314,95

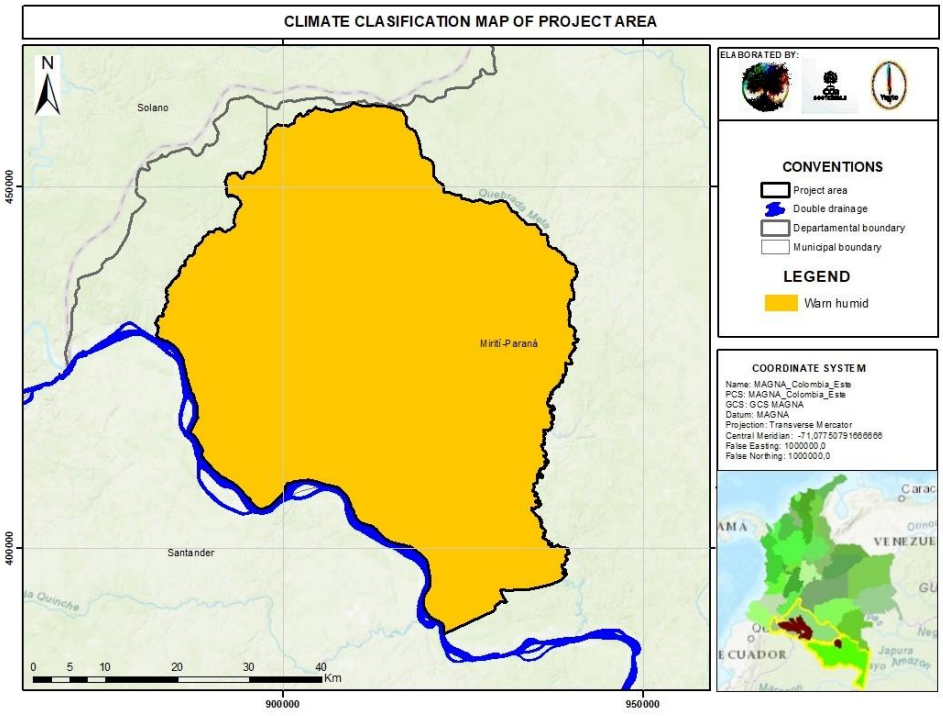


Figure 4. Climate classification map for the project area.

2.5.1.4 Water resources

Access routes for the project area is evaluated according to their classification described in the Basic Vector Database shapefile. Colombia. Scale 1:500,000. Year 2014 from IGAC, being connectors, like rivers, in the departments and municipalities that group the project area (See Figure 5).

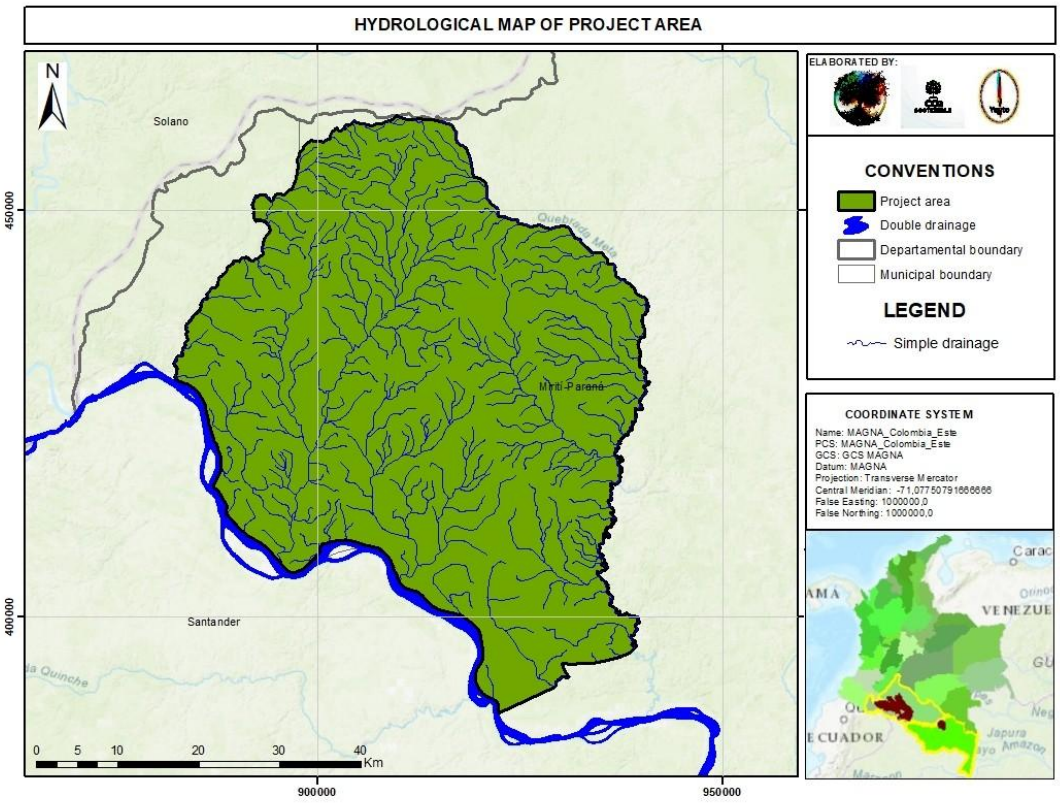


Figure 5. Road classification map in the project area.

2.5.1.5 Precipitation

According to IDEAM's 2017 Annual Precipitation Shapefile, precipitation in the project area is dominated by the 2000 to 2500 mm precipitation range, following for 2500 – 3000 mm (See Table 4 e Figure 6).

Table 4. Precipitation ranges in the project area.

Precipitation 2017 (mm)	PA area (ha)
0 - 500	289,81
1000 - 1500	37437,52
1500 - 2000	36004,77
2000 - 2500	119315,60
2500 - 3000	59313,47
3000 - 4000	8103,21
500 - 1000	4850,55
Total	265314,95

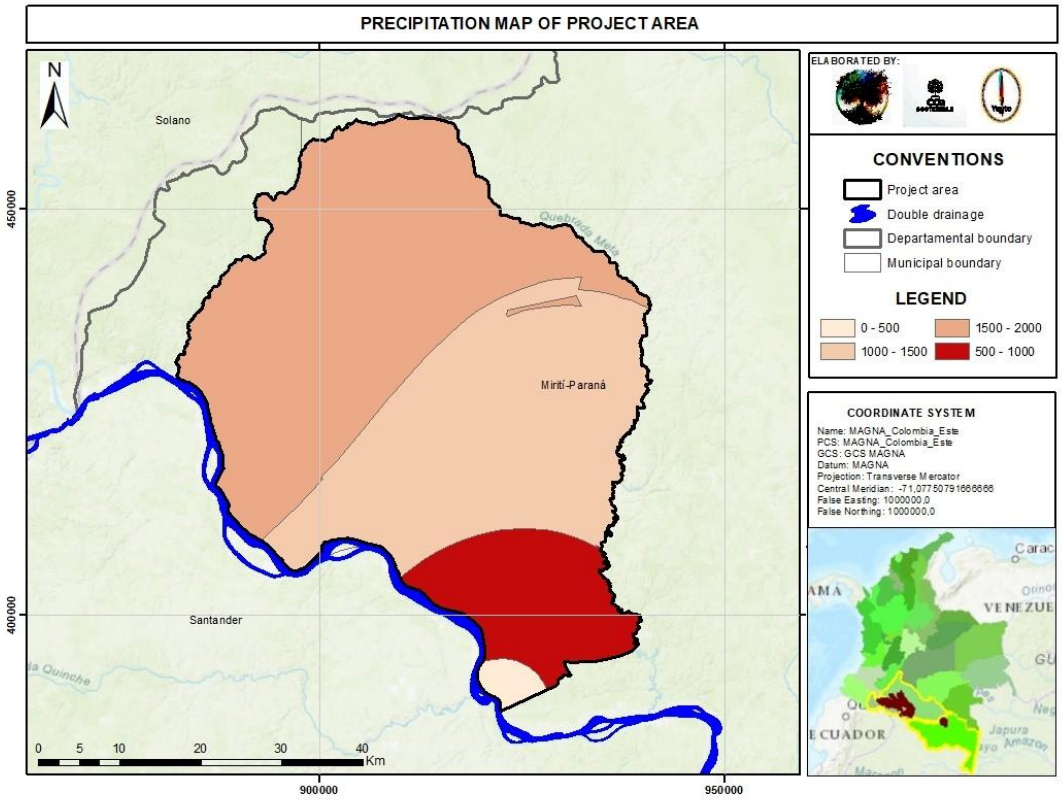


Figure 6. Precipitation map for the project area.

2.5.1.6 Ecosystems

A total of seven (7) ecosystems described in the Table 5, which were obtained using ArcGIS software, using the IDEAM 2023 map of continental and coastal marine ecosystems, as

shown in Figure 7, the types of ecosystems in the project area are mainly Basal Wet Forest and Basal Floodplain Forest.

Table 5. General ecosystems of the project area.

General ecosystems	PA area (ha)
Agroecosystem of Mosaic Crops, Pastures, and Natural Areas	29,96
Basal Wet Forest	249696,38
Fragmented Forest with Secondary Vegetation	120,15
Basal Floodplain Forest	14365,41
Whitewater River	108,40
Transitional Transformed	450,10
Secondary Vegetation	544,55
Total	265314,95

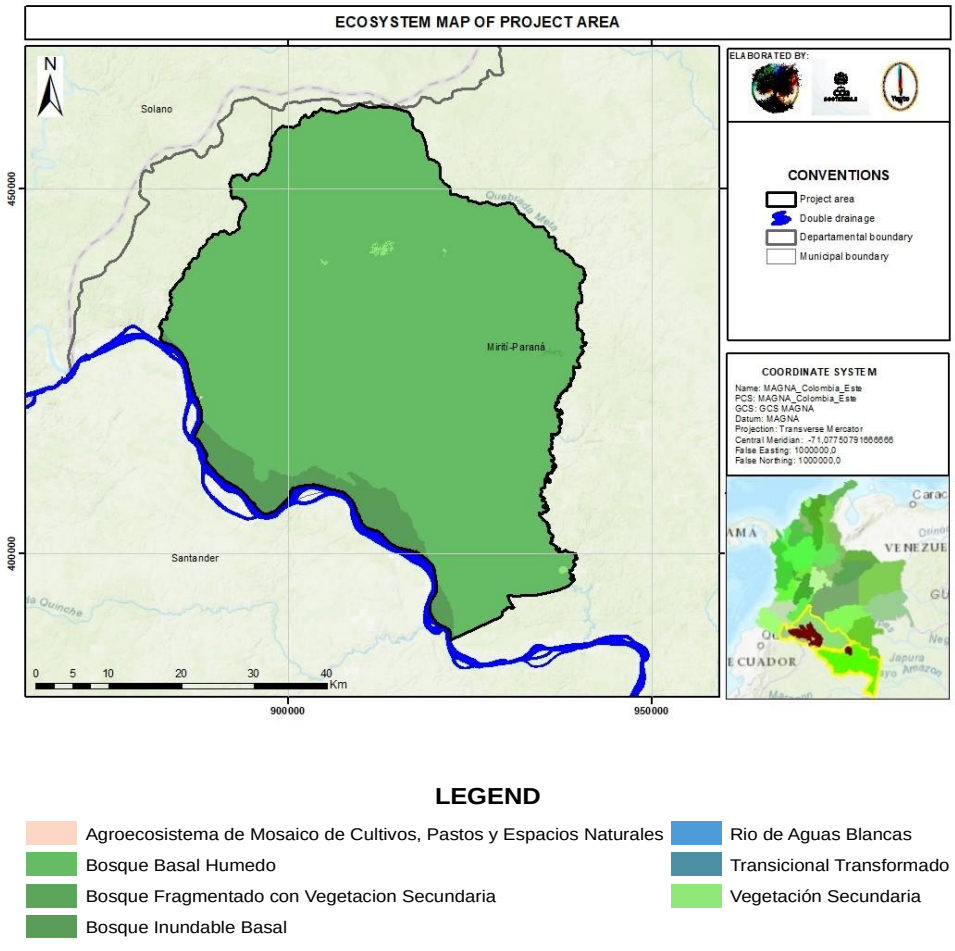


Figure 7. Map of ecosystems present in the project area.

2.5.1.7 Relief

A total of five (5) types of reliefs described in the Table 6, which were obtained using ArcGIS software, using the IDEAM 2023 map of continental and coastal marine ecosystems, as shown in the Figure 8, where the type of relief stands out Hills and slopes.

Table 6. Relief maps of the project area.

Relief	PA area (ha)
Hills and slopes	188079,04
N.A.	108,40
Flood plain	14815,51
Terraces	36822,36
Small valleys	25489,64
Total	265314,95

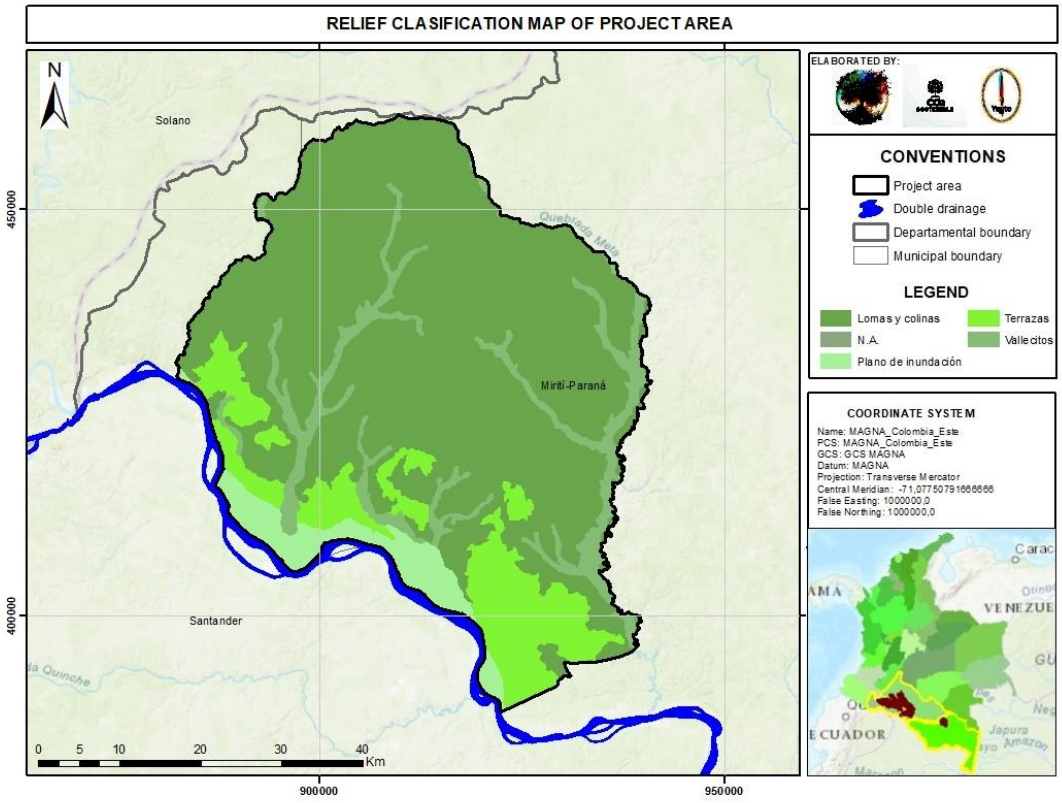


Figure 8. Map of relief features present in the project area.

2.5.1.8 Landscapes

The project area was characterized based on information provided by the IDEAM 2023 continental and coastal marine ecosystems shapefile and using ArcGIS software, finding that hills predominate, as evidenced in the relief chapter (See Table 7 e Figure 9).

Table 7. Landscapes of the project area.

Landscapes	PA area (ha)
Hills	213568,67
N.A.	108,40
Floodplain	19785,34
Valley	31852,53
Total	265314,95

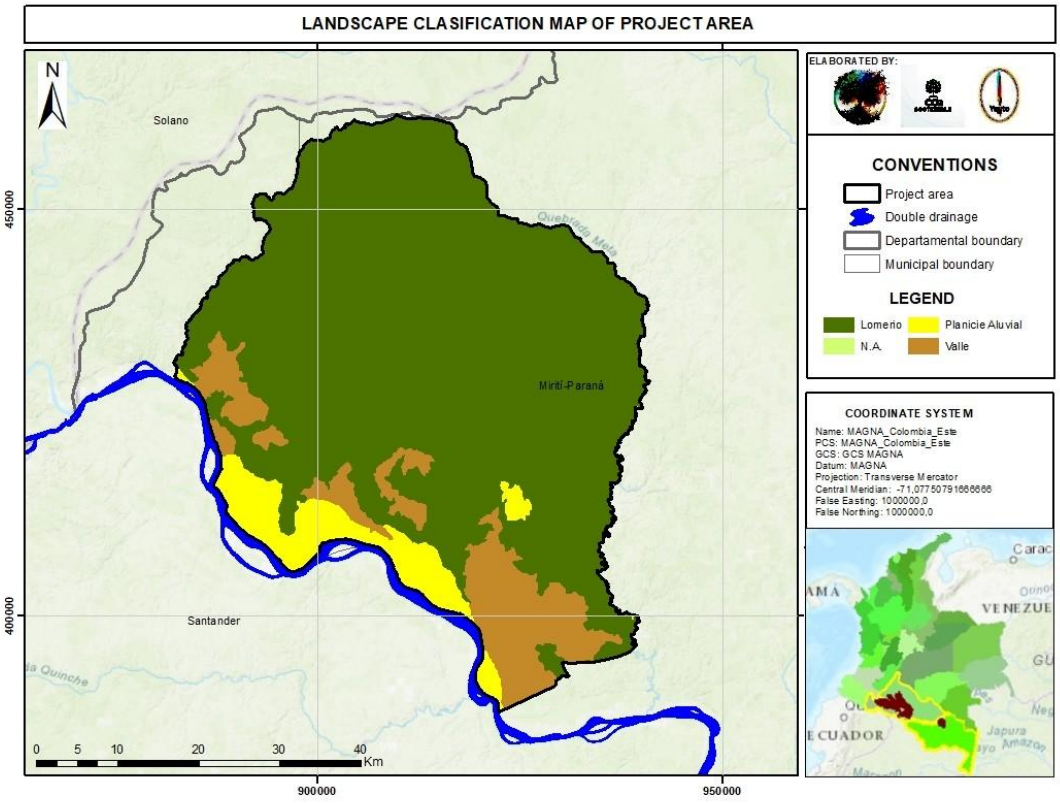


Figure 9. Map of landscapes present in the project area.

3 Quantification of GHG emissions reduction

3.1 Quantification methodology

The project is applying the Methodological Document AFOLU Sector. BCR0002. Quantification of GHG Emission Reductions. REDD+ Projects. Version 4.0.

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

3.1.1 Applicability conditions of the methodology

Table 8. Conditions of applicability of the methodology and its compliance.

Applicability condition	Compliance
a) The areas within the geographical boundaries of the project correspond to the forest category at the beginning of the project activities and ten years prior to the project start date.	Complies. According to the cartographic analysis carried out, it can be determined that the project area corresponds to forest that was present ten years prior to the start date of activities. Evidence in the section Eligible areas within the GHG project boundaries (AFOLU sector projects).
b) The areas within the geographical boundaries of the project do not correspond to the category of wetlands.	Compliant: The entire eligible area is made up of forests and there are no wetlands.
c) There are no organic soils within the geographical boundaries of the project.	Compliant: There are no areas of peatlands or organic soils within the geographical boundaries of the project.
d) The identified causes of deforestation include: expansion of the agricultural frontier, mining, timber extraction, and infrastructure expansion.	Complies. The expansion of the agricultural frontier and timber extraction for subsistence and sale were identified as causes of deforestation in the project area. The evidence is presented in the Causes and Agents of Deforestation/Degradation section.
e) The causes of degradation include: selective logging, firewood extraction, forest fires, forest grazing and expansion of the agricultural frontier - illicit crops.	Complies. In the project area, selective logging and expansion of the agricultural frontier were identified as causes of forest degradation. The evidence is presented in the Causes and Agents of Deforestation/Degradation section.
f) No reduction in deforestation or degradation is expected to occur in the absence of the project.	Complies. Deforestation and degradation trend has been maintained historically and may be maintained in the absence of the project. Evidence in section Sub-step 1a. Identification of probable land use alternatives in the Project areas.

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

3.1.2 Methodology deviations

Not applicable since there is no methodology deviations.

3.2 Project boundaries, sources and GHGs

The spatial and temporal boundaries of the REDD+ Nunuya de Villazul project is described below.

3.2.1 Spatial limits of the project

In defining the spatial boundaries, 1:100,000 scale maps from official sources were used, provided by the Agustin Codazzi Geographic Institute (IGAC) for the base mapping and IDEAM for the forest/non-forest coverage mapping. These sources of information meet the methodological criterion of being reliable information, which, as it is published and produced by national authorities, complies with all quality and accuracy standards.

The MAGNA-SIRGAS/Colombia East coordinate system was adopted for this project, given that its central meridian is geographically closer to the intervention area in the Amazon, significantly reducing metric distortions and ensuring greater accuracy in area and distance calculations.

This choice is in line with the provisions of Resolution 068 of 2005 (adoption of the MAGNA-SIRGAS datum) and Resolution 471 of 2020, ensuring traceability with the country's official geodetic framework, issued by the IGAC, which, in compliance with its functions as the country's highest authority on technical issues related to geodesy, photogrammetry, basic cartography, geography, land use planning, territorial entity

boundaries, and geographical names. Following these principles, official sources of information are understood to be officially validated.

3.2.1.1 Reference region

The project is located in the Colombian Amazon and covers the departments of Caquetá, Putumayo, and Amazonas between the coordinates 4.792.202,22E 1.620.537,08N (MAGNA-SIRGAS Colombia East coordinate system). The distribution of municipalities by department is as follows:

Department	Municipality
Amazonas	Miritíi-Paraná
	Santander
Caquetá	Cartagena Del Chairá
	Solano
	Solita
	Milán
Putumayo	Puerto Leguízamo
	Puerto Guzmán

The reference region corresponds to the area in which the analysis of deforestation, land use change, and deforestation drivers and agents is carried out. The reference region was constructed taking into account the guidelines set out in methodological document BCR0002, version 4.0, in section "9.2 Reference region for baseline estimation," which indicates that the reference region should be similar to the project area in terms of access, agents and determinants of deforestation/degradation, and possible land use changes. The defined reference region includes the entire project area within the Amazon subnational reference level (see purple circle in Figure 10 and Figure 1), which meets the criteria and conditions of the methodology.

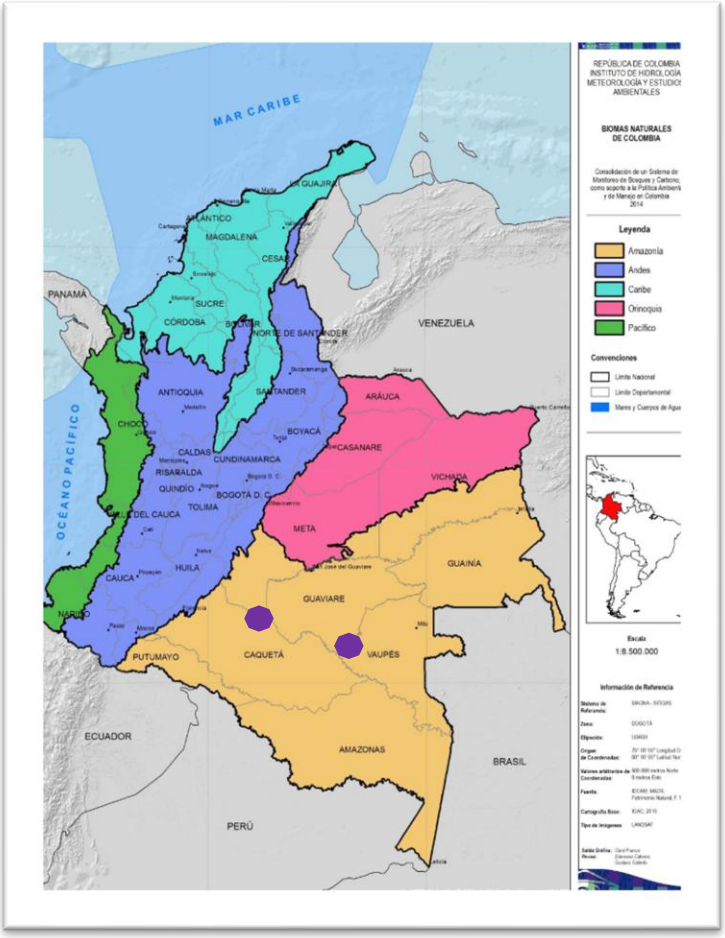


Figure 10 Map of subnational reference regions in Colombia. Based on the biome map (IDEAM, 2014).

The reference region was conservatively defined to exclude the entire Amazon subnational region and the entire departments of Caquetá, Cauca, Putumayo, and Amazonas, specifically to include only the geographical areas where the agents of deforestation interested in acting in the project area originate. Accessibility in the Amazon region is mainly by river, which defines the main criterion for delimiting the reference region; river channels are limited by municipal boundaries so as not to reach the upper parts of the basins (see Figure 1).

The criteria for defining the reference region are as follows:

(a) **The reference region must include the project area:** To comply with this item, the following is presented Figure 1, where it can be seen that the project area and the leakage belt are within the reference region.

(b) **The reference region must be larger than the project area. The size of the reference area must be commensurate with the mobility of the agents of deforestation that may have access to the project area. The reference area must be limited to 10 times the project area:** The size of the reference region is 9.58 times larger than the project area and is concentrated on the waterways that allow access to the project area by agents of deforestation and forest degradation. It is delimited by including the subdivision of the hydrographic areas of the Caquetá, Caguán, Yarí, and Putumayo rivers. Access to this area is mainly via waterways that allow agents to enter the project area directly, as identified in section Causes and agents of deforestation and forest degradation analysis. As important connectors between the region and passing through the project area, they are also of great interest to stakeholders due to their importance in the country, where it has been shown that much of the forest through which the eastern Caquetá originally flowed has been cleared for pasture, rice, corn, cassava, and sugarcane cultivation, and in the last two decades, particularly coca cultivation (Aquae Fundación, s.f). In the case of the Caguán River, conditions have been no different due to the violation of the fundamental rights of riverside populations by mining (mercury pollution), oil activity, hydroelectric projects, deforestation (on the banks of rivers and their surroundings), and poor wastewater management; through the actions or omissions of entities (Instituto SINCHI, 2023). Also, with a large presence of illegal groups, the Llanos del Yarí region has been of great strategic importance to the FARC, as it is a security corridor for the powerful Eastern Bloc, connecting the Duda River basin with the Apaporis River, which flows into the Caquetá River, and both into the Amazon (ONU DDHH, 2016). Finally, since the 1980s, the territory of the department of Putumayo has been the focus of clashes between illegal armed groups, given that its geography is conducive to the cultivation and processing of coca. The tributaries of the Putumayo River have served as transport routes for supplies for illegal groups, contraband, and the coca trade (Rutas del conflicto, s.f).

(c) **The geographic boundaries of the reference region that do not overlap with the project area and the project area must be at least 80% similar in terms of the following physical variables: precipitation, temperature, vegetation strata, soils, slope, access roads:** There is similarity in the physical variables of the reference region and the project area, at least 80%, as evidenced in chapter 3.2.1.1.1 Similarity analysis. (Table 18), complying with this item.

(d) **Socioeconomic and land use conditions, as well as applicable legislation and policies related to land use, must be similar to those in the project area**

and must be consistent with the reference region: Socioeconomic conditions (see section Causes and agents of deforestation and forest degradation analysis) and land use, as well as the applicable laws and policies related to this use, are similar to those in the project area and consistent with the reference region. This correspondence is also reflected in the land tenure patterns present in both areas. In the reference region, there are thirty-seven (37) indigenous reserves, recognized as a special legal and sociopolitical institution, made up of an indigenous community or group that, with a community property title, owns its territory and administers it in accordance with its indigenous jurisdiction or cultural guidelines and traditions (SIAT-AC, s.f), Since the mid-20th century, the National Government has incorporated into its legislation the recognition of the rights of indigenous peoples over the territories they have occupied since ancient times (CORPOAMAZONIA, s.f) reaffirming compliance with this condition (See 3.2.1.1.1.11 Land tenure).

(e) **Differences in land tenure or legal status between the project area and the reference region should not affect the causes and drivers of deforestation and degradation or the trends in deforestation and degradation:** Differences in land tenure or legal status between the project area and the reference region do not affect the causes or agents of deforestation and degradation (See 3.2.1.1.1.11 Land tenure). The region in question includes areas corresponding to Indigenous Reserves, yet deforestation occurs widespread, regardless of land tenure. This pattern is evident in the following illustration and is directly related to the movement of agents of deforestation and forest degradation along the main rivers—as explained in item (b)—which also cross the reference region and have the highest rates of deforestation in their surroundings (See Figure 11). This coincides with the fact that much of the jungle through which the eastern Caquetá originally flowed has been transformed into pastures, rice, corn, cassava, and sugarcane crops, and that in the last two decades it has been used especially for coca cultivation (Aquae Fundación, s.f).

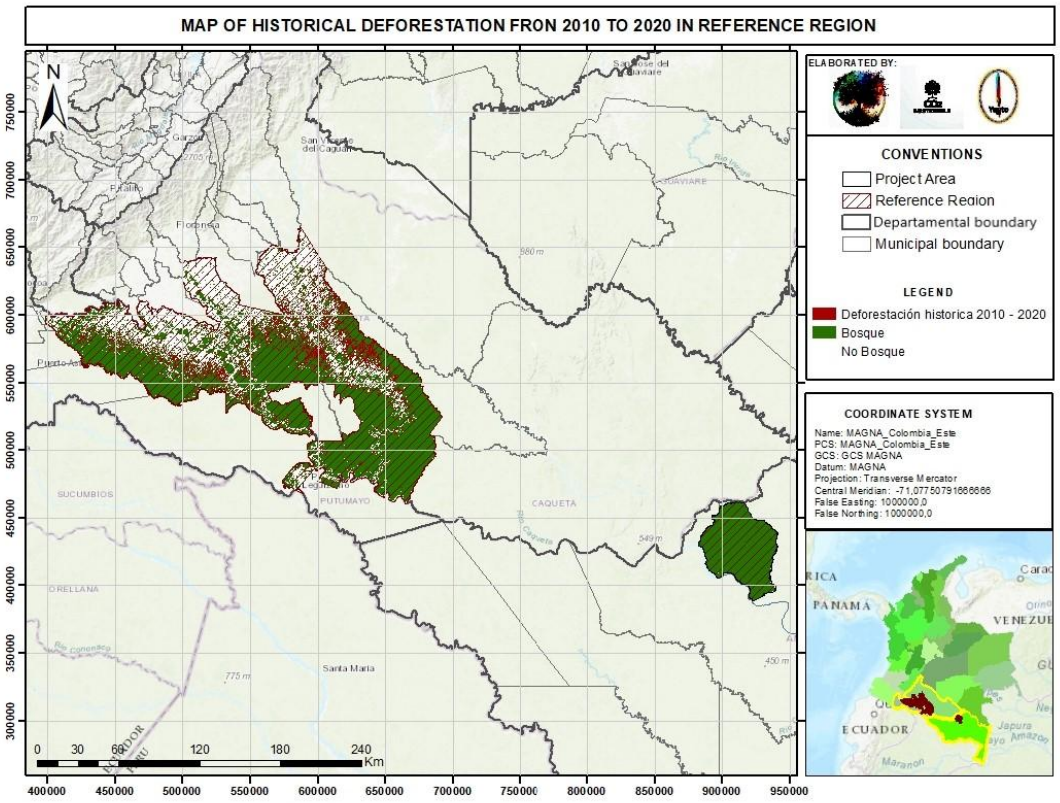


Figure 11. Map of historical deforestation from 2010 to 2020 in the reference region.

(f) **Agents and drivers of deforestation/degradation identified in the reference region can access the project area:** Access to the project area by agents and drivers of deforestation and degradation identified in the reference region is frequent and sustained, facilitated by the main tributaries that connect the territory, as previously indicated in section (b). Additionally, there have historically been illegal groups and conflicts related to land ownership in the area.

(g) **The project area is of interest to the agents identified in f; above:** The project area has similar characteristics to those of the reference region—as noted in section (c)—and has historically been affected by deforestation and forest degradation (section e). Furthermore, it is possible to identify, according to the chronological report issued by the Institute of Hydrology, Meteorology, and Environmental Studies (IDEAM, by its acronym in Spanish), that between 2015 and 2020, 15,957 hectares of native forest were cleared in the municipality of Leguízamo as a result of extensive livestock farming and the planting of illicit crops (Radio Nacional de Colombia, 2022). After Puerto Asís, Leguízamo is the second

municipality in the department of Putumayo with the highest rate of Amazonian Forest clearing, whose lands, he reiterated, are used for coca cultivation and livestock farming (Radio Nacional de Colombia, 2022). Also, in the case of Puerto Leguízamo, since the 1990s, the territory has been marked by constant deforestation to implement extensive livestock production systems, which marks a significant milestone of ecological change and disconnection due to the high level of deforestation for the implementation of clean pastures (Forero et al, 2018).

The example of Leguízamo reflects a pattern that is repeated in other municipalities in the Amazon region, where river and land connectivity facilitate the entry of agents and drivers of deforestation. In Cartagena del Chairá (Caquetá), 5,184 hectares were deforested in 2023, with an uptick in 2024 due to the conversion of forest into pasture for livestock, illicit crops, and the opening of illegal roads (MinAmbiente, 2024). San Vicente del Caguán (Caquetá) reached 3,909 hectares of deforestation in 2023 and saw an increase in 2024 due to the expansion of the agricultural frontier and the activities of illegal armed groups (MinAmbiente, 2024). Solano (Caquetá) accumulated more than 14,600 hectares of deforestation in the last four years, being identified in 2024 as one of the most active centers of deforestation amid disputes between armed dissidents (Paz, A, 2024). For its part, Miritíi-Paraná (Amazonas), although less densely populated, faces growing pressure from illicit crops and the transit of armed actors who use the Miritíi-Paraná River as a strategic route for transporting illegally harvested timber and bringing in machinery (Ramirez y Jones, 2021).

The impact of road infrastructure projects in these areas is decisive, as it encourages changes in land cover and land use, fragmenting forests. Using multi-temporal satellite images, the following has been identified: 1) the road axis as the basis for transformation, and 2) the beginning of the ecological fracture of Amazonian ecosystems in the lower Putumayo, over the last decade (Forero et al, 2018).

Added to these factors are the particular climatic conditions of the Amazon basin, which, with its 6.5 million km² and its influence from the Intertropical Convergence Zone (ITCZ), represents the largest evapotranspiration zone on the planet and generates approximately 50% of its rainfall through evapotranspiration from the tropical forest (Forero et al, 2018). This information is reinforced by the social data collected in community workshops, which can be found in the section Causes and agents of deforestation and forest degradation analysis, evidencing that the strategic location of the project area and the similarity of its conditions to

the areas of greatest forest pressure in the region make it a priority target for agents of deforestation and degradation.

(h) Special management areas or areas within the geographical boundaries of other GHG projects are excluded: To comply with this provision, a spatial analysis was carried out using ArcGIS software, which shows that special management areas such as protected areas, 1% compensation, RAMSAR wetlands, peace forests, RUNAP, and peasant reserve areas are excluded (See Figure 12 and Figure 13). Also, it is evident that GHG projects are not included within the reference region (See section 15 Double counting avoidance).

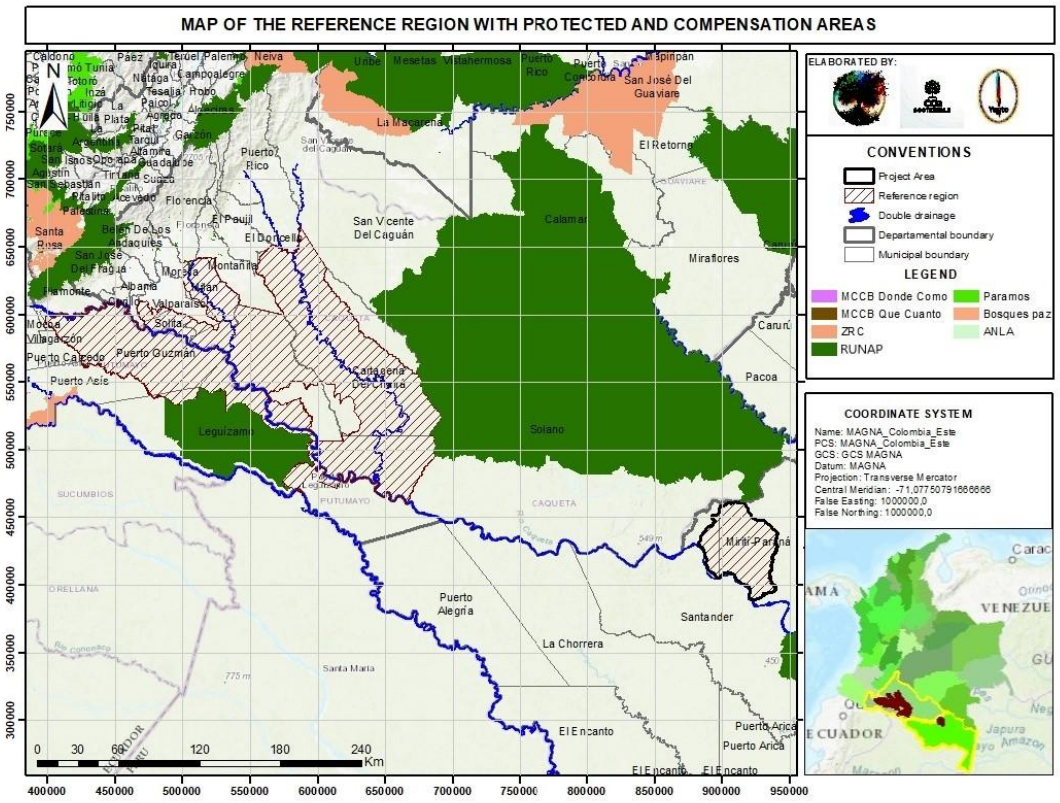


Figure 12. Exclusion of protected and compensation areas in the reference region.

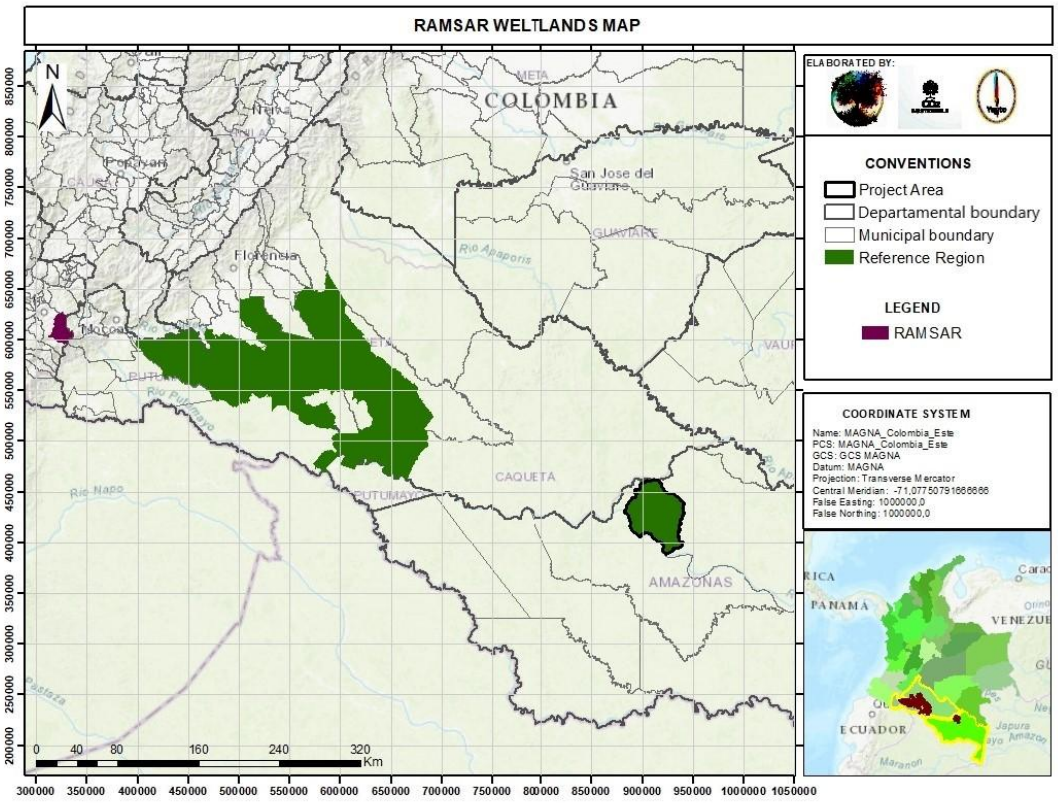


Figure 13. Exclusion of RAMSAR wetlands in the reference region.

(i) Excludes areas with restricted access to agents and causes of deforestation and forest degradation: As demonstrated in the previous section, all National Natural Park areas are excluded because they are considered a priori to be areas with restricted access to agents and drivers of deforestation and degradation, as observed in the Figure 12 and Figure 13.

Below, we describe their biophysical and political characteristics according to land tenure patterns and land use rights.

3.2.1.1.1 Similarity analysis.

One of the criteria for defining the reference region is similarity to the project area in terms of access, agents and determinants of deforestation/degradation, and potential land use changes, based on the following physical variables:

3.2.1.1.1.1 Vegetable coverings

According to the Land Cover Shapefile (2018), a comparison is made between the corresponding strata within the reference area without overlap and the project area, finding that there is an average similarity of 96.77% between them (See Table 9 and Figure 14).

Table 9. Coverage classification in the reference region and project area.

Coverage	Percentage	RR area (ha)	Percentage	PA area (ha)
1.1.1. Continuous urban fabric	0,01%	220,1	0,00%	-
1.1.2. Discontinuous urban fabric	0,01%	264,0	0,00%	-
1.2.4. Airports	0,00%	98,7	0,00%	-
2.3.1. Clean pastures	19,85%	457.423,4	0,00%	-
2.3.2. Wooded pastures	0,01%	239,9	0,00%	-
2.3.3. Weedy pastures	2,39%	55.025,9	0,00%	-
2.4.2. Mosaic of pastures and crops	0,26%	6.023,6	0,00%	-
2.4.3. Mosaic of crops, pastures, and natural areas	1,30%	29.951,2	0,03%	66,8
2.4.4. Mosaic of pastures with natural areas	4,38%	100.855,9	0,00%	-
2.4.5. Mosaic of crops with natural areas	0,00%	22,6	0,00%	-
3.1.1.1.1. Dense tall forest on dry land	46,94%	1.081.976,7	91,28%	242.185,1
3.1.1.1.2.1. Dense tall heterogeneous floodplain forest	8,48%	195.360,1	6,76%	17.933,5
3.1.1.1.2.3. Palm groves	0,60%	13.832,9	0,69%	1.840,9
3.1.1.2.1. Dense low forest on dry land	0,01%	322,4	0,00%	-
3.1.1.2.2. Dense low floodplain forest	0,00%	-	0,78%	2.063,2
3.1.3.1. Fragmented forest with pastures and crops	0,38%	8.683,1	0,01%	17,9
3.1.3.2. Fragmented forest with secondary vegetation	1,41%	32.487,1	0,08%	219,3
3.1.4. Gallery and riparian forest	0,01%	118,9	0,00%	-
3.2.1.1.2.1. Dense floodplain grassland without trees	0,07%	1.511,7	0,00%	-
3.2.1.1.2.2. Dense floodplain grassland with trees	0,06%	1.331,5	0,00%	-
3.2.1.2.1. Open sandy grassland	0,002%	38,3	0,00%	-
3.2.2.1. Dense shrubland	0,13%	3.018,2	0,00%	-
3.2.3. Secondary or transitional vegetation	11,18%	257.565,6	0,33%	880,0
3.3.1. Natural sandy areas	0,17%	3.871,0	0,00%	-
3.3.4. Burned areas	0,13%	3.005,3	0,00%	-
4.1.1. Wetland areas	0,27%	6.188,9	0,00%	-

Coverage	Percentage	RR area (ha)	Percentage	PA area (ha)
5.1.1. Rivers	1,86%	42.803,9	0,04%	108,3
5.1.2. Natural lagoons, lakes, and marshes	0,11%	2.579,7	0,00%	-
TOTAL	100%	2.304.820,8	100,00%	265.314,9

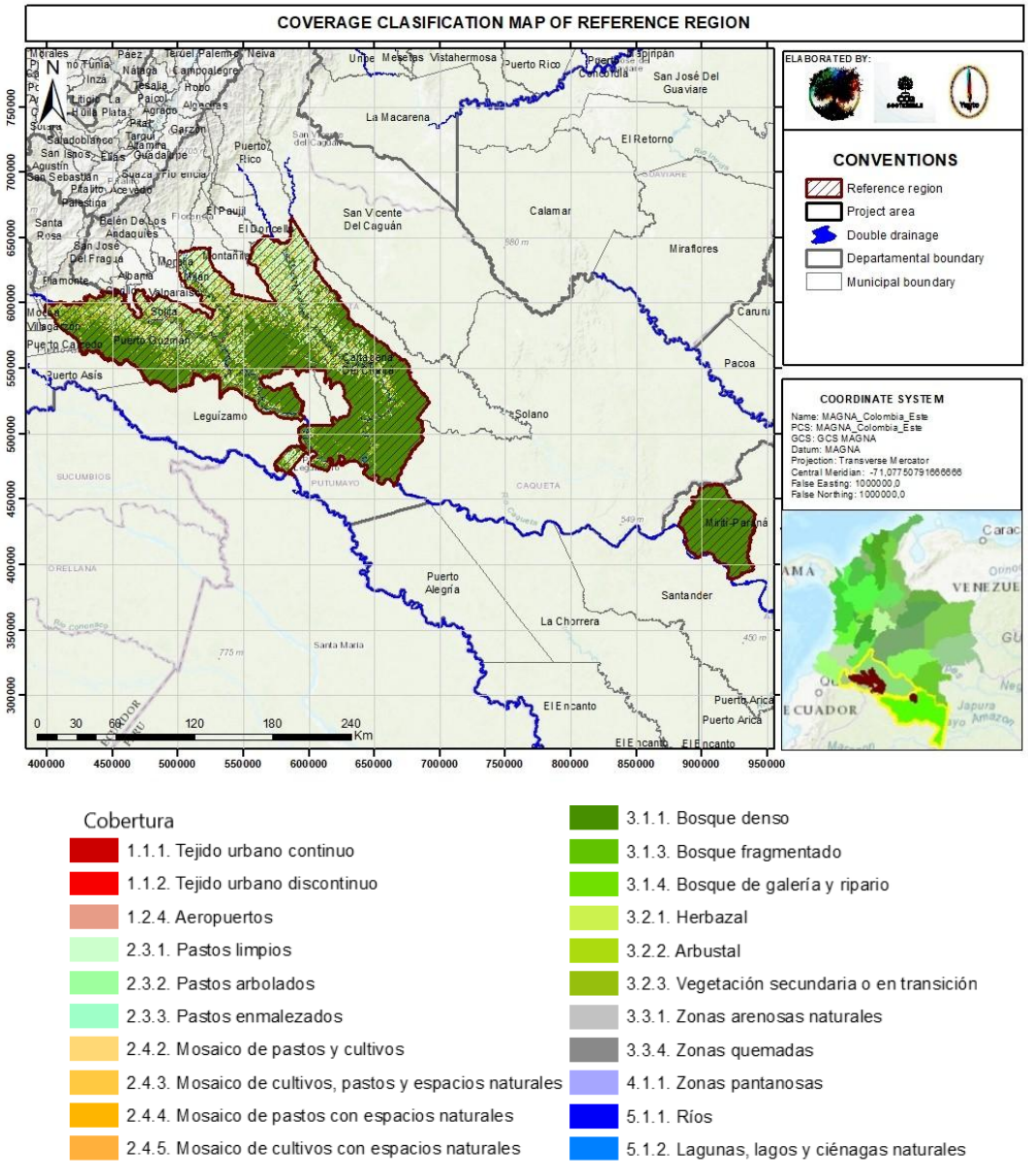


Figure 14. Coverage classification map in the reference region.

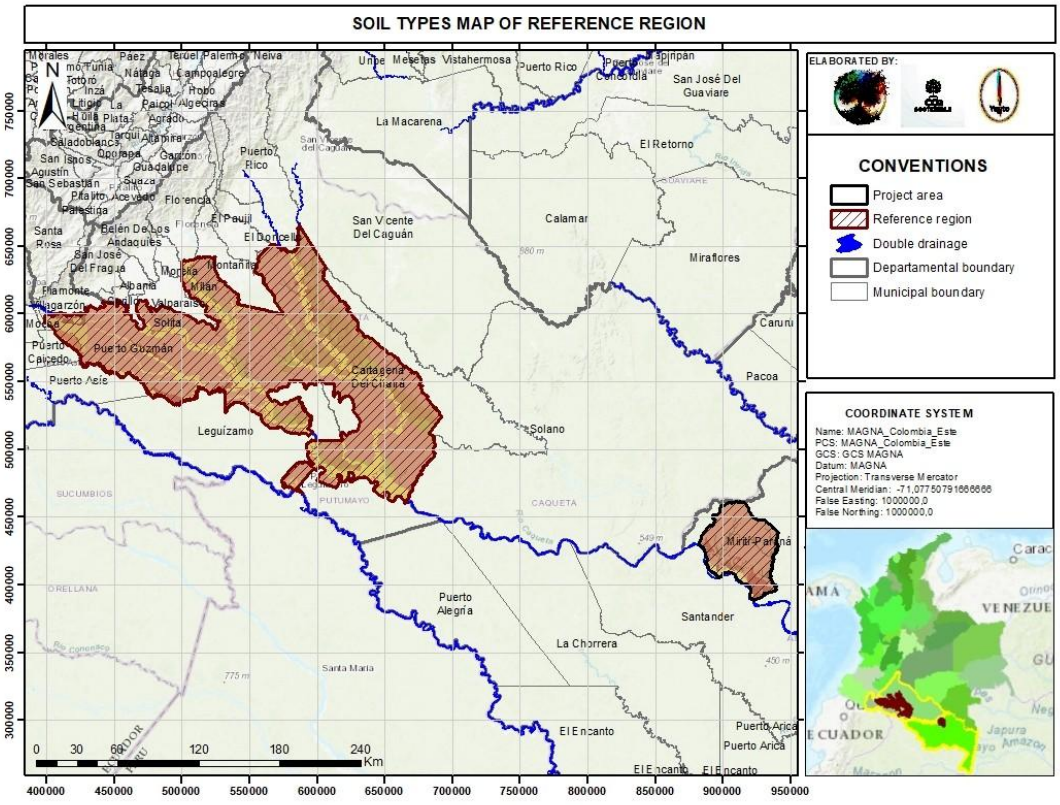
3.2.1.1.1.2 Geology, geomorphology and soils

Within the comparison of soil types present in the reference area without overlap with the project area, based on the information provided by the IDEAM 2023 shapefile of continental and coastal marine ecosystems, it was found that the soil associations have similar characteristics and comply with the parameters for delimiting the reference area, coinciding in more than 80% with those present (See Table 10 and Figure 15).

Table 10. Soil classification in the reference region and project area.

Soil	Percentage	RR area (ha)	Percentage	PA area (ha)
Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aeric Fluvaquents	1,70%	39.288,8	0,00%	-
Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aquic Udifluvents	15,36%	354.062,7	0,00%	-
Fluvaquentic Eutrudepts, Fluvaquentic Endoaquepts,Aeric Fluvaquents	0,00%	103,2	0,00%	-
Fluventic Dystrudepts, Fluvaquentic Endoaquepts, Typic Fluvaquents	0,90%	20.730,1	0,00%	-
Fluventic Dystrudepts, Typic Fluvaquents, Fluventic Eutrudepts	0,71%	16.369,6	0,00%	-
Fluventic Dystrudepts, Typic Fluvaquents, Typic Dystrudepts	0,11%	2.580,7	0,00%	-
Fluventic Endoaquepts, Typic Endoaquepts, Oxic Dystrudepts	0,00%	89,2	0,00%	-
Hydric Haplohemists, Fluventic Dystrudepts	0,18%	4.236,6	0,00%	-
Inceptic Hapludoxs, Typic Hapludults, Oxic Dystrudepts	1,36%	31.315,1	0,00%	-
N.A.	2,09%	48.251,2	0,04%	108,40
Oxic Dystrudepts, Typic Dystrudepts, Typic Kandiudoxs	0,56%	12.932,0	0,00%	-
Plinthic Hapludoxs, Typic Paleudults, Oxic Dystrudepts, Typic Dystrudepts	10,73%	247.211,8	0,00%	-
S.I.	0,06%	1.284,5	0,00%	-
Typic Dystrudepts, Oxiaquic Dystrudepts, Typic Humudepts	0,52%	12.090,7	0,00%	-
Typic Endoaquepts	0,03%	687,4	0,00%	-
Typic Endoaquepts, Typic Udifluvents, Fluventic Endoaquepts	0,00%	97,2	0,00%	-
Typic Fluvaquents, Typic Udifluvents, Aeric Endoaquepts	0,12%	2.666,4	0,00%	-
Typic Hapludoxs, Oxic Dystrudepts, Typic Dystrudepts	1,18%	27.104,0	12,01%	31.852,53
Typic Hapludoxs, Typic Hapludults	4,95%	114.018,5	0,00%	-
Typic Humaquepts, Hydric Haplofibrists	0,18%	4.047,6	0,00%	-
Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	58,94%	1.358.376,2	70,89%	188.079,04
Oxic Dystrudepts, Typic Hapludults, Typic Haplaquox	0,00%	-	1,87%	4.969,83

Soil	Percentage	RR area (ha)	Percentage	PA area (ha)
Typic Endoaquepts, Typic Fluvaquents, Fluvaquentic Eutrudepts	0,00%	-	5,52%	14.643,90
Typic Endoaquepts, Typic Fluvaquents, Terric Haplohemists	0,00%	-	0,06%	171,60
Typic Udifluvents, Aquic Udifluvents, Fluventic Eutrudepts, Aquic Dystrudepts	0,00%	-	9,61%	25.489,64
Typic Udifluvents, Fluvaquentic Endoaquepts, Typic Udipsamments	0,32%	7.277,2	0,00%	-
Total	100,00%	2.304.820,8	100,00%	265.314,9



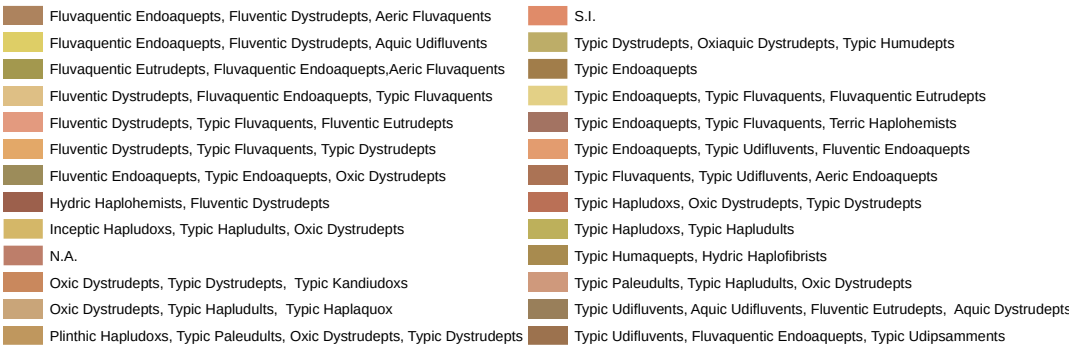


Figure 15. Coverage classification map in the reference region

3.2.1.1.1.3 Climate

Regarding the identification of similarities between the reference area without overlap and the project area, it was found that, for both, more than 95% of the climate corresponds to warm and humid, based on information provided by the IDEAM 2023 shapefile of continental and coastal marine ecosystems (See Table 11 and Figure 16).

Table 11. Climate classification in the reference region and project area.

Climate	Percentage	RR area (ha)	Percentage	PA area (ha)
Warm and humid	95,77%	2.207.290,1	100,00%	265.314,95
Warm and semi-humid	0,06%	1.417,1	0,00%	-
Warm and super-humid	4,06%	93.493,3	0,00%	-
S.I.	0,11%	2.620,3	0,00%	-
Total	100,00%	2.304.820,8	100,00%	265.314,95

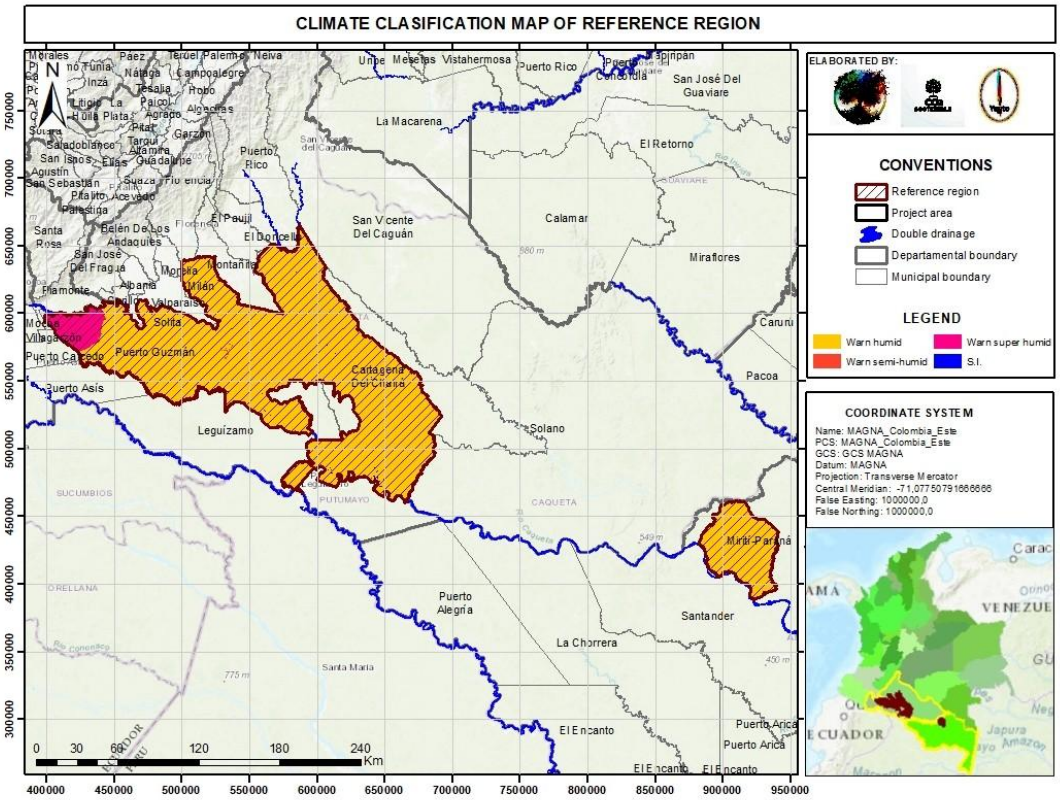


Figure 16. Climate classification map for the reference region

3.2.1.1.1.4 Access roads

Access routes for the reference area and the project area are evaluated according to their classification described in the Basic Vector Database shapefile. Colombia. Scale 1:500,000. Year 2014 from IGAC, being connectors, like rivers, in the departments and municipalities that group the study areas and complying with the description in methodology BCR0002 and observing that the actors of deforestation and forest degradation can access the territories through the same routes (See Table 12 and Figure 17).

Table 12. Road classification in the reference region and project area.

Roads	Road length (Km)	% RR	Road length (Km)	% PA
1	0,03	0,000001%	-	0%
4	132,36	0,005743%	-	0%
5	215,41	0,009346%	-	0%
6	450,78	0,019558%	-	0%

Roads	Road length (Km)	% RR	Road length (Km)	% PA
Total	798,59	0,034649%	-	0%

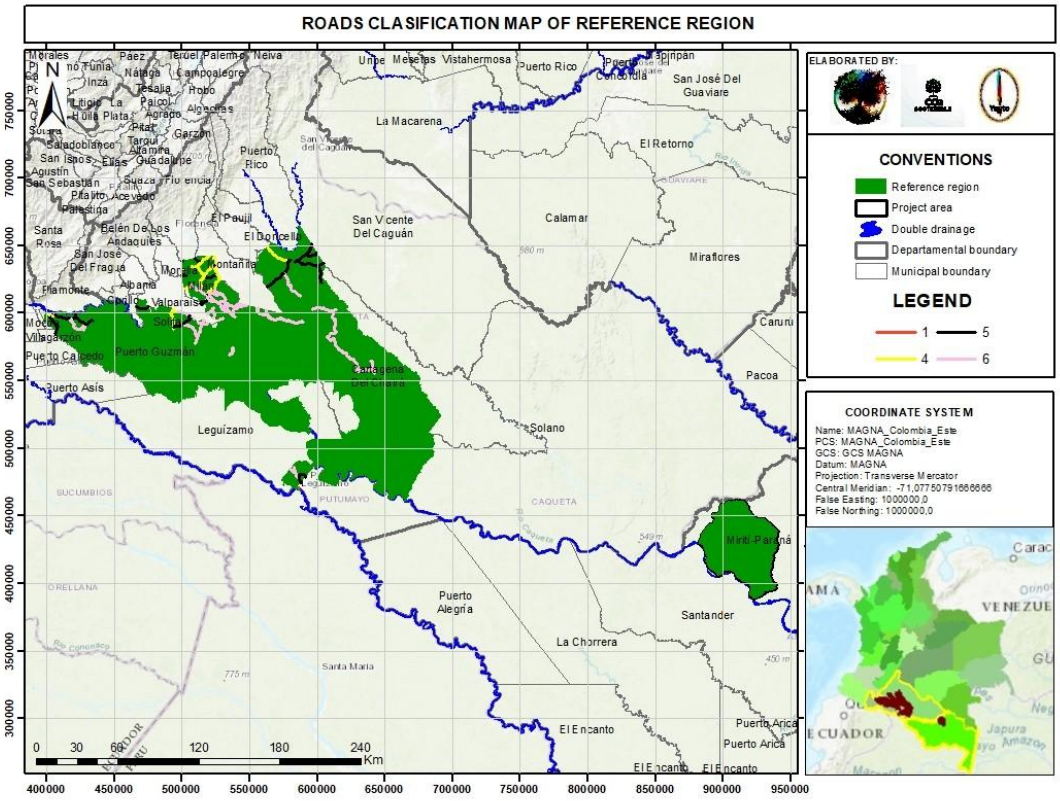


Figure 17. Road classification map in the reference region

3.2.1.1.1.5 Precipitation

According to IDEAM's 2017 Annual Precipitation Shapefile, precipitation in the two study areas is dominated by the 2,000 to 2,500 mm precipitation range, which allows for the description and establishment of similar behaviors (See Table 13 and Figure 18).

According to IDEAM, this similarity can be explained by the fact that the Amazon is a vast expanse of vegetation that contributes a large amount of moisture to the air, which is transported westward by the trade winds. Colombia, located to the northwest of this area, receives a significant amount of this moisture, which induces particular characteristics in the climate, especially in the southeastern sector known as the Colombian Amazon. In the

Colombian Amazon, the masses of moist air moving westward encounter the Andes Mountain range. Forced to rise by the terrain, the moisture condenses, generating vertical cloud development and abundant precipitation. This makes the northwest of the Amazon (i.e., the Colombian Amazonian territory) one of the rainiest areas in the entire region. Thus, areas of Colombia such as the Amazonian foothills and plains are notable for being quite rainy. The effects of the Amazon are not limited to the southeastern sector, but extend to the south and center of the Colombian Andean region. At certain times of the year, synoptic systems from the Amazon bring significant amounts of humidity and precipitation to the southern part of the Andean region, particularly to the upper reaches of the Putumayo, Caquetá, and Magdalena rivers.

Table 13. Precipitation ranges in the reference region and project area.

Precipitation 2017 (mm)	Percentage	RR area (ha)	Percentage	PA area (ha)
0 - 500	0%	-	0,1%	289,8
1000 - 1500	3,8%	86.598,4	14,1%	37.437,5
1500 - 2000	21,1%	485.661,0	13,6%	36.004,8
2000 - 2500	40,0%	921.316,4	45,0%	119.315,6
2500 - 3000	27,0%	622.476,5	22,4%	59.313,5
3000 - 4000	7,7%	177.908,6	3,1%	8.103,2
4000 - 5000	0,2%	3.830,2	0%	-
500 - 1000	0,3%	7.029,6	1,8%	4.850,6
Total	100%	2.304.820,8	100,0%	265.314,9

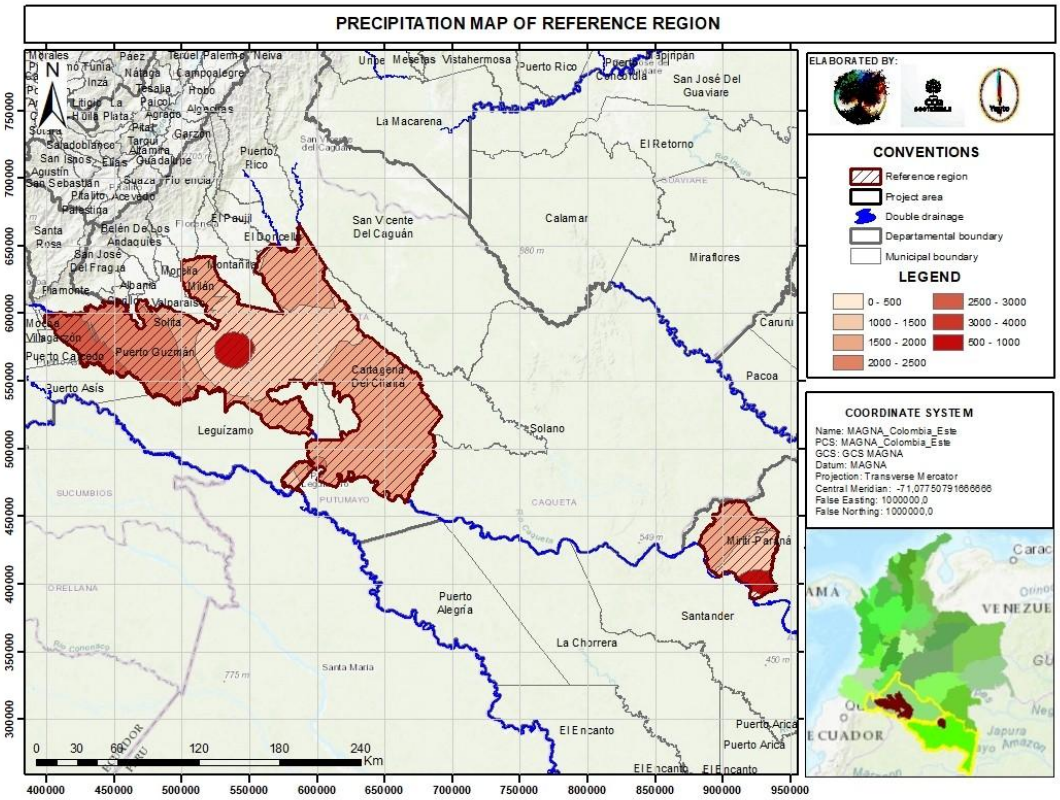


Figure 18. Precipitation map for the reference region.

3.2.1.1.1.6 Water resources

Based on secondary information from the IGAC's Cartografía Base 2022 geodatabase and using ArcGIS software, it was identified that the proportion of the drainage area is 99.93% similar to its total area, thus meeting the methodological requirement (See Table 14).

Table 14. Simple drainage systems in the reference region and project area.

Simple drains	Percentage	Length (km)	Percentage	Length (km)
Proportion of drains per area	0,54%	12.416,75	0,61%	1.626,79
Total area		2.304.820,8		265.314,9

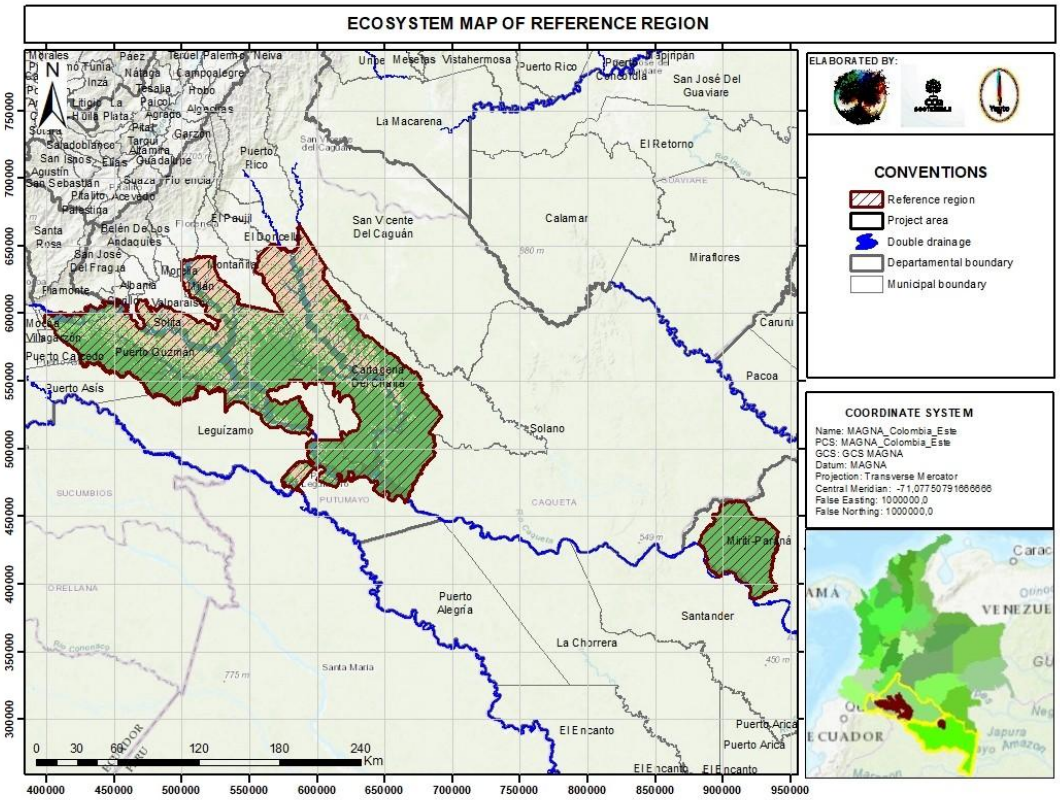
3.2.1.1.1.7 Ecosystems

A total of twenty-two (22) ecosystems described in the Table 15, which were obtained using ArcGIS software, using the IDEAM 2023 map of continental and coastal marine ecosystems, as shown in Figure 19, the types of ecosystems are on average 95.46% similar

between the project area and the reference region, thus meeting the methodological requirements.

Table 15. General ecosystems of the reference region and project area.

General ecosystems	Percentage	RR area (ha)	Percentage	PA area (ha)
Crop and Pasture Mosaic Agroecosystem	0,20%	4.612,8	0,00%	-
Crop, Pasture, and Natural Space Mosaic Agroecosystem	0,96%	22.120,6	0,01%	29,96
Pasture and Natural Space Mosaic Agroecosystem	3,31%	76.331,4	0,00%	-
Livestock Agroecosystem	19,90%	458.574,8	0,00%	-
Humid Basal Shrubland	0,00%	29,4	0,00%	-
Flooded Basal Shrubland	0,13%	3.045,9	0,00%	-
Basal Wet Forest	44,14%	1.017.314,4	94,11%	249.696,38
Basal Wet Gallery Forest	0,00%	38,0	0,00%	-
Basal Floodplain Gallery Forest	0,00%	72,7	0,00%	-
Fragmented Forest with Pastures and Crops	0,34%	7.813,6	0,00%	-
Fragmented Forest with Secondary Vegetation	1,18%	27.188,9	0,05%	120,15
Basal Floodplain Forest	12,59%	290.205,1	5,41%	14.365,41
Basal Floodplain Grassland	0,12%	2.870,6	0,00%	-
Alluvial Lagoon	0,11%	2.589,0	0,00%	-
Whitewater River	1,98%	45.662,2	0,04%	108,40
Seasonal Savanna	0,11%	2.581,7	0,00%	-
Flooded Savanna	0,00%	38,3	0,00%	-
Artificialized Territory	0,02%	475,5	0,00%	-
Transitional Transformed	6,41%	147.662,0	0,17%	450,10
Secondary Vegetation	8,04%	185.225,8	0,21%	544,55
Basal Swamp Area	0,28%	6.563,5	0,00%	-
Natural Sandy Areas	0,17%	3.804,5	0,00%	-
Total	100,00%	2.304.820,8	100,00%	265.314,9



LEGEND

- Agroecosistema Ganadero
- Agroecosistema de Mosaico de Cultivos y Pastos
- Agroecosistema de Mosaico de Cultivos, Pastos y Espacios Naturales
- Agroecosistema de Mosaico de Pastos y Espacios Naturales
- Arbustal Basal Humedo
- Arbustal Inundable Basal
- Bosque Basal Humedo
- Bosque Fragmentado con Pastos y Cultivos
- Bosque Fragmentado con Vegetacion Secundaria
- Bosque Inundable Basal
- Bosque de Galeria Basal Humedo
- Bosque de Galeria Inundable Basal
- Herbazal Inundable Basal
- Laguna Aluvial
- Rio de Aguas Blancas
- Sabana Estacional
- Sabana Inundable
- Territorio Artificializado
- Transicional Transformado
- Vegetación Secundaria
- Zona Pantanosa Basal
- Zonas Arenosas Naturales

Figure 19. Map of ecosystems present in the reference region.

3.2.1.1.1.8 Relief

A total of twenty-two (10) types of reliefs described in the Table 16, which were obtained using ArcGIS software, using the IDEAM 2023 map of continental and coastal marine ecosystems, as shown in the Figure 20, all types of relief are at least 87% similar in the project area and the reference region, thus meeting the methodological requirements..

Table 16. Relief maps of the reference region and project area.

Relief	Percentage	RR area (ha)	Percentage	PA area (ha)
Fans	0,561%	12.932,0	0,00%	-
Depressions	0,172%	3.974,9	0,00%	-
Hills and hillocks	71,021%	1.636.903,1	70,89%	188.079,04
Plateaus and slopes	4,947%	114.018,5	0,00%	-
N/A	2,093%	48.251,2	0,04%	108,40
Floodplain	17,071%	393.447,0	5,58%	14.815,51
S.I.	0,056%	1.284,5	0,00%	-
Terraces	1,288%	29.684,7	13,88%	36.822,36
Level 1 terraces	0,004%	103,2	0,00%	-
Small valleys	2,786%	64.221,6	9,61%	25.489,64
Total	100,000%	2.304.820,8	100,00%	265.314,9

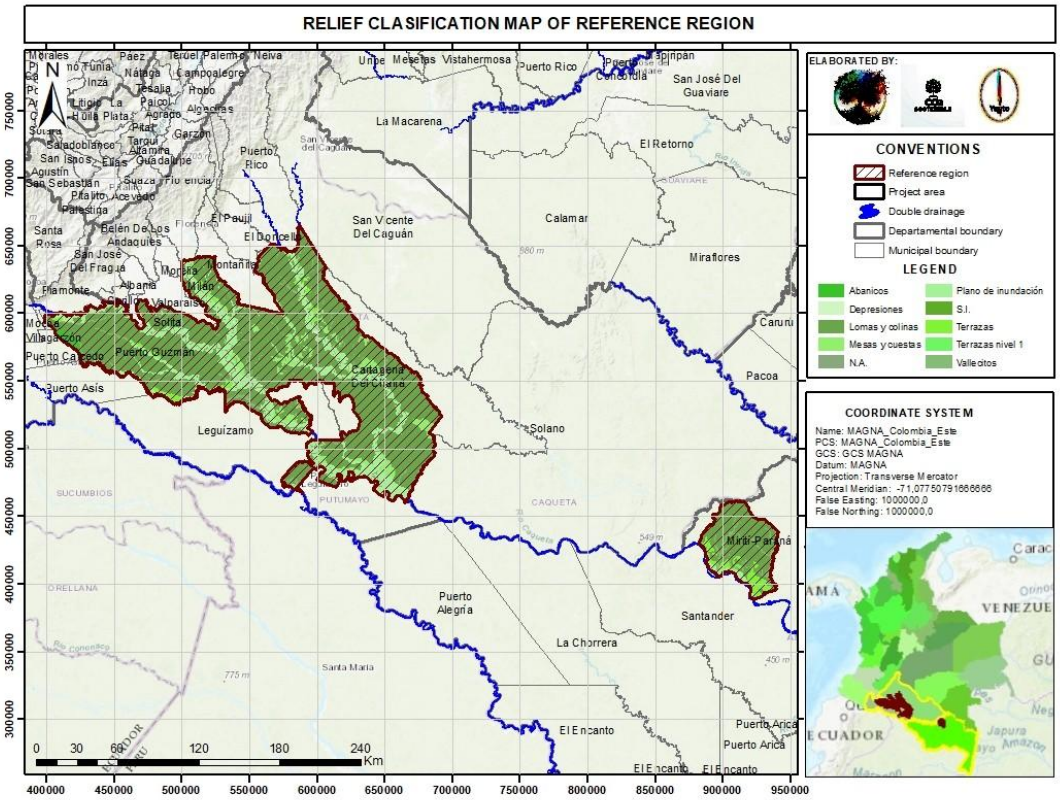


Figure 20. Map of relief features present in the reference region.

3.2.1.1.1.9 Landscapes

The reference region was characterized based on information provided by the IDEAM 2023 continental and coastal marine ecosystems shapefile and using ArcGIS software. Five (5) landscape types were identified that meet the methodological requirement of having a minimum of 80% similarity between the project area and the reference region (See Table 17 and Figure 21).

Table 17. Landscapes of the reference region and project area.

Landscapes	Percentage	RR area (ha)	Percentage	PA area (ha)
Hills	78,93%	1.819.118,2	80,50%	213.568,67
N.A.	2,15%	49.535,7	0,04%	108,40
Foothills	0,56%	12.932,0	0,00%	-
Floodplain	0,12%	2.769,6	7,46%	19.785,34
Valley	18,24%	420.465,3	12,01%	31.852,53
Total	100,00%	2.304.820,8	100,00%	265.314,95

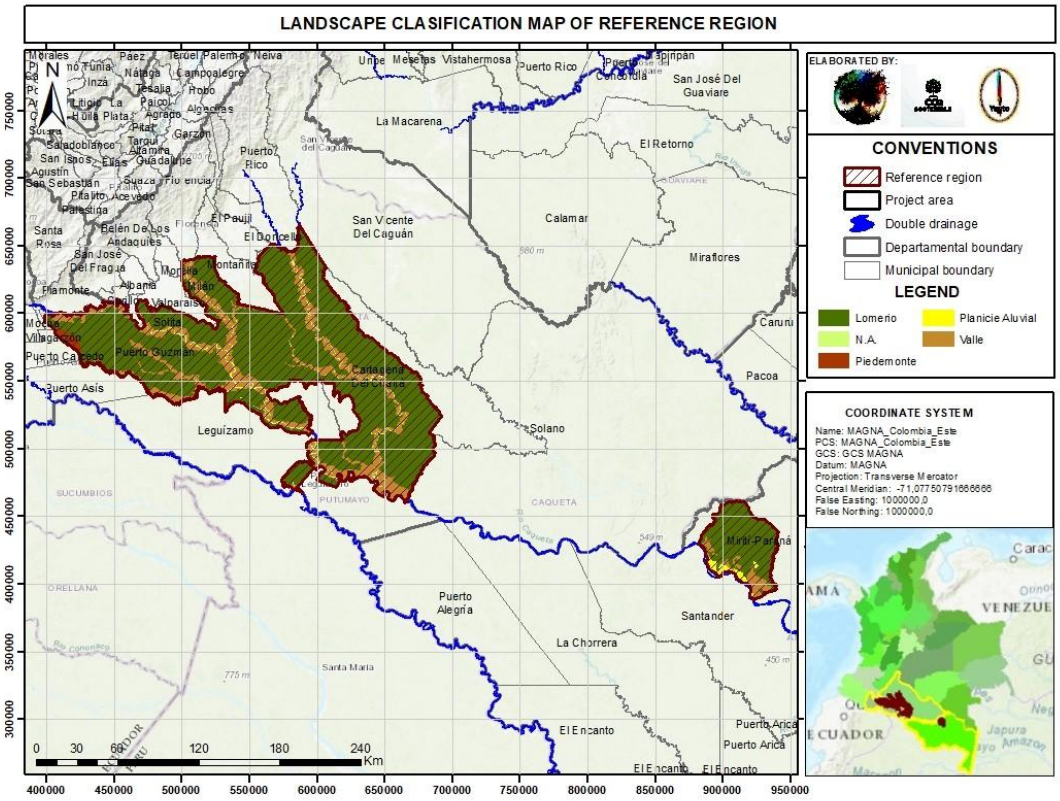


Figure 21. Map of landscapes present in the reference region.

3.2.1.1.1.10 Similarity summary.

After verifying the data for the reference region and the project area, the **¡Error! No se encuentra el origen de la referencia.** where the percentages of each physical variable are analyzed to determine their similarity, so that, in comparison, the variables exceed the required 80%, except for the humid basal forest (See Ecosystems), and dense, tall forest on dry land (Véase Vegetable coverings), which, taking an average of all types, leads to the conclusion that the general parameter (ecosystems and vegetation strata) meets the required similarity.

Table 18. Similarity between the reference region and the project area.

Type	Description	% RR	% PA	Diference	Simililarity
GENERAL ECOSYSTEMS	Crop and Pasture Mosaic Agroecosystem	0,20%	0,0%	0,20%	99,80%

Type	Description	% RR	% PA	Diference	Similarity
	Crop, Pasture, and Natural Space Mosaic Agroecosystem	0,96%	0,0%	0,95%	99,05%
	Pasture and Natural Space Mosaic Agroecosystem	3,31%	0,0%	3,31%	96,69%
	Livestock Agroecosystem	19,90%	0,0%	19,90%	80,10%
	Humid Basal Shrubland	0,00%	0,0%	0,001%	99,999%
	Flooded Basal Shrubland	0,13%	0,0%	0,13%	99,87%
	Basal Wet Forest	44,14%	94,1%	49,97%	50,03%
	Basal Wet Gallery Forest	0,00%	0,0%	0,002%	99,998%
	Basal Floodplain Gallery Forest	0,00%	0,0%	0,003%	99,997%
	Fragmented Forest with Pastures and Crops	0,34%	0,0%	0,34%	99,66%
	Fragmented Forest with Secondary Vegetation	1,18%	0,0%	1,13%	98,87%
	Basal Floodplain Forest	12,59%	5,4%	7,18%	92,82%
	Basal Floodplain Grassland	0,12%	0,0%	0,12%	99,88%
	Alluvial Lagoon	0,11%	0,0%	0,11%	99,89%
	Whitewater River	1,98%	0,0%	1,94%	98,06%
	Seasonal Savanna	0,11%	0,0%	0,11%	99,89%
	Flooded Savanna	0,00%	0,0%	0,002%	99,998%
	Artificialized Territory	0,02%	0,0%	0,02%	99,98%
	Transitional Transformed	6,41%	0,2%	6,24%	93,76%
	Secondary Vegetation	8,04%	0,2%	7,83%	92,17%
	Basal Swamp Area	0,28%	0,0%	0,28%	99,72%
	Natural Sandy Areas	0,17%	0,0%	0,17%	99,83%
SOILS	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aeric Fluvaquents	1,7%	0,0%	1,70%	98,30%
	Fluvaquentic Endoaquepts, Fluventic Dystrudepts, Aquic Udifluvents	15,4%	0,0%	15,36%	84,64%
	Fluvaquentic Eutrudepts, Fluvaquentic Endoaquepts,Aeric Fluvaquents	0,0%	0,0%	0,004%	99,996%
	Fluventic Dystrudepts, Fluvaquentic Endoaquepts, Typic Fluvaquents	0,9%	0,0%	0,90%	99,10%
	Fluventic Dystrudepts, Typic Fluvaquents, Fluventic Eutrudepts	0,7%	0,0%	0,71%	99,29%
	Fluventic Dystrudepts, Typic Fluvaquents, Typic Dystrudepts	0,1%	0,0%	0,11%	99,89%
	Fluventic Endoaquepts, Typic Endoaquepts, Oxic Dystrudepts	0,0%	0,0%	0,004%	99,996%
	Hydric Haplohemists, Fluventic Dystrudepts	0,2%	0,0%	0,18%	99,82%

Type	Description	% RR	% PA	Diference	Similarity
	Inceptic Hapludoxs, Typic Hapludults, Oxic Dystrudepts	1,4%	0,0%	1,36%	98,64%
	N.A.	2,1%	0,0%	2,05%	97,95%
	Oxic Dystrudepts, Typic Dystrudepts, Typic Kandiudoxs	0,6%	0,0%	0,56%	99,44%
	Plinthic Hapludoxs, Typic Paleudults, Oxic Dystrudepts, Typic Dystrudepts	10,7%	0,0%	10,73%	89,27%
	S.I.	0,1%	0,0%	0,06%	99,94%
	Typic Dystrudepts, Oxiaquic Dystrudepts, Typic Humudepts	0,5%	0,0%	0,52%	99,48%
	Typic Endoaquepts	0,0%	0,0%	0,03%	99,97%
	Typic Endoaquepts, Typic Udifluvents, Fluventic Endoaquepts	0,0%	0,0%	0,004%	99,996%
	Typic Fluvaquents, Typic Udifluvents, Aeric Endoaquepts	0,1%	0,0%	0,12%	99,88%
	Typic Hapludoxs, Oxic Dystrudepts, Typic Dystrudepts	1,2%	12,0%	10,83%	89,17%
	Typic Hapludoxs, Typic Hapludults	4,9%	0,0%	4,95%	95,05%
	Typic Humaquepts, Hydric Haplofibrists	0,2%	0,0%	0,18%	99,82%
	Typic Paleudults, Typic Hapludults, Oxic Dystrudepts	58,9%	70,9%	11,95%	88,05%
	Oxic Dystrudepts, Typic Hapludults, Typic Haplaquox	0,0%	1,9%	1,87%	98,13%
	Typic Endoaquepts, Typic Fluvaquents, Fluvaquentic Eutrudepts	0,0%	5,5%	5,52%	94,48%
	Typic Endoaquepts, Typic Fluvaquents, Terric Haplohemists	0,0%	0,1%	0,06%	99,94%
	Typic Udifluvents, Aquic Udifluvents, Fluventic Eutrudepts, Aquic Dystrudepts	0,0%	9,6%	9,61%	90,39%
	Typic Udifluvents, Fluvaquentic Endoaquepts, Typic Udipsamments	0,3%	0,0%	0,32%	99,68%
CLIMATES	Warm and humid	95,8%	100,0%	4,23%	95,77%
	Warm and semi-humid	0,1%	0,0%	0,06%	99,94%
	Warm and super-humid	4,1%	0,0%	4,06%	95,94%
	S.I.	0,1%	0,0%	0,11%	99,89%
LANDSCAPES	Hills	78,9%	80,5%	1,57%	98,43%
	N.A.	2,1%	0,0%	2,11%	97,89%
	Foothills	0,6%	0,0%	0,56%	99,44%
	Floodplain	0,1%	7,5%	7,34%	92,66%
	Valley	18,2%	12,0%	6,24%	93,76%

Type	Description	% RR	% PA	Diference	Simililarity
RELIEVE	Fans	0,6%	0,0%	0,56%	99,44%
	Depressions	0,2%	0,0%	0,17%	99,83%
	Hills and hillocks	71,0%	70,9%	0,13%	99,87%
	Plateaus and slopes	4,9%	0,0%	4,95%	95,05%
	N/A	2,1%	0,0%	2,05%	97,95%
	Floodplain	17,1%	5,6%	11,49%	88,51%
	S.I.	0,1%	0,0%	0,06%	99,94%
	Terraces	1,3%	13,9%	12,59%	87,41%
	Level 1 terraces	0,0%	0,0%	0,004%	99,996%
	Small valleys	2,8%	9,6%	6,82%	93,18%
PRECIPITATION	0 - 500	0,00%	0,11%	0,11%	99,89%
	1000 - 1500	3,76%	14,11%	10,35%	89,65%
	1500 - 2000	21,07%	13,57%	7,50%	92,50%
	2000 - 2500	39,97%	44,97%	5,00%	95,00%
	2500 - 3000	27,01%	22,36%	4,65%	95,35%
	3000 - 4000	7,72%	3,05%	4,66%	95,34%
	4000 - 5000	0,17%	0,00%	0,17%	99,83%
	500 - 1000	0,30%	1,83%	1,52%	98,48%
ROADS	1	0,000001%	0%	0,000001%	100,00%
	4	0,006%	0%	0,006%	99,99%
	5	0,009%	0%	0,009%	99,99%
	6	0,020%	0%	0,020%	99,98%
TEMPERATURE	Warm	100%	100%	0,00%	100,00%
VEGETABLE COVERINGS	1.1.1. Continuous urban fabric	0,01%	0,00%	0,01%	99,99%
	1.1.2. Discontinuous urban fabric	0,01%	0,00%	0,01%	99,99%
	1.2.4. Airports	0,00%	0,00%	0,00%	100,00%
	2.3.1. Clean pastures	19,85%	0,00%	19,85%	80,15%
	2.3.2. Wooded pastures	0,01%	0,00%	0,01%	99,99%
	2.3.3. Weedy pastures	2,39%	0,00%	2,39%	97,61%
	2.4.2. Mosaic of pastures and crops	0,26%	0,00%	0,26%	99,74%
	2.4.3. Mosaic of crops, pastures, and natural areas	1,30%	0,03%	1,27%	98,73%
	2.4.4. Mosaic of pastures with natural areas	4,38%	0,00%	4,38%	95,62%
	2.4.5. Mosaic of crops with natural areas	0,00%	0,00%	0,00%	100,00%
	3.1.1.1.1. Dense tall forest on dry land	46,94%	91,28%	44,34%	55,66%

Type	Description	% RR	% PA	Diference	Simililarity
	3.1.1.1.2.1. Dense tall heterogeneous floodplain forest	8,48%	6,76%	1,72%	98,28%
	3.1.1.1.2.3. Palm groves	0,60%	0,69%	0,09%	99,91%
	3.1.1.2.1. Dense low forest on dry land	0,01%	0,00%	0,01%	99,99%
	3.1.1.2.2. Dense low floodplain forest	0,00%	0,78%	0,78%	99,22%
	3.1.3.1. Fragmented forest with pastures and crops	0,38%	0,01%	0,37%	99,63%
	3.1.3.2. Fragmented forest with secondary vegetation	1,41%	0,08%	1,33%	98,67%
	3.1.4. Gallery and riparian forest	0,01%	0,00%	0,01%	99,99%
	3.2.1.1.2.1. Dense floodplain grassland without trees	0,07%	0,00%	0,07%	99,93%
	3.2.1.1.2.2. Dense floodplain grassland with trees	0,06%	0,00%	0,06%	99,94%
	3.2.1.2.1. Open sandy grassland	0,002%	0,00%	0,00%	100,00%
	3.2.2.1. Dense shrubland	0,13%	0,00%	0,13%	99,87%
	3.2.3. Secondary or transitional vegetation	11,18%	0,33%	10,84%	89,16%
	3.3.1. Natural sandy areas	0,17%	0,00%	0,17%	99,83%
	3.3.4. Burned areas	0,13%	0,00%	0,13%	99,87%
	4.1.1. Wetland areas	0,27%	0,00%	0,27%	99,73%
	5.1.1. Rivers	1,86%	0,04%	1,82%	98,18%
	5.1.2. Natural lagoons, lakes, and marshes	0,11%	0,00%	0,11%	99,89%
DRAINS	Proportion of drains per area	0,54%	0,61%	0,07%	99,93%

3.2.1.1.1.11 Land tenure

Land tenure figures for the region in question are based on information compiled by the National Land Agency (ANT) and show that the region is characterized by territories belonging to thirty-seven (37) indigenous communities that have their respective resolutions awarding them vacant land, including the Nunuya indigenous reserve located in the project area (See Table 19 and Figure 22).

Table 19. Resguardos indígenas presentes en la región de referencia.

NOMBRE	ADJUDICACIÓN DE TIERRA	PUEBLO
Coreguaje de Maticurú Indigenous Reserve	RESOLUTION 9 of 04/28/1992	COREGUAJE
Huitoto de Lagarto Cocha Indigenous Reserve	RESOLUTION 7 of 04/28/1992	INGA
Huitoto - El Quince Indigenous Reserve	RESOLUTION 97 of 07/27/1982	HUITOTO
Inga De Wasipanga Indigenous Reserve	RESOLUTION 5 of 07/22/2003	INGA

Paez de El Porvenir - La Barrialosa Indigenous Reserve	RESOLUTION 24 of December 15, 2004	PAEZ
Coreguaje de San Miguel Indigenous Reserve	RESOLUTION 34 of December 10, 1997	COREGUAJE
Coreguaje Asentada en la Regiones De Puerto Naranjo, Peñas Rojas, Cuerazo, El Diamante Indigenous Reserve	RESOLUTION 252 of June 19, 2011	COREGUAJE
Paez de El Descanso Indigenous Reserve	RESOLUTION 29 of December 15, 2004	PAEZ
Muruy El Progreso Indigenous Reserve	RESOLUTION 2 of May 24, 1996	MURUY
Bekocha Guajira Indigenous Reserve	AGREEMENT 331 of December 18, 2023	KOREGUAJE
F+Ruide Naira+ Indigenous Reserve	AGREEMENT 172 of July 22, 2021	MURUI
Coreguaje de Consara - Mecaya Indigenous Reserve	RESOLUTION 25 of July 19, 1994	COREGUAJE
Coreguaje de El Triunfo Indigenous Reserve	RESOLUTION 52 of September 29, 1992	COREGUAJE
Paez El Guayabal Indigenous Reserve	RESOLUTION 44 of September 24, 1996	PAEZ
Andoke Del Paraje De Aduche Indigenous Reserve	RESOLUTION 140 of December 4, 2020	ANDOQUE
San Luis Indigenous Reserve	RESOLUTION 28 of July 22, 2003	COREGUAJE
Paez de La Aguadita Indigenous Reserve	RESOLUTION 28 of December 15, 2004	PAEZ
Cusumbe - Agua Blanca Indigenous Reserve	RESOLUTION 67 of August 16, 1988	INGA
Murui - Witoto de Aguas Negras Indigenous Reserve	RESOLUTION 52 of October 17, 1995	MURUI WITO
Alpamanga Indigenous Reserve	RESOLUTION 12 of June 30, 2005	INGA
Inga De Niñeras Indigenous Reserve	RESOLUTION 84 of September 26, 1988	INGA
Coreguaje de Getucha Indigenous Reserve	RESOLUTION 93 of November 7, 1989	COREGUAJE
Nonuya de Villazul Indigenous Reserve	RESOLUTION 203 of December 7, 2021	MUINANE Y OTROS
Coreguaje de Hericha Indigenous Reserve	RESOLUTION 218 of October 26, 2010	COREGUAJE
Paez de el Libano Indigenous Reserve	RESOLUTION 2 of July 22, 2003	PAEZ
Coreguaje de Gorgonia Indigenous Reserve	RESOLUTION 285 of August 28, 2012	COREGUAJE
Coreguaje de Jerico-Consaya Indigenous Reserve	RESOLUTION 241 of November 16, 2022	COREGUAJE
Huitoto De Jirijiri Indigenous Reserve	RESOLUTION 275 of June 21, 2023	WITOTO
Coreguaje de Aguanegra Indigenous Reserve	RESOLUTION 46 of January 25, 2006	COREGUAJE
Inga Villa Catalina de Puerto Rosario Indigenous Reserve	RESOLUTION 20 of June 29, 2000	INGA

Coreguaje de la Esperanza Indigenous Reserve	AGREEMENT 377 of July 10, 2024	COREGUAJE
Witoto de Tukunare Indigenous Reserve	RESOLUTION 33 of July 22, 2003	WITOTO
Calenturas Indigenous Reserve	RESOLUTION 45 of June 26, 1989	INGA
Coreguaje de La Teofila Indigenous Reserve	AGREEMENT 401 of October 30, 2024	COREGUAJE
Nueva Betania del pueblo Makaguaje Indigenous Reserve	AGREEMENT 407 of November 7, 2024	MAKAGUAJE
Nasa Kiwe del Pueblo Nasa Indigenous Reserve	AGREEMENT 412 of November 14, 2024	NASA
Coreguaje de Jacome Indigenous Reserve	AGREEMENT 453 of December 19, 2024	COREGUAJE

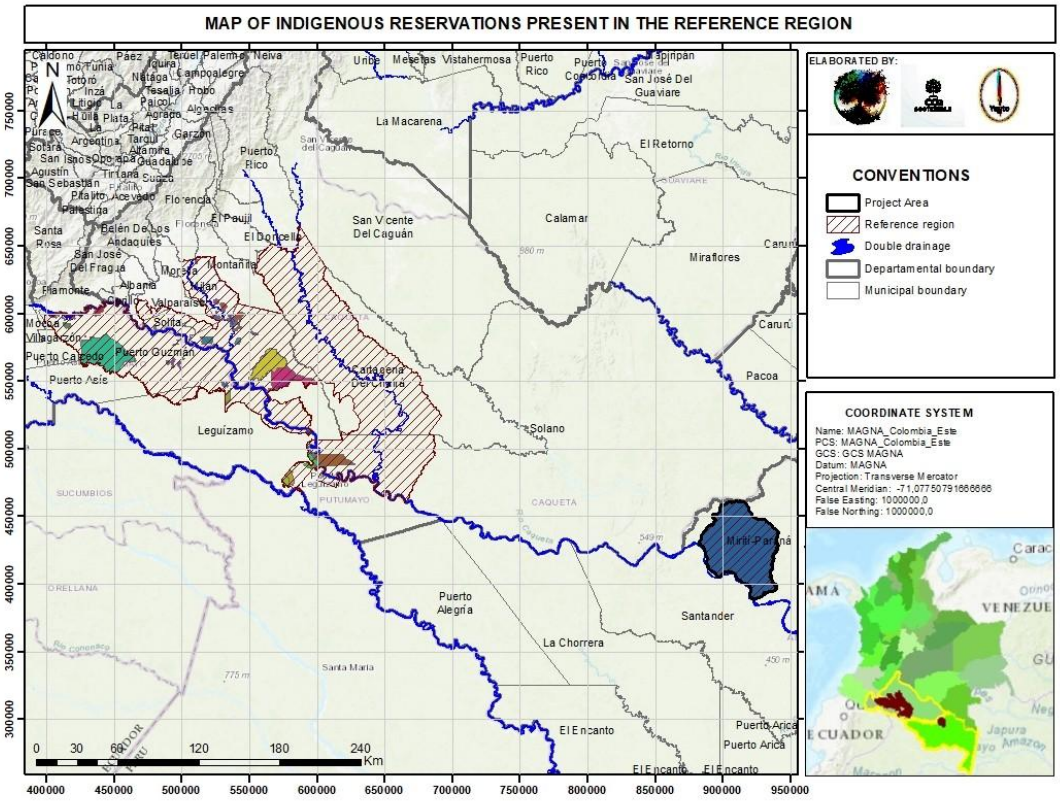


Figure 22. Map of indigenous reserves in the reference region.

3.2.1.2 Leakage area

According to Methodology BCR0002 Version 4.0, section 9.3 Leakage Area defines this as the area of forest where deforestation or degradation activity may be displaced and which

is beyond the control of the REDD+ project owner. In other words, areas to which deforestation or degradation agents may shift as a result of project activities.

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

The leak area was defined based on the following criteria (see Figure 23 e Figure 24):

a) Including all forest areas within the range of mobility of the identified agents, through a participatory assessment carried out in the formulation workshop 2 on social mapping. This defined mobility distances of between 1 and 2 kilometers from the boundary of the Caquetá river, along zones with easy access . Based on this information, a geospatial proximity analysis in geographic information systems was used to determine the leakage area

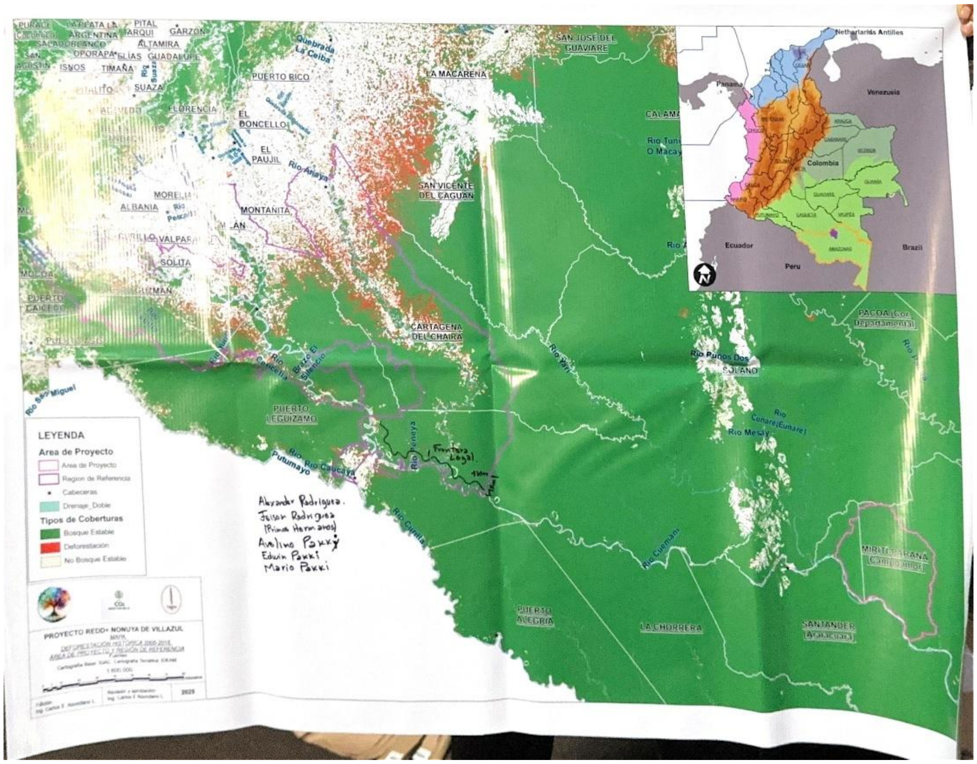


Figure 23. Social cartography for agent mobility analysis.

b) The leakage area is geographically distinct from the project area, with no overlap.
c) Excluding areas with restricted access to agents of deforestation and degradation. Therefore, National Natural Park areas are excluded due to their strict conservation use regime.
d) There is no overlap with areas of other GHG projects.

As a result, the project has a leakage area of 92,862.51 hectares, which consists of the closest accessible areas of the project area that are not restricted due to special categories or other GHG projects, located in margins of Caquetá and Peneya rivers. This leakage area will be monitored in each monitoring report to verify any deforestation that occurs there and deduct it from the emission reductions, as it is considered a displacement of deforestation due to the project activities.

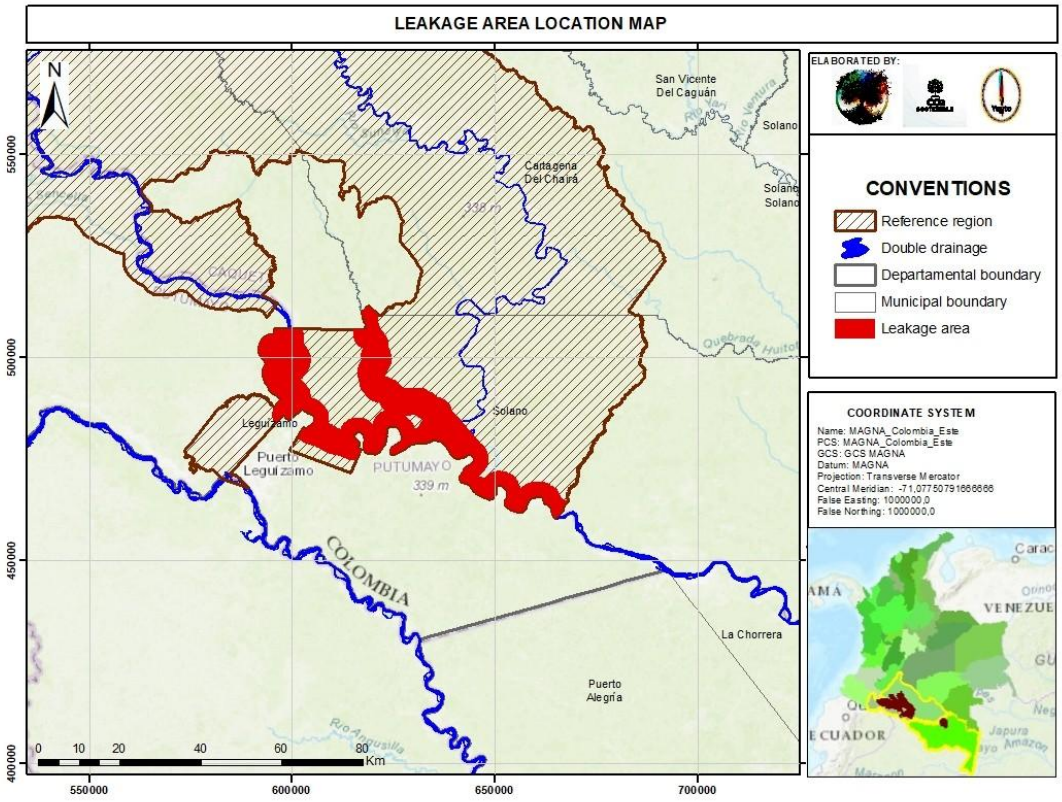


Figure 24. Location of the leakage area.

3.2.2 Carbon reservoirs and GHG sources

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

According to BCR0002 Methodology Version 4.0, the estimation of carbon offsets in the project should consider, at a minimum, aboveground and belowground biomass pools or sinks, while the other pools are subject to the characteristics of the project area. For this reason, for the REDD+ NONUYA DE VILLAZUL "Mo fiivo Jagaba Imibachu Baj+ - Bosque que purifica el aire de vida" Project, in order to adopt a conservative approach for the calculation of emission reductions, and in compliance with the methodology and the

national NREF[1], the aboveground biomass deposits from non-tree vegetation and those generated by dead wood and litter, both in the baseline scenario and in the project scenario, were not taken into account. Table 20 details the relevant carbon pools (considered by the BCR Methodology and the national NREF) for quantifying carbon stock changes within the project boundary in both the baseline and project scenarios.

Table 20. Carbon pools considered by the project.

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

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

Carbon sink	Included?	Justification
		in equal proportions for 20 years, once the deforestation event happens (MADS & IDEAM, 2019).
Lumber products	Excluded	It is not included in the national NREF because there is no information currently available (MADS & IDEAM, 2019). Consequently, and in order to adopt a conservative approach, the following is excluded.

Table 21. Selected sources of emissions and GHGs.

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

The emission factors used by the project for the calculation of GHG emission reductions are taken from the national NREF[2], and correspond to the Amazon subnational region, coinciding with the spatial limits of the geographical location of the project, from which the values for the selected pools of Aerial Biomass (AB), Belowground Biomass (BB) and Soil Organic Carbon (SOC) are taken, and are summarized as follows:

Table 22. Emission factors in the Amazon Biome.

Biome	BA (t CO2/ha)	BS (t CO2/ha)	BT (t CO2/ha)	COS20years (t CO2/ha)	Total emissions (t CO2 ha-1 año-1)
Amazon	444,38	98,18	542,56	13,52	556,08

Source: Inventario Forestal Nacional, IDEAM (2018).

Time limits and analysis periods

3.2.2.1 Project start date

January 01, 2021

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

3.2.2.2 Quantification period of GHG emission reductions/removals

40 years, from January 1, 2021 to December 31, 2060.

3.2.2.3 Monitoring periods

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

3.3 Identification and description of the baseline or reference scenario

The project is applying the tool "*Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities*"v01, this baseline will be defined for the project area, being in accordance with the Biocarbon Cert. 2024. Biocarbon Guidelines. Baseline And Additionality. V1.3, which section 7 'AFOLU projects' indicates: "*BIOCARBON requires the use of the CDM Tools that provide a reasonable assurance that the emission reductions/removals would not have occurred in the absence of the project activities. For AFOLU projects, the project holders shall apply shall use the Tool developed by the Executive Board of the Clean Development Mechanism (CDM – UNFCCC), the Tool for the demonstration and assessment of additionality (AR-TOOL-02)*[3] *, or the document which modifies or updates it.*" and provides in footer 3 link for the CDM Tool (https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-02-v1.pdf).

3.3.1 Step 0 – Project start date.

The Project start date is January 01, 2021

3.3.2 Step 1 - Identification of alternative land-use scenarios

3.3.2.1 Sub-step 1a. Identification of probable land use alternatives in the project areas

3.3.2.1.1 Scenario 1: Continuation of current land use

According to (OCTA, 2014), the Colombian Amazon has a population of approximately 40 million, made up of 385 different indigenous and tribal peoples. The indigenous peoples establish a subsistence agricultural system (Herein after *Chagras*) as the main mechanism to guarantee food security and to generate some surplus production that can be commercialized within the region. There is a complementary and deep relationship between the production systems in the *Chagras*, with fishing, hunting and food gathering for self-consumption. The *Chagra* is a heritage both for the sustainability of its cultivation practices and for its immeasurable symbolic value (FAO, 2022).

The indigenous diet depends on the variety and availability of food from the strategic combination of *Chagra* agriculture based on polycultures and multi-stratum agricultural arrangements, gathering of wild products, hunting and fishing. This is a diverse use of

both wild and cultivated biological resources that ensures a varied diet that adequately combines access to animal protein and carbohydrate-rich foods. In addition, there are animal and vegetable oils and some vegetables from the *Chagra* (Lucía Ruiz & Valencia, 2009).

In the Amazonian ethnic groups, productive and cultural activities are regulated by calendars related to environmental, climatic, hydrographic and cultural conditions and changes. During the driest period of the year and when the river is at its lowest levels (between December and February of the following year), activities are carried out in the *Chagra*, such as: the forest clearing, burning, weed management and the main harvest of most fruit trees. Also, during this time, some wild fruit trees are harvested, wild animals are hunted, fish are auctioned, some mammals and fish are bred, *Charapa* turtles lay their eggs, and honey is collected in the forest, among other activities. The rainy season lasts from March to July and coincides with the river's rise, which reaches its maximum level in June and July. At the beginning of this period, most crops are planted, mainly Yuca (*Manihot esculenta*) and vegetables; at the end of the rainy season, some varieties of Yuca (*Manihot esculenta*) and vegetables are harvested. In this rainy season, some fruit trees of the Chagra (*Ucuye and Laurel*), a considerable number of wild fruit trees (*Canagucha, milpesos, laurel, caimos, yugo, among others*) present their harvests (Vélez G. A., 2018).

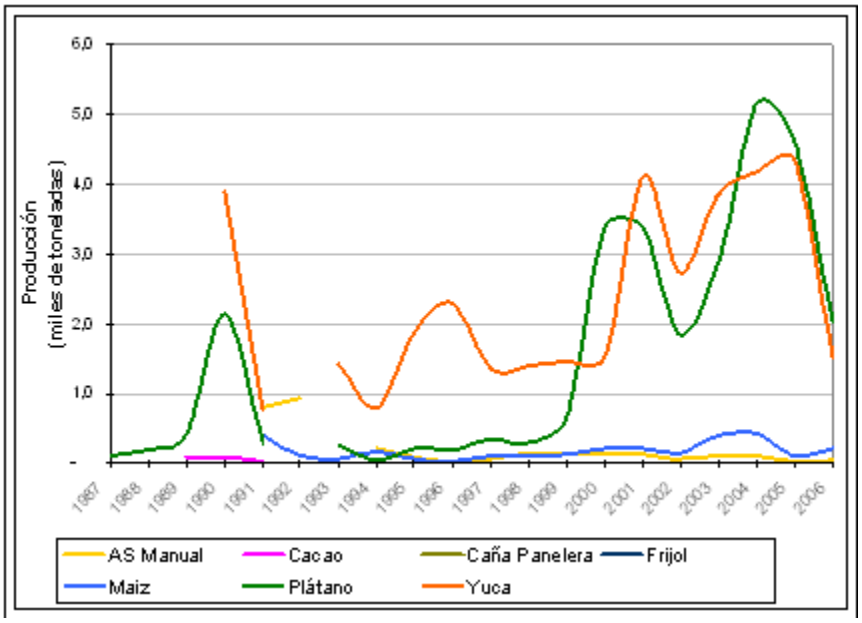
Having said this, it should be noted that the first scenario identified consists of the development of *Chagras* within the boundaries of the project area.

3.3.2.1.2 Scenario 2: Agriculture and livestock farming

(Gallo, Guerrero, Lozano, & Rueda, 2014) mention that the department of Amazonas, within its economic characterization, has focused mainly on the primary and tertiary sectors. The primary sector activities include subsistence agriculture to meet domestic demands; forestry; fishing and, to a lesser extent, mining, livestock, small species, fish farming and wildlife hunting.

Agricultural production is basically for self-consumption and is concentrated in dryland rice, cacao, sugarcane, beans, corn, plantains, and Yuca. There is also some fruit as pineapple, arazá, copoazú, etc., and chili bell pepper plantations. Livestock activity is mainly located in the southern part of the Amazonian Trapezoid, where there is a small herd of cattle, especially buffalo (Gallo, Guerrero, Lozano, & Rueda, 2014).

Figure 25 -Agricultural production in the Amazon in thousands of tons per year (Corpoamazonia, 2024)



Likewise, (Peña Venegas & Cardona, 2010) affirm that the second predominant coverage in the Colombian Amazon region corresponds to areas in clean pastures (3.2%), and pastures with natural spaces (1.48%) basically used to sustain extensive cattle raising. It is well known that the department of Caquetá is recognized as the fourth most important cattle-raising area in Colombia. However, it is not only in the department of Amazonas that there are areas of clean pasture for cattle ranching. This coverage is also found mainly in the departments of Guaviare and Putumayo.

Considering the above, the second scenario identified corresponds to clean pastures for the establishment of livestock and agriculture.

3.3.2.1.3 Scenario 3: Project activities within the project boundary developed without being registered as a REDD+ project

In this context, **the project is primarily driven by the indigenous communities themselves, without reliance on income from carbon credits**. The communities are focused on reversing the negative trends of natural habitat loss, agricultural expansion and pressures leading to biodiversity loss, all of which contribute to uncontrolled deforestation. By strengthening their organizational capacity and establishing robust local governance, these communities, recognized as indigenous environmental authorities, have been able to implement effective strategies that prioritize forest conservation while exploring sustainable economic alternatives that exclude illegal activities such as coca cultivation and timber extraction.

As a result of these initiatives, the expansion of agricultural boundaries has been curtailed and encroachment into forested areas has been significantly reduced. The community-led strategies not only protect traditional uses and customs but also generate income and resources without the need for further deforestation. This approach strengthens the community's autonomy and enables them to maintain their cultural practices while ensuring economic viability through sustainable methods.

The sustainability of these processes has been ensured over decades through careful planning and adaptive management, both within the communities and in collaboration with external stakeholders. This includes ongoing reforms to deforestation prevention strategies and the prudent management of financial and logistical resources, which are critical to the continuity of these initiatives. Ultimately, these concerted efforts are helping to restore the ecological and social functions of the Amazon forest, rehabilitate areas affected by climate change, and improve the connectivity and ecological dynamics of waterways, thereby affirming their cultural significance.

3.3.2.2 Sub-step 1b. Consistency of land use alternatives with applicable laws and regulations

3.3.2.2.1 Scenario 1: Continuation of current land use

For this case, land use within the project area remains stable and traditional practices such as subsistence agriculture (*Chagras*), hunting and small-scale logging are maintained. These activities are integral to the communities as they not only support their livelihoods but also maintain cultural traditions. The regulation of these practices is guided by customary rights and local regulations that govern indigenous land use, ensuring that communities maintain control over their resources while adhering to their ancestral customs.

The continued implementation of these traditional land use practices is supported by the constitutional autonomy granted to indigenous communities under the Colombian Constitution. Specifically, Title XI, Articles 287, 329 and 330, as well as Article 246, which deals with special indigenous jurisdiction, affirm the rights of these communities to manage their own lands.

As a result, the continuation of these traditional practices is sanctioned by indigenous authorities, allowing them to operate freely without external interference. This scenario is not only a potential baseline for future developments, but also an example of a sustainable model that respects indigenous rights and governance, ensuring the continuity of the cultural and ecological balance within the project area.

3.3.2.2.2 Scenario 2: Agriculture and livestock farming

According to Article 2.14.7.5.2 of Decree 2164 of 1995, "*The areas that are constituted as Indigenous reserves shall be managed and administered by the respective cabildos or traditional authorities of the communities, in accordance with their uses and customs*". This provision emphasizes the significance of local governance in regulating land use, ensuring that communities maintain control over their resources in ways that reflect their cultural practices. Within this framework, the growth of agriculture is explicitly permitted by traditional authorities, allowing for agricultural development that aligns with the community's needs and traditions.

Consequently, national and regional regulations cannot inhibit the development of these agricultural practices, which reinforces the principle of autonomy that is essential to indigenous governance.

Likewise, it should be noted that in the current management instrument of the municipality of Solano (*Municipal Agreement 019 of December 3, 2004, the Land Management Scheme of the municipality of Solano*), within the policies for the occupation of rural land, a specific policy was designed to promote and support different forms of peasant associations that can guarantee the competitiveness of small producers for the commercialization of agricultural and livestock products, eliminating intermediaries.

3.3.2.2.3 Scenario 3: Project activities within the project boundary developed without being registered as a REDD+ project

In this context, the project is primarily driven by the indigenous communities themselves, without relying on income from carbon credits, in conformity with local indigenous regulations on forest protection and not in conflict with national or regional laws. In accordance with Article 2.12.5.4 of Decree 2165 of 1995: "*The indigenous reserves are subject to the fulfillment of the social and ecological function of the property, in accordance with the uses, customs, and culture of the community*." This kind of activities can proceed as long as they adhere to these regulations, even without formal REDD+ registration.

3.3.3 Step 2 – Barriers analysis

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

3.3.3.1.1 Investment barriers

According to (World Wildlife Fund - WWF & Center for Clean Air Policy - CCAP, 2024), the costs associated with the pre-feasibility, feasibility and implementation phases of a REDD project can range from USD 400,000 to USD 650,000, depending on the size of the initiative. Similarly, each validation or verification audit costs around USD 40,000,

opening an account and enrolling the project in a certification standard costs at least USD 10,500, and issuing certificates costs between 2 cents and 0.2 cents per certificate. In short, the associated costs can exceed USD 700,000.

Indigenous communities often face a significant lack of economic resources to effectively carry out activities related to their Indigenous Life Plans, particularly in relation to territorial and environmental management. This constraint severely limits their ability to initiate projects to combat deforestation.

In addition to these economic constraints, indigenous communities may also face systemic barriers such as inadequate infrastructure, limited access to markets, and insufficient training in project management and financial literacy. Together, these factors hinder their potential to attract investment, implement sustainable practices, and engage in meaningful partnerships. As a result, despite their deep knowledge and commitment to environmental stewardship, these communities are often left out of initiatives that could significantly impact both their livelihoods and the conservation of their ancestral lands. Overcoming these barriers requires targeted support, capacity-building efforts, and innovative financing solutions that empower indigenous communities to actively participate in sustainable development projects.

On the other hand, it should be noted that the project will have the investment of the partners with whom the project is being carried out (see section 5), so the barrier described above will not be an inconvenience when implementing this carbon initiative.

3.3.3.1.2 Barriers due to social conditions

The successful implementation of projects in indigenous territories, particularly those related to REDD+ (Reducing Emissions from Deforestation and Forest Degradation), is hampered by several significant barriers, notably a lack of skilled labor and limited community engagement. Interviews with community members reveal a worrying gap in understanding of these initiatives, even among community leaders (Schmid & Castro, 2023). This raises critical questions about the authenticity of these projects as truly bottom-up initiatives. When the very leaders who are supposed to advocate for their communities lack essential knowledge about project goals, methodologies, and potential impacts, it casts doubt on the efficacy and relevance of the proposed initiatives.

Furthermore, many community members have articulated their expectation that consulta previa (prior consultation) should be an integral part of REDD+ projects. This underscores the importance of meaningful engagement and informed consent in the development of projects that affect their lands and livelihoods. The absence of such processes not only

undermines trust between communities and project developers but also contributes to a lack of local ownership and investment in project outcomes.

The lack of skilled labor further complicates this dynamic. Many indigenous communities may not have access to training programs that provide them with the necessary skills to effectively participate in project implementation (Schmid & Castro, 2023). Without a workforce that is knowledgeable about sustainable practices, environmental management, and project implementation, the potential for these projects to succeed is greatly diminished.

On the other hand, the lack of transparency in the contractual details of the REDD+ project in the Colombian Amazon creates significant social barriers for local communities. Community members are often unaware of the benefits and conditions of their participation, which undermines their ability to provide informed consent (Schmid & Castro, 2023). This opacity fosters mistrust and skepticism toward project implementers, who may be perceived as putting their own interests ahead of those of the community. As a result, community engagement declines and existing power imbalances between local people and external stakeholders are exacerbated, leading to feelings of disenfranchisement and potential resistance to the project.

In addition, the lack of clear information can disrupt social cohesion within the community. Differences in understanding and access to information can create divisions among community members, weakening collective action and solidarity. The lack of transparency can also hinder the sharing of local knowledge and insights that are critical to the success of the project. Overall, these social barriers not only threaten the effectiveness of the REDD+ initiative but also raise ethical concerns regarding the rights and agency of the communities involved.

With respect to the case of the project, it should be noted that the entire design and implementation of the initiative is given hand in hand with the community, directly involving their ancient knowledge and also conducted training sessions on relevant issues, ensuring that the project will not be affected by the barrier analyzed above.

3.3.3.1.3 Technological barriers

The area is quite isolated, which makes it difficult to develop other agricultural options, such as different crop varieties, that could increase the food supply and bring great social, economic, and nutritional benefits to the communities. There's also a lack of equipment, training, and infrastructure needed to launch various development, agricultural, and conservation projects, not to mention the high transportation costs involved.

On the other hand, (Solarte, Rico, Zapata, Chará, & Murgueitio, 2024) highlight that the adoption of livestock agroforestry (SPS) in the amazon region has been slow and influenced by several barriers. According to (Vargas de la Mora, y otros, 2021; Zepeda, Velasco, Nahed, Hernández, & Martínez, 2016; Lee , Bonatti, & Löhr, 2020; Clavero & Suárez, 2006) cited by (Solarte, Rico, Zapata, Chará, & Murgueitio, 2024), SPS adoption is limited among other factors, by producers' perceptions, lack of knowledge and technical assistance, capital limitations, and producer uncertainty for the management of a productive system of greater complexity and risk.

With respect to the case of the project, as it is mentioned above, training sessions have been conducted on relevant issues, ensuring that the project will not be affected by the barrier analyzed above.

3.3.3.1.4 Barriers related to local tradition

The indigenous communities inhabiting this region have developed agroecosystems that evolve and adapt to climatic, soil, ecological, and social conditions. These spaces are known as *chagras*, and they are established through a slash-and-burn or shifting cultivation system (Acosta & Zoria, 2012; VAN DER HAMMEN, 1992). The *chagra* is characterized by its high agrobiodiversity, and its agroforestry design mirrors the dynamics of the surrounding forest (Acosta L. P., 2011; Hecht, Nores, Sanchez, Spain, & Toenniessen, 1982; Vélez & Vélez, 1992). However, the *chagra* is much more than a complex agroecosystem; it is a social and cultural system that embodies the traditions, knowledge, and worldview of the Amazonian indigenous peoples (Rodrígrez , 2014; Escárraga Torres, Gutiérrez Montes, Van Etten, Ramírez Agüero, & Sibelet, 2020).

Activities such as formal agriculture and livestock farming may conflict with traditional indigenous cultures because they lack the underlying principles that define systems like the *chagra*. While *chagras* are agroecosystems designed to adapt to the ecological and social dynamics of the Amazon, promoting biodiversity and reflecting the forest's natural patterns, formal agriculture and livestock often prioritize short-term productivity and land-use efficiency over ecological balance. These practices could disregard the deep cultural, spiritual, and community ties that indigenous peoples have with the land, eroding traditional knowledge, practices, and the sustainable relationship that these communities have cultivated over generations. By focusing solely on economic outputs, formal agricultural and livestock systems risk undermining the holistic values embedded in indigenous worldviews, where land management is closely linked to identity, social cohesion, and environmental stewardship.

With respect to the case of the project, as it was mentioned above, the entire design and implementation of the initiative is given hand in hand with the community, directly involving their ancient knowledge, ensuring that the project will not be affected by the barrier analyzed above.

3.3.3.2 Sub-step 2b. Demonstrate that the identified barriers would not prevent the implementation of at least one of the identified land use alternatives (except the project activity)

Barrier	**Scenario 1: Continuation of current land use (*chagras*)**	**Scenario 2: Agriculture and livestock farming**	**Scenario 3: Project activities within the project boundary developed without being registered as a REDD+ project**
Investment barriers			X
Barriers due to social conditions			X
Technological barriers		X	
Barriers related to local tradition		X	

After performing the barrier analysis, it can be identified that in the list of scenarios that are not prevented by any barrier, only scenario number 1, continuation of current land use (*Chagras*), remains, so in accordance with the indications of item 18 of the tool, we proceed to step 4, analysis of common practice.

3.3.4 STEP 4. Common practice analysis

In recent years, several conservation initiatives have been developed for the Amazon region, among which the following stand out:

- **REM Colombia - Visión Amazonia Program:** An initiative of the Colombian government nested in the Ministry of Environment and Sustainable Development, which with the financial support of the United Kingdom, Germany and Norway, through the KfW bank, seeks to reduce emissions from deforestation in the

Colombian Amazon, which promotes strategies for the protection of forests and the sustainable use of natural resources, while empowering local communities and indigenous peoples by generating productive alternatives that are low in deforestation (Ministerio de Ambiente y Desarrollo Sostenible, 2024).

- **Organización Nacional de los Pueblos Indígenas de la Amazonia Colombiana -OPIAC** (National Organization of the Indigenous Peoples of the Colombian Amazon): is a non-profit institution of public law of a special indigenous character which exercises political representation of the indigenous peoples of the Colombian Amazon before national and international institutions; its main objective is to ensure that all collective and individual rights of its members are respected and recognized by all actors located in the Colombian Amazon region. (OPIAC, 2024).

  Among the projects being developed by this entity in coordination with the National University of Colombia is the creation of the Intercultural Indigenous University of the Amazon, which will not only be a space for the transmission of academic knowledge, but also a place where indigenous knowledge systems can flourish and coexist with another knowledge. Environmental sustainability, cultural preservation and autonomy are the pillars that will guide its educational mission (OPIAC, 2024).

- Amazon Indigenous REDD+ - This initiative was born in 2010 as an AIDESEP's (Interethnic Association for the Development of the Peruvian Rainforest) proposal to deal with the threats posed by some bad projects of the conventional REDD+. That was the case of the "Carbon Cowboys" that were promoted by REDD+ projects through damaging agreements for native communities (AIDESEP - ASOCIACIÓN INTERÉTNICA DE DESARROLLO DE LA SELVA PERUANA, 2022).

  In 2011, RIA was accepted and assumed by COICA (Coordinator of the Indigenous Organizations of the Amazon Basin), the organization for the indigenous people of the Amazon River basin. RIA is the proposal of adequacy of the REDD+ national and international policy with regards to worldview, rights and proposals of indigenous peoples of the Amazon region. It is how they consider REDD+ should be developed and implemented beyond carbon and market issues (AIDESEP - ASOCIACIÓN INTERÉTNICA DE DESARROLLO DE LA SELVA PERUANA, 2022).

  These activities, therefore, serve as a pilot study in which the indigenous organization located within the pilot area conducts research on the threats of

forest transformation, the provision of ecosystem services, and forest carbon stock. RIA functions as a mechanism for land and forest management, aiming to foster community participation and to integrate elements of territorial management (such as life plans, safeguard plans, and environmental zoning) into policies and programs related to REDD. However, while RIA includes activities resembling those of REDD+ projects, it is neither a REDD-type project nor one intended to yield short-term economic benefits or carbon credit commercialization.

On the other hand, there were found the following REDD initiatives near to the project area:

ID	Name	Standard
BCR-CO-259-14-005	CRIMA Predio Putumayo y Andoque de Aduche REDD+ Project	BCR
BCR-CO-259-14-004	Proyecto Nuestro Aire de Vida "Kai KOMUYA JAG+Y+" REDD+ Puerto Zábalo y Los Monos	
BCR-CO-259-14-003	Aire de Vida "FIIVO JAAGAVA KOMUYA JAG+Y+" Monochoa REDD+	
3145	Proyecto REDD++ PANI	Verra

Considering that there are more carbon initiatives in the project area, it can be said that the project is complementary, as the project activities differ significantly from other project types, focusing on long-term sustainability by sustaining community-led initiatives. This duration allows local communities to obtain essential technical, financial, human and scientific resources to develop their Integral Life Plans, supported by the stability of a REDD+ project, which helps prevent unplanned deforestation and strengthens local governance. Importantly, the project scenario differs from the baseline scenario, meaning it follows different assumptions and interventions compared to the baseline.

The project stands out in the region for its strong emphasis on empowering local communities through a participatory approach that aligns with community values and long-term sustainability goals. Unlike typical REDD+ initiatives in the region, this project prioritizes the integration of traditional knowledge and community-led resource management practices into its structure. By focusing on long-term sustainability rather than short-term financial returns, it enables local communities to establish robust frameworks for autonomy and self-governance rarely seen in other local carbon initiatives, setting it apart from the more market-driven goals of nearby projects.

In addition, this project differentiates itself by incorporating a holistic approach to environmental conservation that emphasizes the creation and maintenance of community-led Integral Life Plans. These plans go beyond the simple conservation of forest resources by fostering a deep-rooted commitment to cultural preservation, ecological balance, and social stability. The project also supports initiatives such as ecological zoning, provision of ecosystem services, and education on sustainable practices, making it a pioneering model in the region. This comprehensive approach to addressing the broader spectrum of community needs and environmental resilience is not common among other carbon-focused projects in the region, underscoring its unique contribution to sustainable development in the Amazon.

Considering the above, it is concluded that the project does not represent a common practice in the area and is therefore additional.

3.4 Additionality

The additionality was applied in section 3.3, taking into account the tool "*Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities*"v01, this baseline will be defined for the project area, being in accordance with the Biocarbon Cert. 2024. Biocarbon Guidelines. Baseline And Additionality. V1.3, which section 7 'AFOLU projects' indicates: "*BIOCARBON requires the use of the CDM Tools that provide a reasonable assurance that the emission reductions/removals would not have occurred in the absence of the project activities. For AFOLU projects, the project holders shall apply shall use the Tool developed by the Executive Board of the Clean Development Mechanism (CDM – UNFCCC), the Tool for the demonstration and assessment of additionality (AR-TOOL-02)*[3] *, or the document which modifies or updates it.*" and provides in footer 3 link for the CDM Tool (https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-02-v1.pdf).

commitment and the collective well-being.

3.5 Causes and agents of deforestation and forest degradation analysis

3.5.1 Context

3.5.1.1 Territorial

The municipalities of Cartagena del Chairá, Milá, Solano and Solita are under the jurisdiction of the department of Caquetá, while the municipalities of Puerto Guzmán and Puerto Leguízamo are part of the department of Putumayo. These departments are part of the so-called Colombian Amazon, with a maximum altitude of 1,000 meters above sea level, and are defined in relation to the basins of the Caquetá and Putumayo rivers mainly. In this area there is abundant rainfall throughout the year that on average is between 2,500 and 3,500 mm, with average temperatures of 26°C to 27°C.

The landscape is characterized by the persistence of hills, valleys and terraces, which refer to soft hollows with deep and well-drained soils, strong acidity, low fertility with aluminum saturation, rich presence of wetlands, lagoons and cananguchales.

The reference area is embedded in an area of high environmental and biodiversity importance. The banks of the rivers are generally populated because they have more fertile soils, favoring the installation of crops for bread, fishing and transport (mobility).

Thus, this territory has been populated since ancient times to the present by communities of the Inga, Nasa, Murui, Pijaos, Misak and Embera ethnic groups, among others, mainly organized by indigenous reservations, who have shaped the territory from their worldviews, as well as the relationships with the natural and transforming environment that surrounds them and in which they participate.

Thus, the territory for the Uitoto or "Murui-Muina" people, inhabitants and owners of the indigenous reservations of Huitorá and Coropoya, is essential to keep the tradition alive, it is what allows the materialization and dynamization of their cultural principles and knowledge. Without it they would not be able to provide themselves with their sacred plants, which are a direct link with the spiritual plane, from where they receive guidance on how to live and guide their community processes. The behaviors of caring for the territory are maintained thanks to the word of power, the stories of the grandparents about the law of origin and about the spiritual owners of the jungle in the water, the land and the air, their prohibitions and the consequences of breaking the rules in each area; for example, by exceeding the limits of resource extraction. In this way, from the mambeadero the instructions on the use of the soil and natural resources are dictated, it is the cacique

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

These behaviors in turn are regulated by the normativity of the communities; Its internal regulations emphasize the duties of control and surveillance, care and protection of the different areas of the reservations, as well as the sanctions for evading these duties and committing offenses such as excessive hunting, pollution of rivers, lakes and streams, fishing or hunting in prohibited places and disrespect for sacred places. among others.

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

- **Mountain**: it is the object of conversation, of collecting medicine, fruits and seeds. Wood is also extracted from permitted areas and with the respective permit.

- **Cananguchales**: Space that provides fruits for food and for animals, it is a hunting area.

- **Stubble**: The collection of fruits such as grapes, chontaduro, caimo, among others, is carried out.

- **Vegas:** These are ideal areas for planting depending on their flood level. Where there is less lagoon, banana, corn, etc. crops are placed.

- **Salados**: They are water drinking fountains for animals, many are considered sacred sites and hunting there requires a series of permits and specific care.

- **Chagras**: A place where each family is planted, from where the main foods of the communities' diet are extracted and the basis of their diet, cassava.

- **Lagoons**: Fishing areas where fish such as cachirri, carabasu, piranha, among others, abound.

- **Rivers, streams and streams**: It is also a fishing and water supply area.

Consequently, the communities targeted by the project consider that the care of the territory that they carry out also depends on the strategies to reach agreements with other actors who maintain inappropriate uses of it. To this end, they have defined in their Territorial Management Plan a zoning plan divided into: *conservation zones*: spaces for environmental protection and sustainable use of resources. Production area or production plains: spaces for the cultivation of bananas and corn. *Hunting area* such as salt, mountain,

ravines, where hunting activities are carried out for consumption. *Timber exploitation area:* spaces for sustainable timber extraction. And in the case of Huitorá, one more is added, the *reforestation area*: 6 hectares within the reservation that are the object of a reforestation project with fruit and timber trees.

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

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

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

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

Ordinance No. 03 of November 12, 1985 established the municipality of Solano, located in the southeast of the department of Caquetá, which has an area of 42,486 km2, representing

about 48% of the territory of the department and whose population density is 0.3 inhabitants/km[3].

Most of the territory is part of the Amazon Forest Reserve Zone (Law 2nd) and the Serranía de Chiribiquete NNP, according to the municipality's EOT, the rural area is made up of seven population centers: Araracuara, Peñas Blancas, Mononguete, La Maná, Coemaní, Danubio, Campoalegre and Puerto Tejada, seventy-seven villages, twenty indigenous reservations and two military air bases[4].

3.5.1.2 Cultural

In the municipalities of the reference area, the population dynamics behaved as follows in the years 2010, 2015 and 2020, according to DANE:

Board 1. Population in the municipalities of the project's reference area, by sex, for the years 2010, 2015 and 2020.

Municipality	Year	Total Men	Total Women	Grand Total
Cartagena del Chairá (Caquetá)	2010	13.124	12.643	25.767
	2015	14.699	14.093	28.792
	2020	15.741	15.400	31.141
Milan (Caquetá)	2010	4.978	4.431	9.409
	2015	5.028	4.576	9.604
	2020	5.162	4.806	9.68
Solano (Caquetá)	2010	5.286	4.675	9.961
	2015	5.895	4.873	10.768
	2020	6.055	4.965	11.020
Solita (Caquetá)	2010	3.714	3.431	7.145
	2015	3.362	3.220	6.582
	2020	3.146	3.134	6.280
Puerto Guzmán (Putumayo)	2010	14.965	14.355	29.320
	2015	17.347	15.568	32.915
	2020	19.429	17.997	37.426
Puerto Leguizamo (Putumayo)	2010	12.284	11.579	23.863
	2015	14.154	12.448	26.602

[3]Development Plan 2020-2023 Development Plan "For a More Humane, Productive, Sustainable and Peaceful Solano". 2020 - 2023. - Solano Municipal Mayor's Office - Caquetá (solano-caqueta.gov.co)

[4]Territorial Planning Instrument (Technical Support Document) Municipality of Solano 1-DTS_DIAGNOSTICO_Solano_.pdf (minambiente.gov.co)

Municipality	Year	Total Men	Total Women	Grand Total
	2020	16.745	14.503	31.248

Source: Own construction, taken as a reference DANE (1) and DANE (2).

In the department of Caquetá there are nine indigenous ethnic groups – Andoque, Korebajú, Coyaima, Embera-Katio, Inga, Makaguaje, Nasa, Carijonas and Uitoto – settled in a total of 40 reservations in 10 of the 16 municipalities of the department[5], including Cartagena del Chairá, Milán, Solano and Solita, representing 13.22% of the departmental [6]territory. The department presents deficient information on the settled indigenous population and the state's neglect of the issue is evident, especially considering that only the municipalities of Solano and Milán had a Secretariat of Indigenous Affairs between 2010 and 2020. According to DANE (2025), for 2018 the share of indigenous territory in the municipalities of Solano, Cartagena del Chairá, Milán and Solita was 20.2%, 0.6%, 27.7% and 1.2% respectively. Regarding the Afro-descendant population, according to the characterization sheets issued by the DNP (2019), as of 2015 they represented 2.62% of the total population of the municipality of Cartagena del Chairá, 8.38% in Milan, 10.02% in Solano and 2.43% in Solita.

By 2016, the department of Putumayo registered 202 councils and 79 reservations, 130 processes of constitution and expansion of reservations, and 21 councils that had not yet requested the constitution as a reservation. These councils and reservations correspond to the 3 initial ethnic groups Cofán, Kamentsá and Siona, and to another 12 that settled in the department after various migratory movements, Awá, Korebaju, Embera -Katío and Chamí-, Murui, Inga, Nasa, Uitoto, Pasto, Kichwas, Yanaconas, Bora and Guambiano[7]. Reservations and councils are located throughout the 13 municipalities that make up the department, and represent 15.92% of the municipality of Puerto Guzmán[8] and 31.5% of Puerto Leguizamo[9].

In relation to the presence of Afro-descendant communities, the municipality of Puerto Guzmán registered 8 Community Councils in 2019, 7 of them with collective territory with an area that represents 2.08% of the municipal territory. According to the characterization

[5] SINCHI (2007), p. 30.
[6] Government of Caquetá (2020), p. 24.
[7] ASAMBLEA DEPARTAMENTAL DEL PUTUMAYO (2016), pp. 20-21.
[8] VISIÓN AMAZONÍA, OTROS (2017), p. 122.
[9] DANE (2025).

sheets issued by the DNP (2019), in 2015 they represented 4.60% of the total population of the municipality of Puerto Guzmán and 1.56% in Puerto Leguízamo.

In general terms, these municipalities develop agriculture, livestock, mining and selective logging of fine woods as their main economic activities, in addition to the development of service activities especially linked to urban areas.

Indigenous communities in their territories have been characterized by the persistence of subsistence systems that are based on shifting agriculture, hunting, fishing and gathering of forest products. In general, they organize their family space with the designation of a chagra area, of 1 to 2 hectares, and agriculture, fishing, and hunting fulfill as their main function the family self-sufficiency of food. The collection of forest products is carried out according to the needs of the community, taking care to carry out the activity only in the season and space that ensures the sustainable management of the resource.

During the period 2010 to 2020, the indigenous communities made progress in the construction of Management Plans aimed at the management of their territory and the use of their resources. Among them, for example, are the Management Plans of the Inga Indigenous Reservation of Nannies, the Coropoya Indigenous Reservation, the Nonuya Reservation and the Huitora Reservation, as conservation and medicine areas, these plans are articulated to the Life Plans of the communities as ways to manifest and sustain their worldview and knowledge about the forest[10].

Afro-descendant communities, in this case Putumayo, have advanced in similar processes as a means of improving their vision of their territory, getting to know their environment better with a view to fully recognizing the availability of ecosystem goods and services, which allow them to strengthen their productive systems in harmony and sustainability for the conservation of the territory and their culture[11].

[10] See: Update of the Action Plan to Reduce Deforestation to Zero and Adaptation to Climate Change of the Municipality of Solano, Caquetá; Territorial management plan of the Coropoya Indigenous reservation; Situational analysis of the indigenous-peasant territory of the Inga de Niñeras Indigenous Reservation and the Mononguete nucleus, Solano Municipality, Caquetá, Colombia.

[11] See: Diagnosis of the Productive Systems of the Afro-descendant Communities, municipalities of Mocoa, Orito, Puerto Asís, Caicedo, Puerto Guzmán, Puerto Leguízamo, San Miguel, Villagarzón and Valle del Guamuez in the Department of Putumayo. Visión Amazonía y Otros (2023).

3.5.1.3 Economic

The economy in the urban area of the municipalities of the reference area[12] is developed in relation to:

a. Commerce and services: warehouses, supermarkets, money order and transport companies, restaurants, drug stores, cell phone and related sales, internet rooms, hotels, residences, bars, among others, establishments under which most of the jobs in the municipal capitals are generated.
b. Industry: cheese factories, clothing manufacturing, wood warehouses, bakeries, cargo boat factory, among others.
c. Public entities: Municipal Mayor's Office, local hospital, public service company, other national and regional public entities. The employment relationship of people is minimal in relation to the local supply.

In these municipalities, the Caguán, Orteguaza and Caquetá rivers are mainly the main route for the transport of people and goods, since the roads and highways are characterized by very poor conditions, increasing the cost of land transport.

In rural areas, conventional agriculture is being developed, with the production mainly of bananas, cassava, maize, sugarcane, chontaduro, rice, cocoa, rubber, although their production was affected at the time by the introduction and expansion of the illicit cultivation of coca. After 2015, a large part of the areas planted with coca began to be consolidated mainly as areas for livestock production, making it a relevant activity in these municipalities.

Agricultural production is developed with low technological development and the predominance of family work, with the displacement of native forest for this purpose. These areas are later transferred to cattle ranching and then left to rest, which leads to the felling of native forest for the installation of new productive spaces. Agriculture is developed mainly to satisfy family needs with minimal production of surpluses for marketing. The low production for marketing is due to the precarious road condition, the unbeneficial conditions of the market, as well as the high costs of transportation, which discourage activity with commercial purposes. Agricultural production is usually located

[12] See: POT Cartagena del Chairá 2014-2027; Solano Municipal Development Plan 2016 - 2019 "Por ti Solano"; EOT Solita Territorial Diagnosis 2023-2035;

in the plains of rivers such as Caguán and Guayas, and minor tributaries. Amazonian crops have gained prominence.

Livestock farming is developed in an extensive, extensive, improved or semi-intensive manner, with extensive livestock being the predominant one in the municipality, and has stimulated the introduction of pigs, horses, poultry and fish farming (bocachico, cachama, sábalo and mojarra.). It is located in a hillside area, it is developed mainly for dual purposes, with crosses of the zebu breed with dairy breeds, Holsteín and Brown Swiss mainly, this activity allows to sustain the expenses of the farms, and even the breeding of minor species and the crops of bread. Livestock production is the activity that receives the greatest institutional support, stimulating the formation of Municipal Livestock Committees through which specialized technical advice and economic support are offered and accessed. Milk production has been destined for sale to companies such as NESTLÉ, and to local dairies and cheese makers (including Nemastefood S.A.S., Milk Chaira S.A.S., Distri Lacteos S.A.S., Buena Leche, Campo Lejano, Puerta de la Amazonía, others).

The municipal forestry activity includes the use of species such as *Simaruoba Amara* (Ivory), *Cordia Alliodora* (Laurel), *Cedrelinga Catenaeformis* (Achapo), and *Iryanthera Lancifolia* (Bull's Blood), used for the elaboration of floors, plinths, thresholds, ceilings, beams, stairs, handrails, furniture, boat hulls, handicrafts and paper. Their transport to the merchant or businessman is carried out through the river or trails, from there they are transported to other cities throughout the country.

Likewise, it was identified that in these municipalities in general small-scale mining activity is carried out, with mainly the extraction of beach material, ballast and gravel from the beaches of rivers such as Caguán, Caquetá, Putumayo and Quebrada la Solita, an activity developed in an artisanal manner and without the management of the corresponding permits. Although there are records of mining for the extraction of gold and silver, there is a record of its development only in the municipality of Solano, among the other municipalities in the project's reference area[13].

Tourism activity has sought to consolidate itself in these municipalities, taking advantage of what is offered by sites such as the Chiribiquete NNP, La Paya NNP, natural and

[13] ANH (1) (2017) and ANH (2) (2017).

communal reserve areas, and others of interest in biodiversity and landscape. However, the difficult access to these areas has limited the influx of tourists and interested scholars.

in the municipality oil activity is also identified, which by 2013 had 3 areas under exploration by the ANH with Canacol or Ecopetrol (Cedrela, Samichay A and Samichay B), and 9 available areas.

In the indigenous reservations located in the project's reference area, the traditional cultivation of the chagra is carried out, which includes rotation and ecological restoration practices, with the planting of various foods such as cassava, plantain, corn, sugarcane, yams, umari, chili pepper, pineapple, coca, tobacco, a variety of tubers, fruit trees and other food and medicinal products, cassava being one of the most important products since it allows the production of foods such as fariña, El Chomendo, El Juare and La Caguana. This agricultural production is complemented by fishing and hunting as traditional practices. These practices provide food and contribute to conserving and strengthening the sovereignty and autonomy of communities. However, the production of chagra, hunting and fishing is mainly destined for self-consumption, and the surplus of products such as fariña, ají, mambe or ambil, as well as the surplus of hunting and fishing, are traded in towns near each community, and thus obtain resources for the purchase of elements such as salt, soap, oil, batteries, gasoline and others. To this commercial activity they have also introduced the elaboration of handicrafts typical of their culture, and even although on a small scale, the planting of crops for illicit use. It is important to note that the dynamics of production and the economy of indigenous communities have changed due to the strong pressure represented by the non-indigenous consumption model.

Likewise, the conditions within the indigenous territories have been affected by the entry of settlers who carry out the selective extraction of native wood, the incursion of projects and programs of NGOs and state institutions of various kinds with intermittent actions.

3.5.1.4 Historical

The history of the municipalities that make up the project's reference area shares the following common elements that have shaped the history up to the period 2010-2020:

- 1940 to 1950: stimuli to colonization by rubber fever and the arrival of the Texas oil company that carried out exploration studies;
- 1950 to 1970: migratory movements to Caquetá and Putumayo increased due to the intensification of the internal armed conflict in the Andean area of the country, the development of state programs (INCORA, Caja Agraria) that stimulated colonization and the installation of new Catholic missions; the FARC's Eastern Bloc was installed in Caquetá;

- 1970 to 1985: increase in timber exploitation as an attractive economic activity, opening of the first roads in the region, installation of coca cultivation;
- 1985-2000: intensification of the internal armed conflict; a new political constitution, a coca bonanza, an increase in mining, oil and agro-industrial exploitation; development of the PLANTE and Raíz x Raíz program for the substitution of illicit crops;
- 2000 to 2010: arrival of pyramids such as DMG motivating migration due to increased purchasing power, subsequent pyramid bust and economic crisis; establishment and completion of the so-called Demilitarized Zone in Meta and Caquetá; implementation of a military operation called Plan Patriota by the government's military forces; signing of the peace agreements between the national government and the FARC-EP under the Pastrana government;
- 2010 to 2020: start of mining and hydrocarbon exploration and exploitation projects in Putumayo and Caquetá; reconfiguration of illegal armed groups, with consolidation, especially in rural areas, of Residual Organized Armed Groups (GAOR) and Organized Criminal Groups (GDO); new consolidation of illicit crops and illegal mining; land restitution sentences that favor communities victims of the armed conflict for their return in Putumayo and Caquetá.

Thus, the movements generated by the national tide led to permanent movements of population, especially that which came to settle in Caquetá and Putumayo, from all the other departments of the country, and even from neighboring countries such as Peru and Ecuador.

These indigenous communities are associated in local organizations by indigenous peoples and are affiliates of the National Indigenous Organization of Colombia, ONIC[14] at the national level, and the Organization of Indigenous Peoples of the Colombian Amazon, OPIAC[15].

Regarding the Uitoto people, according to the life plan of the Huitoto people of Caquetá (ASCAINCA organization) the inhabitants of this area are of *"jungle, cassava and ambil culture."* This Amazonian town is located in the middle area of the Caquetá River and the Putumayo River, coming from the Caraparaná and Igaraparana banks in the department of Amazonas. It is known that by 2012 the Uitoto communities were grouped in the

[14] ONIC - Home
[15] OPIAC – National Organization of the Indigenous Peoples of the Colombian Amazon

Organization of Uitotos of Caquetá, Amazonas and Putumayo ORUCAPU and the Association of Indigenous Councils of the Puerto Sábalo Reservation – Los Monos ACI.[16]

The Andoque people "*They traditionally occupied a large territory that extended from the Monochoa stream, above the Araracuara channel to the Quinche stream, both tributaries of the Caquetá River. They were divided into relatively autonomous lineages comprising more than 10,000 people; Each lineage lived in a maloka, the epicenter of the group's social, spatial, and ceremonial life. Ethnohistorical evidence speaks of extensive networks of exchange between the groups of the region that inhabited different environments."*[17] Within the Andoque Aduche Indigenous Reservation, in the municipality of Solano, there is a population of the Uitoto, Muiname and Andoque ethnic groups from Araracuara who migrated especially in search of better economic opportunities[18].

About the Inga people it is indicated that *"They are descendants of the Incas and arrived in the region as military outposts in the process of expansion of the empire. It belongs to the Quechua linguistic family, who with the desire to expand their territory arrived in the Sibundoy Valley and Mocoa around 1942 and the second most important settlement was Puerto Limón, located on the banks of the Caquetá River, from where the communities or settlements that we have today in the Department of Caquetá have emigrated.*[19] The community settled in the Calenturas and Villa Catalina Reservations of Puerto Rosario in the municipality of Puerto Leguízamos in Putumayo also belongs to this ethnic group.

And finally, of the Nasa people it is known that *"They are mainly concentrated in the region of Tierradentro, between the departments of Huila and Cauca. Some have settled in the south of Tolima, in the department of Valle, and others emigrated to Caquetá and Putumayo*".[20]

Regarding the presence of Afro-Colombian communities, in the municipalities of Puerto Guzmán and Puerto Leguizamo there were records as of 2020[21] of the recognition of 5 Community Councils: La Orquidea, El Cedro and Palenque Amazónico in Puerto Guzmán,

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[16] SOLANO MUNICIPAL MAYOR'S OFFICE (1) (sf).
[17] ONIC - Villages
[18] Ibid.
[19] Municipal Development Plan 2012-2015 "WITH THE COMMUNITY AND FOR THE COMMUNITY, PROGRESS CONTINUES." (esap.edu.co)
[20] Gobernación del Caquetá SOLANO - Gobernación del Caquetá (caqueta.gov.co)
[21] VISION AMAZONIA, OTHERS (2023).

and Afrocaucaya and Afromayo in Puerto Leguízamo. Regarding these, no information related to their history was found.

3.5.2 Key actors, interests and motivations

The following table presents the actors, motivations, actions and impact (direct and indirect) generated by deforestation and degradation present in the project area:

Board 2. Relationships between actors, motivations and effects of deforestation.

N°	Actors	Motivation	Causes	Actions	Direct or indirect
1	**Government Entities**	Social	State abandonment	Due to the abandonment of government entities, activities that fuel deforestation are being carried out strongly in the area to achieve a minimum livelihood.	Innuendo
2	**Government Entities**	Economic	Encouragement of livestock activity	Promotion of investment and training programs for the development of livestock activity as a more profitable economic activity than agriculture.	Direct
3	**Government Entities**	Economic	Titling of vacant lands.	Expansion of the agricultural frontier for the productivity of wastelands, especially so that the use of the land is of an agricultural nature.	Direct
4	**Government Entities**	Economic/Social	Infrastructure expansion	Especially related to the construction or expansion of road infrastructure and land and port transport.	Direct

N°	Actors	Motivation	Causes	Actions	Direct or indirect
5	**Mining entrepreneurs/illegal miners**	Economic	Hydrocarbon extraction.	It facilitates urban conglomeration in forest areas and generates harmful environmental impacts for the ecosystem and the population	Direct
6	**Mining entrepreneurs/illegal miners**	Economic	Extraction of construction materials and precious metals.	Water pollution due to mining activity – Soil erosion.	Direct
7	**Groups outside the law**	Economic/Social	State abandonment	Illicit crops - contamination of water sources and soil.	Direct
8	**Cattle**	Economic	Livestock demand	Water pollution due to livestock activity – Soil erosion. Expansion of areas for the development of the activity, opening of pastures.	Direct
9	**Country folk**	Social	Lack of sewerage.	Contamination of water sources due to mismanagement and disposal of wastewater.	Innuendo
10	**Peasants/Transit Agents**	Economic	River transport.	The passage through rivers to transport goods, or people, often leads to water being contaminated with gasoline.	Innuendo
11	**Indigenous**	Social/Cultural	Cultural tradition/ Agriculture.	Burning of areas for the installation of chagra for food cultivation.	Direct
12	**Country folk**	Social	Peasant settlement and colonization/	Expansion of the agricultural frontier – pollution of rivers (Caquetá,	Direct

N°	Actors	Motivation	Causes	Actions	Direct or indirect
			Urbanization processes.	Orteguaza, Caguán, Putumayo).	
13	**Indigenous**	Social	Lacking: Access to drinking water, basic sanitation, energy, and solid waste and wastewater management.	Urban habitat patterns that lead to colonization and affectation of water sources.	Innuendo
14	**Country folk**	Social/Economic	Logging of forests.	Illegal marketing of fine wood to generate private income.	Direct
15	**Indigenous**	Social/Cultural	Harvesting and extraction of wood.	Generate a use of the wood found in the forests to meet collective needs within the reservation.	Direct
16	**Passing Agents**	Social	Tourism.	To stimulate pressure on natural resources by purchasing handicrafts and processed products, native woods and other local resources from the forest.	Innuendo

3.5.3 Relationships and synergies

The multiple causes of deforestation in the territory directly and indirectly affect the development of indigenous, peasant and Afro-Colombian communities, as well as the well-being of ecosystems.

Deforestation has become one of the most complex socio-environmental problems in the territories, since the agents who carry it out find in the geographical, social and economic conditions they experience, the justification to carry it out. Thus, the consequences are mainly felt by the indigenous communities settled in the territory, and by the Afro-

Colombian communities that have consolidated their community councils. This is evident in the following cases:

Board 3. Forest and loss in areas of indigenous reservations.

Indigenous Reservation	Forest Loss (Ha)
Argue	31,99
Sewage	211,67
Coropoya	52,08
El Guayabal	231,91
The Kananguchal Future	0,00
El Quinche	70,58
The Triumph	3,13
Jerico-Consaya	166,40
Hope	4,98
The Theophile	4,88
Mesai	13,78
Monochoa	89,77
Nannies	152,09
Paez del Libano	13,07
Puerto Naranjo, Peñas Rojas, Cuerazo and El Diamante	46,52
Puerto Zábalo and Los Monos	173,99
Witora or Huitora	58,19
San Miguel	7,39

Source: Visión Amazonia (2020)

Between 2012 and 2020, the municipality of Cartagena del Chairá presented deforestation of 16,534 hectares, corresponding to 15%, of areas located mainly on the Forest Reserve area of Law 2nd type A. while in the municipalities of Solano and Puerto Leguízamo deforestation in that period of time corresponded to 6,100 and 2,471 hectares respectively[22].

The socio-environmental relationships exposed in the Board 2:

1. Government neglect contributes to the detriment of the quality of life, well-being and security of communities. This stimulates the development of environmentally

[22] FCDS, OTHERS (2022), pp. 8 and 9.

impactful activities in order to obtain means and resources for subsistence and access to goods and services.

2. Government entities and programs stimulate the development and expansion of livestock activity. Livestock is one of the most environmentally impactful activities and encourages the rapid deforestation of large tracts of land, also used as a strategy for the appropriation of the territory. Given the limited conditions for agricultural production, livestock is prioritized, contributing to the contamination of water sources, soil and air, in addition to a significant transformation of the landscape[23].

3. The titling of vacant land stimulates conflict over land use, and opens the doors to the expansion of the agricultural frontier. With this, it stimulates the reduction of areas of environmental importance that have not been legally declared as such, but that in practice fulfill this role, it limits the access of ancestral users to areas previously available because the private property system is not available, that is, especially areas close to indigenous reservations and community councils. as well as buffer areas. Likewise, the agricultural frontier is historically presented as an area of conflict between indigenous people and settlers/peasants, since in the appropriation of it the functions such as reservation limits, areas of ancestral use, and forest protection areas tend to be ignored[24].

4. The expansion of infrastructure, especially roads and ports, tends to have a significant impact on forest cover, especially in the departments of Caquetá and Putumayo.

   Likewise, the urban expansion that takes place within the indigenous reservations, as well as the population centers in the municipalities of the reference area, tends to stimulate deforestation in order to expand the areas for the construction of housing and related areas, accesses and the installation of public service infrastructure.

5. The extraction of dragging material, precise metals and hydrocarbons has a significant impact on the ecosystems and communities that live nearby and depend on them.

   Here it is important to highlight that the negative impacts derived from the precious metals mining activity in the municipalities of the project's reference area

[23] (UNODC, 2010)
[24] (Municipal Mayor's Office of Solano, n.d.)

are generally underestimated, because it is developed in an artisanal way. However, the processes and supplies used both in the extraction and processing stages (separation of metals) generate significant contamination of the soil and water sources, as well as the fauna and fish population, also indirectly resulting in effects on human health with the consumption of hunting and fishing products:

"In 2019, a study showed the impact of mercury on the health of indigenous people in the middle basin of the Caquetá River. Illegal mining does not stop and there are great fears that indigenous people in isolation are facing unknown diseases and becoming increasingly confined, while fleeing contact with the West."[25]

In September 2018, in a study carried out by the Caquetá Ministry of Health, National Natural Parks and the Ministry of Justice, among other entities, in the 12 communities that are part of the Puerto Zábalo – Los Monos reservation, it was possible to evidence the presence of significant amounts of mercury in the blood of the participants, 100 micrograms per liter of blood, dimensioning the impacts that the development of gold mining activity generates on the environment and people, for example [26].

6. The development of illegal activities, especially focused on illicit crops, has persisted in the territories, especially stimulated by state abandonment. These illicit crops contribute to deforestation, and generate changes in the social, cultural and economic dynamics of the population that in general are manifested to the detriment of the conditions of well-being and security of the communities.

   In the municipalities of the project's reference area, the predominant illicit crop is coca. Historically, it has been shown that processes of colonization of those who wish to be linked to the activity, and deforestation for the expansion of planted areas, are promoted from there. Likewise, the tasks related to the cultivation, collection and processing of coca leaf can be carried out in the same environment, reducing, for example, the costs related to transportation.

- The inadequate management of solid waste and wastewater by communities, especially those that reside in proximity to water sources such as the Caquetá, Caguán and Putumayo rivers, results in significant contamination of water and soil, which indirectly affects the health of those who make use of these resources. extending the effect downstream of the sites on which the aforementioned mismanagement is evident.

[25] SÁNCHEZ (2021)
[26] Ibid

This can occur in cases of poor implementation, non-existence of a sewerage system and wastewater management (rehabilitation), as well as poor management of solid waste with practices such as queda, disposal in the open field, among others.
These conditions tend to affect the surrounding communities and especially those that lack access to water suitable for human consumption through aqueduct systems.

7. River transport is an activity that also affects the conditions of forests, considering that to different degrees it contributes to the pollution of water sources, causing damage to ecosystems and indirectly to human health.

8. Practices such as the burning of chagra land, although considered a traditional cultural practice, stimulates deforestation and degradation. This practice takes place during the months of November and December[27].

- Selective logging of fine timber is particularly important to forest degradation, especially if it is carried out uncontrolled by territorial authorities and regulatory bodies. Thus, different agents carry out the activity of extracting wood considered fine and that can therefore be sold at a good price in cities throughout the national territory. This wood is usually taken from the territory through rivers such as the Putumayo and Caquetá.

  On the other hand, timber extraction is a historical practice by indigenous communities who are highly dependent on natural resources. This wood can be used as fuel for cooking, and input for the construction and maintenance of homes and boats, as well as for the manufacture of implements and tools, and even handicrafts.

9. Finally, tourism development can become an activity of indirect pressure on the forest, related to the pressure for the elaboration of handicrafts made with wood and other resources from the forest, which characterize them as assets with a cultural character, and therefore of high interest to the tourist.

[27] (Community of the Coropoya indigenous reservation, 2014)

3.5.4 Identifying the underlying drivers, agents, and causes

The analysis of drivers and drivers of deforestation and degradation to comply with section 10 of the BCR00002 methodology, version 4.0, is described below.

3.5.4.1 Agents of deforestation

The actors in the project area are grouped as follows: i) public, private, educational or external charitable institutions that are present in the territory, ii) associations formed in the community and iii) local connoisseurs (Board 4). Of these, those that are key due to their constant presence in the territory were identified at the local, municipal and departmental level (

Illustration 1).

Board 4. Social actors in the project area.

Section A: Institutions	**Sector B: Associations**	**Sector C: Indigenous Authorities and Community Councils**
– Government of Caquetá – Government of Putumayo – Municipal mayors of Cartagena del Chairá, Milán, Solano, Solita, Puerto Guzmán, Puerto Leguízamo – CORPOAMAZONIA – SINCHI	– Community Action Boards – Agricultural Producers Committee and Associations – Cattle – Miners' associations – Asojuntas de Cartagena del Chairá, Milán, Solano, Solita, Puerto Guzmán, Puerto Leguízamo	– Indigenous reservations and Cabildos, and authorities of community councils, located in the municipalities of Cartagena del Chairá, Milán, Solano, Solita in Caquetá – Indigenous reservations and Cabildos, and authorities of community councils, located in the municipalities of Puerto Guzmán, Puerto Leguízamo

Section D: DEPARTMENTAL

- CORPOAMAZONIA
- SINCHI

Section E: MUNICIPALITY

- Mayor's Office of Cartagena del Chairá
- Milan City Hall
- Solano Mayor's Office
- Solita Mayor's Office
- Puerto Guzmán Mayor's Office

- Puerto Leguizamo Mayor's Office
- Agricultural Producers Committee and Associations
- Farmers' Committee and Associations
- Miners' associations

Section F: LOCAL

- Community
- Educational Institution
- Community Action Boards
- Indigenous authorities
- Afro-Colombian authorities

Illustration 1. Territorial scope of social actors[28]

In addition, conflicts of interest have been identified among the actors, among which the following stand out:

- The delimited areas within the reference region have historically been of interest to armed groups of a political nature, as they are a mobility corridor that connects with the center of the country and neighboring countries. After the peace agreement was signed in 2016, it is still of interest to the groups of people who demobilized and now as civilians have economic interests in the region.
- Historical conflict between indigenous communities and peasants/settlers, on issues of exploitation of resources from the forest and tension over the agricultural frontier.

Identification of deforestation agents

Agricultural and livestock producers are the main agents of deforestation, because it is caused by the expansion of the agricultural frontier, for the establishment of crops and pastures, and by the extraction of wood from the forest either for land appropriation, local use, territorial control or for trade.

Likewise, those who carry out mining activity, as they deforest for the installation of mining work areas.

Socioeconomic characterization of the reference area

The population of the reference area had a total of 105,465 people in 2010, this population increased to 126,795 people in 2020, residing in 43,315 homes. The municipality of Solita

[28] Taken from Gómez & E. J., Pastrana G. E. (2016)

has the smallest population, while Puerto Guzmán is the most populous municipality (Board 5).

Board 5. Total housing and population in the municipalities of the reference area.

Municipality	2010	2018		2020	
	People	Housing	People	Housing	People
Cartagena del Chairá	25.767	10.561	30.399	11.191	31.141
Milan	9.409	3.305	9.723	3.464	9.680
Solano	9.961	3.562	11.214	3.773	11.020
Alone	7.145	2.682	6.216	2.815	6.280
Puerto Guzmán	29.320	11.959	35.390	12.867	37.426
Puerto Leguizamo	23.863	8.583	28.468	9.205	31.248
Total	105.465	40.652	121.410	43.315	126.795

Source: 2010 figures https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/proyecciones-de-viviendas-y-hogares; 2018 and 2020 figures https://www.dane.gov.co/files/censo2018/proyecciones-de-poblacion/Municipal/anexo-proyecciones-poblacion-Municipal_Sexo_2018-2035.xlsx

In these municipalities, the population has shown a greater participation trend in men than in women, although the difference is minimal (Board 6).

Board 6. Population in the municipalities of the reference area, by sex

Municipality	Year	Total Men	Total Women
Cartagena del Chairá (Caquetá)	2010	13.124	12.643
	2015	14.699	14.093
	2020	15.741	15.400
Milan (Caquetá)	2010	4.978	4.431
	2015	5.028	4.576
	2020	5.162	4.806
Solano (Caquetá)	2010	5.286	4.675
	2015	5.895	4.873
	2020	6.055	4.965
Solita (Caquetá)	2010	3.714	3.431
	2015	3.362	3.220
	2020	3.146	3.134
Puerto Guzmán (Putumayo)	2010	14.965	14.355
	2015	17.347	15.568

Municipality	Year	Total Men	Total Women
	2020	19.429	17.997
Puerto Leguizamo (Putumayo)	2010	12.284	11.579
	2015	14.154	12.448
	2020	16.745	14.503

Source: https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/censo-general-2005-1#proyecciones-de-poblacion-linea-base-2005; https://www.dane.gov.co/files/censo2018/proyecciones-de-poblacion/Municipal/anexo-proyecciones-poblacion-Municipal_Sexo_2018-2035.xlsx

3.5.4.2 *Degradation agents*

According to IDEAM (2018), forest degradation in Colombia is due to selective logging (15 to 50 million tCO2e per year), between 0 and 10% to firewood collection (0 to 0.05 million tCO2e per year) and between 0 and 10% to forest fires (0 to 0.05 million tCO2e per year).

Agents of deforestation have the same influence on both deforestation and forest degradation, as these activities are related and are usually sequential, i.e. prior to deforestation, forest degradation has been carried out mainly by the selective logging of fine timber species. However, with the project located in the Amazon region, there is a greater area of degradation compared to the area of deforestation (on average, 19.04% more than that affected by deforestation), except during the period 2013-2014, when the deforestation area exceeded the degradation area, with a difference of 1.03%.[29]

Some agricultural producers, cattle ranchers and the local population are the main agents of deforestation and degradation, because it is caused by the expansion of the agricultural frontier, for the establishment of crops and pastures, and by the selective extraction of wood from the forest either for land appropriation, local use or for trade.

In this sense, the direct and indirect causes of degradation were identified and typified for the forests of Colombia described below.

[29] IDEAM, OTHERS (2018).

3.5.4.3 Direct causes

3.5.4.3.1 Selective logging

The extraction of illegal timber degrades forests by generating changes in their structure and composition, causing direct effects on the habitat of wild biota, the functioning of hydrological systems and even the quality and economic value of forest resources.

Logging is the second main cause of deforestation and the first cause of degradation, since it is the first phase of intervention in the forests of the area, it is carried out with three purposes, i) as a method of appropriation of land that the local population considers wasteland[30], ii) commercialization of wood for different purposes, and (iii) local use of wood. The lack of tools and incentives to undertake conservation projects and the problems of land use in the region are some of the causes that lead the local population to cut down the forest.

Logging for timber commercialization significantly reduced the abundance of timber species, of which *Tabebuia rosea*, *Juglans neotropica*, *Aniba perutilis*, *Nectandra spp.*, *Nectandra acutifolia*, *Cedrela sp*. and *Cinchona pubescens stand out*. Figure 19.

In addition to this, there are impacts associated with the creation of the necessary infrastructure for the extraction and dragging of wood. It is considered that the opening of roads and the extraction stage generate favor access to these areas and can generate adverse effects on water resources.

3.5.4.3.2 Firewood extraction

Natural forests are the main source of energy for rural communities; therefore, logging for fuelwood creates high and constant pressure on forest ecosystems, increasing their fragility and contributing to the degradation of the resource base[31].

The UPME[32] estimates that by 2021 about 91.51% of households that use inefficient and highly polluting fuels -CIAC- are in rural areas, where 40.08% use these fuels in cooking, with preference for the use of firewood (38.01%), followed by charcoal (0.86%) and mineral charcoal (0.92%). Thus, in Colombia, the use of 5.1 million tons of firewood for cooking is

[30] Conversations with the villagers during field visits to the project for the construction of the Project Document.
[31] PALMBERG (1981).
[32] UPME, OTHERS (2025).

recorded, which generates greenhouse gas emissions from combustion close to 7.9 million tons of CO_2 equivalent per year. According to the UPME, during 2019 in the department of Caquetá, 83,860.68 tons of firewood were consumed, consumption that decreased to 56,043.17 tons for the year 2020; in the department of Putumayo, consumption in 2019 was 135,297.55 tons and in 2020 it fell to 111,406.44 tons[33].

The use of this type of fuel is related to conditions of multidimensional poverty mainly present in rural areas, limited access to other sources such as fuel gas, cultural practices, among others; It is also evident that the ways in which these resources are obtained generate forest degradation, affecting soil protection and runoff regulation, and have a social impact, especially in relation to the effects on health, the time spent collecting firewood and environmental degradation.

In this scenario, it is important to point out that the use of firewood by indigenous communities is related to the act of cooking as *a need to transform food based on work and technique*, the latter related to the energy source used. However, in the vision of certain indigenous communities, fire has a deep meaning linked to their worldview; thus, for the Kamëntšá of Putumayo, among others, fire is an element around which people are given speech, people meet and socialize, essential for cultural and community strengthening. While for Afro-Colombian communities, the use of firewood is essential for the preparation of culturally valued dishes, which include the process of smoking while cooking; The work involves the participation of the younger population and stimulates the meeting, exchange and learning of a task that requires detail[34].

3.5.4.3.3 Forest fires

Recent studies have identified fire as a major direct cause of tropical forest degradation (Brando et al., 2014; Budiharta et al., 2014; Bustamante et al., 2015; Hosonuma et al., 2012; Matricardi et al., 2010; Souza et al., 2013).

Human actions have altered natural fire regimes, generating an increase in both the intensity and size and frequency of fires in various regions of the world, especially in tropical forests (Thompson et al., 2013). Fires cause changes in forest structure by

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[33]https://app.powerbi.com/view?r=eyJrIjoiYjIxODUyMjUtZGRlNiooMzlkLTk4ZjktMWU3MWRjZGMzZWFhIiwidCI6IjMzZWYwNmM5LTBiNjMtNDg3MC1hNTY1LWIzYzc5NWIxNmE1MyIsImMiOjR9

[34] UPME, OTROS (2025), pp. 47 and 48.

increasing tree species mortality, changes in canopy cover, and impoverishment of local biodiversity.

In Colombia, fires have been associated with deforestation processes (Armenteras & Retana, 2012) but they are also susceptible to being degraded by fires that escape from agricultural management areas or pastures.

3.5.4.3.4 Grazing in forests

Extensive cattle ranching is not only related to deforestation due to the change in forest land use to expand pasture areas, but it is also one of the main causes of tropical forest degradation (Lanly, 2003). Monoculture of grasses for grazing increases the pasture matrix and creates a steeper border between the forested remnants and adjacent grasslands.

The trampling of cattle compacts the soils and modifies their hydraulic characteristics, affecting the root development of tree species, and generating susceptibility to them being easily removed (Vargas, 2011).

Also, the introduction of livestock into forests prevents post-fire recovery, affecting the resilience of the ecosystem, possibly having an impact on the quality and quantity of fuels, in addition to preventing the regeneration of woody species and favoring the abundance of exotic species (Blackhall & Raffaele, 2005).

3.5.4.3.5 Expansion of the agricultural frontier between illicit crops and crops

These crops are made up of farms that have an average size of 0.1 ha to 0.5 ha, and can even be found in protected areas; in the National Natural Parks System, by 2014 there was a cultivated area of approximately 5,000 ha (UNODC, 2015).

Forest degradation is accentuated by the synergy between illicit activities. The monitoring of the regions affected by illicit crops in Colombia carried out by the Integrated System for the Monitoring of Illicit Crops (SIMCI) has detected a relationship between the areas affected by coca crops and the illicit extraction of minerals (largely from gold exploitation), mainly in alluvial lands on margins and terraces adjacent to the bodies of water in the departments of Antioquia. Chocó, Bolívar, Putumayo, Cauca and Nariño (UNODC, 2015). This dynamic generates great impacts on natural cover by intensifying and accelerating the processes of deforestation and habitat fragmentation, increasing the aforementioned impacts.

According to figures cited by the Amazon Observatory[35], the behavior of illicit crops (coca) in the reference area during the period 2010 to 2020 has been as follows:

Board 7. Hectares planted with coca, by department and municipality of the reference area, years 2010, 215 and 2020

Department / Municipality	2010	2015	2020
Caquetá	2,578 ha	7,712.47 ha	2,054.94 ha
Cartagena del Chairá	603 ha	948.62 ha	251.71 ha
Milan	181 ha	695.74 ha	252.34 ha
Solano	567 ha	1,285.05 ha	281.16 ha
Alone	78 ha	31.56 ha	5.23 ha
Putumayo	4,785 ha	20,067.63 ha	19,986.18 ha
Puerto Guzmán	623 ha	1,298.66 ha	1,063.81 ha
Puerto Leguizamo	1,044 ha	1,804.8 ha	1,390.14 ha

Source: Figures taken from the Amazon Observatory[36]

As evidenced in the Board 7, historically in the department of Putumayo the presence of coca crops has been more intense. By 2015, both departments, as well as the municipalities of interest (except Solita) experienced a significant increase in the hectares planted, possibly related to changes in the dynamics of the conflict and the territory during the period of peace negotiations between the government and the FARC-EP that culminated in 2016 with the signing of the Peace Accords in Havana. Although in 2020 there is a decrease in the areas cultivated in coca, only in Cartagena del Chairá is there evidence of a significant decrease, even reaching figures of hectares planted below those presented in 2010.

3.5.4.4 Indirect causes

Technological and economic factors

Colombia's progressive incursion into international markets, in which the national economy is increasingly dictated by the global macroeconomic environment, has had a strong influence on the dynamics of deforestation throughout the territory (González et al., 2011), and quite possibly on the degradation of forests, because this also encourages

[35]https://observatorioamazonia.fcds.org.co/acercamiento-conflictos/amazonia-colombiana/cultivos-uso-ilicito/microficha-cultivos-de-uso-ilicito-en-el-bioma-amazonico-colombiano.html#:~:text=Durante%20los%20%C3%BAltimos%20a%C3%B1os%2C%20los%20cultivos%20ilegales%20de,Nukak%20y%20el%20PNN%20Sierra%20de%20la%20Macarena.
[36] Ibid.

the proliferation of illegal economies related to the illegal logging and trade of timber of valuable species.

Political and institutional factors

Among the political and institutional factors that have the greatest impact on forest degradation are economic development policies and the development of infrastructure works and the post-conflict after the signing of the peace agreements[37]. It is also highlighted that there is a regional policy that groups the departments that coincide in this region of the country, which promotes socioeconomic development promoted by departmental public policies[38].

Cultural factors

In general, deforestation and degradation processes take place when the agent assigns a positive or negative value to forests. For example, a forest associated with fine wood trees that can be harvested through selective logging, but without an associated management/exploitation plan. Another example is the use of this under a strategic vision, where the location or structure of the forest offers an advantage for the development of a particular activity, which may or may not have a direct relationship with the forest cover. Forest maintenance to camouflage illicit activities (e.g., illicit crops) is an example of this. In both cases, the assessment depends mainly on sociocultural factors.

Demographic factors

In tropical countries with developing economies, the areas of many of their forests are subject to the influence of a number of demographic factors that directly affect local populations. This is corroborated by the positive relationships found between deforestation rates and variables such as population growth in rural areas around the world.

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37 CARDONA (2022), MURILLO-SANDOVAL, OTHERS (2020).

38 *"RAPE Central Region. An Administrative Region of Special Planning is an associative figure authorized by Law 1144 of 2011 (Organic Law of Territorial Planning), through which two or more territorial entities create a platform for planning at the regional level and for the management of projects that promote development and allow facing the dynamics and problems that exceed the individual capacities of the territorial entities. The RAPE Central region is made up of the departments of Boyacá, Cundinamarca, Meta and Tolima and the Capital District, which together account for 40 percent of the national GDP and 29 percent of the country's population." Delgado, Ulloa, and Ramírez (2015), THE ECONOMY OF THE DEPARTMENT OF TOLIMA: DIAGNOSIS AND MEDIUM-TERM PERSPECTIVES*

Biophysical factors

Anthropic factors play an important role in land-use changes. However, it is important to consider that the territory has its own characteristics that condition what type of cover can occur in each place and how feasible its conversion is (deforestation/degradation).

3.5.4.5 Drivers of deforestation

Next, the factors that lead the identified agents (ranchers, farmers and miners) to make decisions on land use are evaluated, with the aim of recognizing what have been the causes of deforestation.

Variables that explain the area (hectares) deforested

Key variables

- Expansion of the agricultural frontier
- Cutting down trees

Description of the variables

Expansion of the agricultural frontier

The main causes of the expansion of the agricultural frontier are the establishment of crops and pastures for dual-purpose livestock. Areas of low soil fertility have been dedicated to extensive cattle ranching after being deforested.

According to studies carried out by the IGAC[39], the territory of Caqueta has a mainly forestry vocation (76.93%, 6,931,786.8 hectares), followed by the agroforestry vocation (20.91%, 1,883,924.6 hectares), while the soils with agricultural (1.65%) and livestock (0.18%) vocation represent a minimal extension in the department. For the department of Putumayo, the area of forests is recorded as the main land use (44.11%, 1,097,624 hectares) followed by the areas corresponding to watersheds (28.30%, 704,261 hectares) and the SINAP protected areas (19.54%, 486,183 hectares), with the smallest areas corresponding

[39] GOBERNACIÓN DEL CAQUETÁ (2020), p. 21.

to agriculture (1.4%, 34,918 hectares), livestock (6.58%, 163,808 hectares) and other uses (0.07%, 1,706 hectares).[40]

For 2014, the municipalities of the reference area presented significantly higher land use in pastures, without exception, with stubble, agricultural and agricultural infrastructure location use being the lowest destinations for land use, as evidenced in the following table:

Board 8. Hectares by land use in the municipalities of the reference area, year 2014

Municipality	Area (Ha) in pastures	Area (Ha) in stubble	Agricultural area (Ha)	Area (Ha) in agricultural infrastructure
Cartagena del Chairá	131.899,5	28.952,2	18.421,7	85,2
Milan	71.301,6	24.521,2	2.119,4	21,3
Solano	205.807,7	30.836,0	10.328,0	99,7
Alone	26.781,5	4.561,0	1.587,1	17,3
Puerto Guzmán	53.279,1	4.601,0	3.094,0	2,4
Puerto Leguizamo	28.400,7	14.084,9	7.195,6	29,3

Source: DANE (2014)

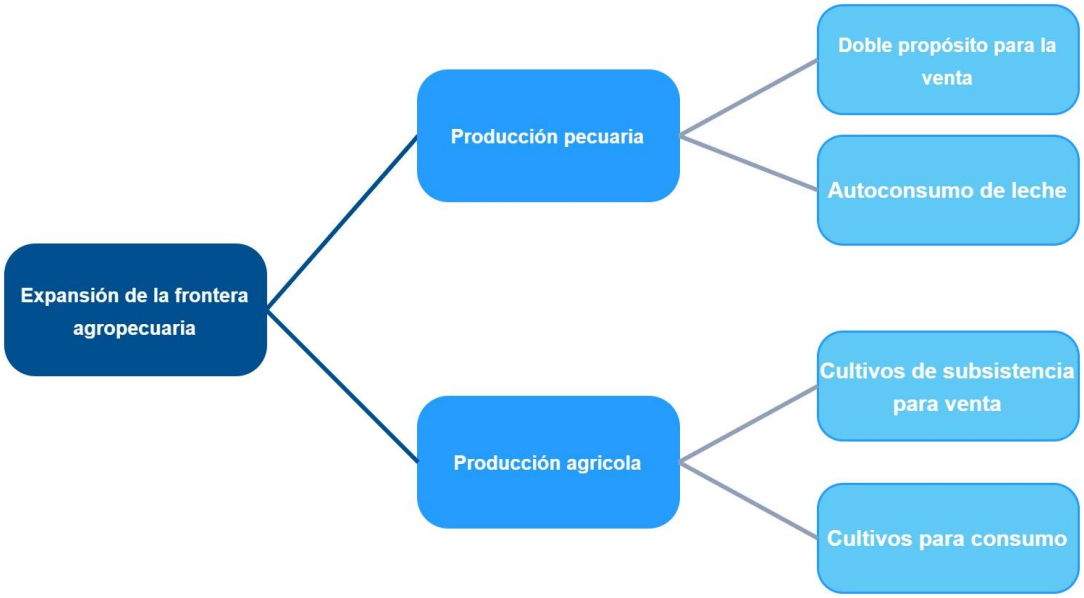

Illustration 2. Analysis of the drivers of deforestation: expansion of the agricultural frontier

[40] DEPARTMENTAL ASSEMBLY OF PUTUMAYO (2016).

Livestock production

This production in the reference area consists mainly of the breeding, exploitation and trade of dual-purpose livestock. Although no information was available to establish the number of people dedicated to livestock, as well as the total areas destined to cattle livestock activity, information was found on the number of heads of cattle registered in the years 2018, 2019 and 2020, which allows evidence of the growth trend in this activity. as well as the number of farms that carry out this economic activity.

Board 9. Number of cattle in the municipalities of the reference area, years 2018, 2019 and 2020

Municipality	2018	2019	2020
Cartagena del Chairá	232.653	249.760	394.636
Milan	58.498	62.048	78.119
Solano	20.260	32.629	43.674
Alone	29.187	30.126	35.865
Puerto Guzmán	75.260	95.319	91.302
Puerto Leguizamo	52.132	63.512	60.074

Source: ICA (sf)

All municipalities in the reference area presented a sustained increase in the number of heads of cattle between 2018, 2019 and 2020, with the exception of the municipalities of Puerto Guzmán and Puerto Leguízamo (Putumayo) that showed a decrease in the number of heads from 2019 to 2020.

Board 10. Total number of properties that develop livestock activity in the municipalities of the reference area, years 2018, 2019 and 2020

Municipality	2018	2019	2020
Cartagena del Chairá	1.641	1.753	2.637
Milan	519	544	744
Solano	308	384	521
Alone	385	401	511
Puerto Guzmán	1.155	1.566	1.343
Puerto Leguizamo	521	723	611

Source: ICA (sf)

Similarly, between 2018, 2019 and 2020, there is evidence in the municipalities of the reference area of an increase in the number of farms with livestock activity, with the exception of the municipalities of Puerto Guzmán and Puerto Leguízamo (Putumayo) that showed a decrease in the number of farms from 2019 to 2020. In the municipalities of the area of interest, about 50% of the total properties for each year corresponded to properties

of between 1 and 50 hectares, with the exception of Cartagena del Chairá, where about 50% of the properties were in the category of 101 to 500 hectares.

Agricultural production

According to the municipal agricultural assessments (EVA), [41]in the municipalities that make up the reference region, it was identified that during the years 2010, 2015 and 2020, rice, corn, banana, sugarcane and cassava were mainly grown in all the municipalities of the reference area. During the years 2010 and 2015 in Cartagena del Chairá, Milán, Solano and Solita, rubber and cocoa were also grown significantly, and to a lesser extent tomatoes, pineapples, patilla, chontaduro, coffee and arazá; while in Puerto Guzmán and Puerto Leguízamo during the same years, bananas, bananas, rubber, chontaduro, palm hearts, pineapples and sacha inchi were planted to a lesser extent. For 2020, there was evidence of variation in crops with respect to what was reported for 2010 and 2015, with the introduction in the municipalities of Caquetá of crops of Chontaduro, Pineapple, Sacha inchi, Patilla, Yam, Lemon, Orange, Banana and Ahuyama, and in the municipalities of Putumayo pepper, achira and caimarona grape.

Wood extraction

Logging is the second main cause of deforestation, it is carried out for three purposes, i) as a method of appropriating land that the local population considers[42] wasteland, ii) commercialization of wood for different purposes, and iii) local use of wood. The lack of tools and incentives to undertake conservation projects and the problems of land use in the region are some of the causes that lead the local population to cut down the forest.

Local people, especially indigenous communities and community councils, recognize the following forest species as being of high importance in the framework of forest conservation and reforestation in the reference area: Anacardium excelsum (snail), Boswellia sacra (incense), Caesalpinia spinosa (guarango), Cecropia peltata (yarumo), Cedrelinga cateniformis (achapo), Dalbergia melanoxylon (grenadillo), H. brasiliensis (rubber), Hieronyma macrocarpa (motilon), Hura crepitans L. (jabillo), Inga edulis (guamo), Jacaranda copia (canalete), Manilkara bidentata (balatae or scalp oak), Minquartia guianensis Aubl (smoked), Oreopanax ecuadorensis (bumamaquí or

[41]UPRA (2018) and UPRA (2020).

[42] Conversations with villagers during field visits to the project.

pumamaqui), Pouteria caimito (yellow), Qualea acuaminata Spruce (sand), Retrophyllum rospigliosii (pine), Salix humboldtiana (willow), Sporophila americana murallae (cachillo or stern), Virola parvifolia (sangretoro), Zanthoxylum rhoifolium (tack), among others other.

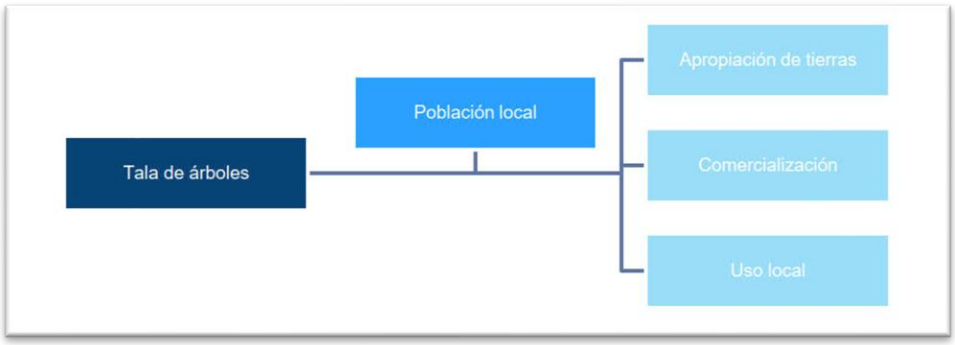

Illustration 3. Analysis of the drivers of deforestation: logging

3.5.4.6 Degradation Engines

The main drivers of degradation in the reference area are the expansion of the agricultural frontier and the felling of trees for different purposes, with cattle ranchers, farmers and local people being the agents who make decisions about land use.

The population of the reference area has unsatisfied basic needs, which represents a situation of poverty. The sources of income are derived from the economic activities that take place on their properties, which is why if they want to increase their income they must look for additional areas for production. Both ranchers and farmers do not have technical assistance that allows them to develop cleaner production systems, and the characteristics of the soils do not favor them because they are poor and stony. In addition to this, there is the road network of the municipalities that make up the reference area and the future projects to open roads that facilitate access to the forests.

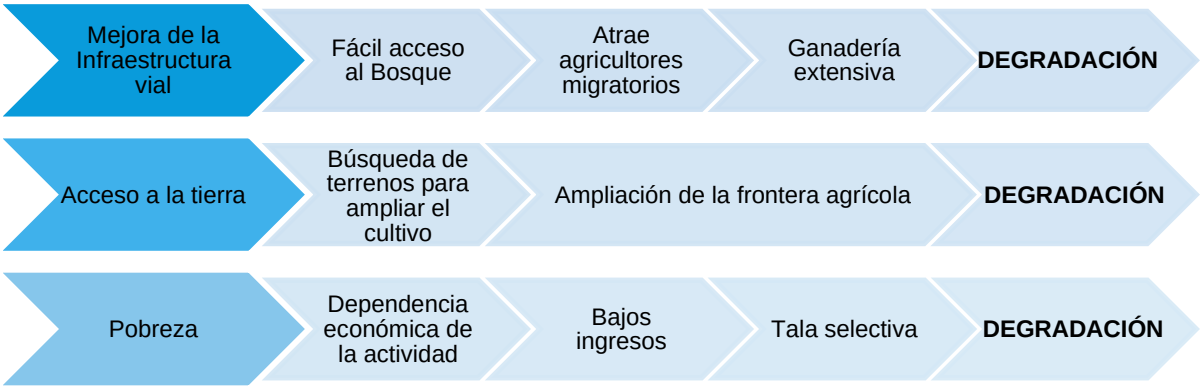

Illustration 4. Chain of events that lead to degradation.

3.5.4.7 Underlying Causes of Deforestation

The underlying causes of deforestation are factors related to socioeconomic or biophysical conditions, which influence the direct causes of deforestation and allow us to understand why deforestation develops. They are determined by macroeconomic, political, technological, cultural, demographic and biophysical structural factors[43].

In the reference area, the main underlying causes of deforestation are, in the biophysical aspect, the low productivity of the soils, the accessibility to the forest through roads and the topography of the terrain. In terms of socioeconomic issues, poverty, financing of agricultural activities and land tenure.

Description of the causes

Biophysical causes

Soil productivity[44]

Low soil productivity has been identified as one of the main causes of deforestation, since, being poor soils, the production cycle is limited and forces producers to move to areas where they can reestablish their crops, generating pressure on forests with the expansion of the agricultural frontier.

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[43] Taken from: http://www.marn.gob.gt/Multimedios/4530.pdf.

[44] CORTOLIMA (2009). POMCA Prado River Watershed

In the reference area, the soils belonging to the mountain landscape in a cold, humid and very humid climate are characterized by being poorly evolved in reliefs with steep slopes and soils with a low to medium organic matter content, high stoniness, shallow effective depth, acid reaction and low fertility. In relation to soils in a humid and very humid climate, they are susceptible to severe erosion in areas with slopes greater than 75% and light erosion on slopes between 50 and 75%. As in cold climate, they are soils with low levels of fertility, with acid reaction, low levels of phosphorus and moderate to high organic matter contents. Its greatest limitations are stoniness, susceptibility to erosion and high slopes. Finally, soils in warm climates do not differ significantly from the previous ones, because they have the same limitations.

Way

The reference area has an incipient infrastructure, characterized by the limited existence of tertiary roads and rural roads in poor condition. For this reason, investment in the expansion and installation of the road network is part of the different municipal plans and programs, which is definitely considered as another determining variable in deforestation, since on the one hand, the construction of the roads implies the removal of vegetation cover, and on the other hand, this opening facilitates access and subsequent extraction of forest resources. Thus, the municipalities in the reference area mainly make use of large bodies of water as routes for the transport of passengers and goods (Board 11).

Board 11. Characterization of transport by municipality

Municipality	**Terrestrial**	**Fluvial**
Cartagena del Chairá	The road network made up of tertiary roads and neighborhood roads. Main road: Cartagena del Chairá - Florencia.	Caguán River and tributaries, such as the Yarí and the Pescado. Guayas River. Pier/pier: Chalupas or Zapatico Viejo, Puerto Relleno, Puerto Madera, Flotante de Asotaxi, Principal, Pier Quesillera, Santafé, Pore, Pilones, Panama, and El Remanso. Main form of cargo and passenger transport within the municipality and the region.
Milan	The road network composed of tertiary roads and neighborhood roads, connect the municipal seat with the inspections of San Antonio de Getuchá and Granario Maticurú, and sidewalks. Main road: Florencia - San Vicente del Caguán, connects the municipalities of	Orteguaza River. Pier/pier: San Antonio Principal, Milan's La Pequeza, Milan's Principal, Puerto Chita, and Puerto Palomo or Puerto Lechero. Main form of cargo and passenger transport within the municipality and the region.

Municipality	Terrestrial	Fluvial
	Montañita, Paujil, Doncello, Puerto Rico and Milán.	
Solano	The road network made up of tertiary roads and neighborhood roads.	Caquetá River. Dock/pier: Main, loading, Misael Fuel Station, Luis Chichotes Pier, and Navenal. Main form of cargo and passenger transport within the municipality and the region.
Alone	The road network made up of tertiary roads and neighborhood roads.	Caquetá River. Pier/pier: Las Lajas, Principal, Sincelejo Service Station, La Esperanza Service Station, Balcón de las Aguas, Tienda el Campo, and Los Delfines. Main form of cargo and passenger transport within the municipality and the region.
Puerto Guzmán	The road network is made up of tertiary roads and neighborhood roads. It connects Puerto Limón-Santa Lucía with the Villagarzón-Saravena Trunk by tertiary highway.	Caquetá River. Pier/pier: Puerto Guzmán. Main form of cargo and passenger transport within the municipality and the region.
Puerto Leguizamo	No information.	Putumayo River. Caquetá River. Pier/pier: Leguizamo, Mecaya and La Tagua. Main form of cargo and passenger transport within the municipality and the region.

Source: ST (2022), territorial planning documents of the municipalities of the reference area.

Likewise, the following airport infrastructure is registered in the area: air port at the Larandia military base, Florencia airport, Cananguchal airport (Villagarzón), Tres de Mayo airport, and Caucayá airport (Puerto Leguizamo). These infrastructures work for the transport of passengers and cargo.

Topography

Topography is considered a variable that can favor deforestation, since the slope of the land facilitates access to it or not. In the reference area, most of the area has slopes between 0 and 12% and in the project area, slopes between 4 – 12% and 13 – 18% predominate.

Given the above, it is considered that the slope favors deforestation, since the area is dominated by slopes that allow access by the population. In addition to the above, the slope is not such a strong limitation for the establishment of crops and livestock.

The department of Caquetá has 3 types of relief: the Eastern Cordillera, located to the north and northwest of the department, is a mountainous area with heights that can exceed 3,000 meters above sea level; the Andean-Amazonian foothills, is a transition between the mountains and the Amazonian plains, and presents hills and valleys with fertile soils; the Amazonian Plains, extensive and low-lying areas, generally between 200 and 400 meters above sea level, so it easily allows the formation of vast river networks and wetlands. The reference area is located on the latter, and is characterized by soils of low fertility.

Socioeconomic causes

Poverty

In the reference area, there is evidence of a decrease in the average population with unsatisfied basic needs (UBN), between 2005 and 2018 (Board 12).

The inhabitants of the rural area take advantage of the resources of the forest to meet their needs, and in turn extract products that can be marketed. It is for this reason that the level of poverty in an area influences deforestation, since to the extent that a population is not able to satisfy all its needs through its own resources, it must access the forest to extract a source of resources, either to market and obtain income or to finish supplying its needs.

Board 12. Unmet Basic Needs (UBN) in the reference area, 2005 and 2018

Municipality	NBI 2005			NBI 2018		
	Headboard	Remainder	Total	Headboard	Remainder	Total
Cartagena del Chairá	40,53	61,08	51,57	30,30	47,79	38,15
Milan	42,91	64,46	60,77	15,30	52,11	47,11
Solano	100	100	100	27,17	51,67	44,72
Alone	38,11	62,59	52,87	22,38	34,87	27,28
Puerto Guzmán	100	100	100	7,83	27,96	19,66
Puerto Leguizamo	33,28	49,43	37,82	18,42	42,33	36,17

Source: https://www.dane.gov.co/files/censos/resultados/NBI_total_dpto_30_Jun_2012.xls; https://www.dane.gov.co/files/censo2018/informacion-tecnica/CNPV-2018-NBI.xlsx

Financing of agricultural activities

Credits to the agricultural sector and the lack of real incentives for forest management are a factor that indirectly favored deforestation. The existence of low-interest loans and other incentives for the agricultural sector, in contrast to the absence of incentives for conservation, favor the advance of the agricultural frontier.

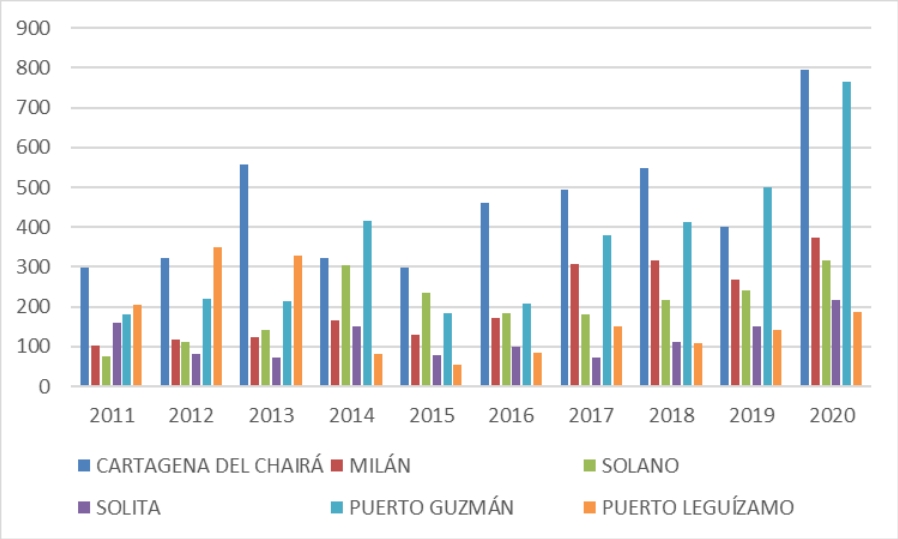


Illustration 5. Agricultural loans granted between 2011 and 2020[45]

FINAGRO, created under Law 16 of 1990, grants loans to small, medium and large agricultural producers; Between 2011 and 2020, it granted 14,953 loans among the municipalities of the reference area, for a total of $238,384 million Colombian pesos.

Cartagena del Chairá is the municipality that has historically received the highest number of credits in contrast to Puerto Leguizamo, which is the one that has received the least number of credits of the group (Illustration 5), corresponding in the same way in the dynamics of application of the amounts of the credits granted (Illustration 6).

[45] https://www.finagro.com.co/estadisticas/informes

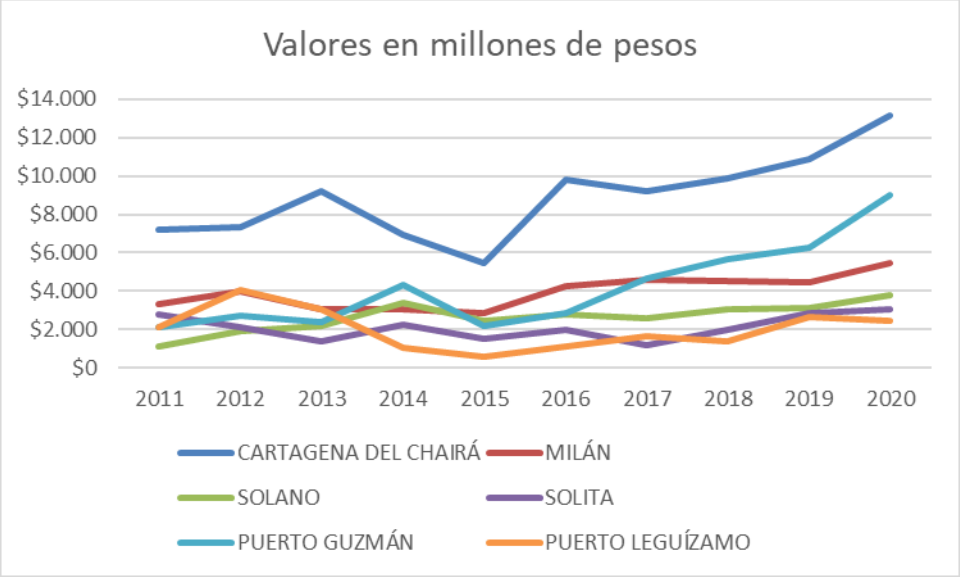


Illustration 6. Value of agricultural loans granted between 2011 and 2020[46]

Land tenure

In the reference area, most of the area of the municipalities corresponds to properties with extensions between 50 and 100 hectares (Board 13), with Cartagena del Chairá being the municipality with the highest percentage of properties in its territory of that extension.

Board 13. Hectares with properties by size, by municipality of the reference area, year 2014[47].

Municipality	0-1ha	1-5 ha	5-20 ha	20-50 ha	50-100 ha	> 100 ha	Municipal area (Km2)
Cartagena del Chairá	34	39	99	457	1.355	837	13.161
Milan	6	106	244	345	276	186	1.366
Solano	103	271	262	218	533	504	41.653
Alone	26	35	134	172	133	57	747
Puerto Guzmán	83	328	157	50	34	42	4.340
Puerto Leguizamo	47	437	483	240	150	145	10.483
Total	**299**	**1.216**	**1.379**	**1.482**	**2.481**	**1.771**	**71.750**

Source: Authors' elaboration based on data contained in TerriData.

[46] https://www.finagro.com.c470/estadisticas/informes

[47] Municipal profiles consulted in https://terridata.dnp.gov.co/, reference information ENA 2014.

Although in general the municipalities of the reference area present a similar distribution in the number of properties by category, Cartagena del Chairá and Solano register a greater number of properties with extensions greater than 50 hectares; in Milán, Solano and Solita there is a predominance of properties with extensions between 20 and 50 hectares; while in Puerto Guzmán and Puerto Leguízamo the properties of less than 5 hectares (Board 13).

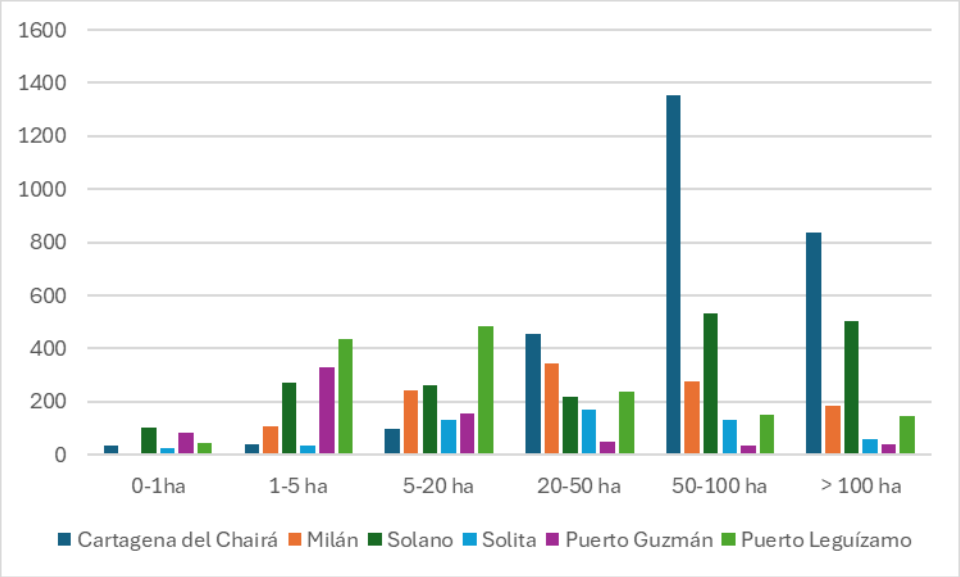


Illustration 7. Percentage of properties by size and municipality in the reference area, 2014[48]

3.5.5 Analysis of the chain of events that lead to deforestation

Based on the historical information assessed, the relationships between the agents, factors and underlying causes of deforestation were analyzed, in order to explain the sequence of events that have led and will lead to deforestation (Illustration 8).

[48] Municipal profiles consulted in https://terridata.dnp.gov.co/, reference information ENA 2014.

Deforestation in the reference area is related to socioeconomic phenomena, and its location depends on geographical and economic variables. In areas where the land is used for forestry, peasants cut down the forest for the development of agricultural activities or as a method of informal appropriation of the land, to then market or use locally the products they extract from the forest.

For this reason, the main causes that have led to deforestation in the reference area are the expansion of the agricultural frontier and the felling of trees for different purposes, with ranchers, farmers and the local population being the agents who make decisions about land use.

The population of the reference area has unsatisfied basic needs, which represents a situation of poverty. The sources of income are derived from the economic activities that take place on their properties, which is why if they want to increase their income they must look for additional areas for production. Both ranchers and farmers do not have technical assistance that allows them to develop cleaner production systems, and the characteristics of the soils do not favor them because they are poor and stony. In addition to this, there is the road network of the municipalities that make up the reference area and the future projects to open roads that facilitate access to the forests.

Illustration 8. Chain of events leading to deforestation in the reference area.

3.6 Uncertainty management

Uncertainty management requirement	Compliance
For activity data, the accuracy should be greater than 90%. The accuracy assessment should be made from the use of field observations or analysis of high-resolution imagery (10 m, Sentinel).	Taking into account that the project uses high resolution satellite imagery so it is confirmed that the project activity data is more than 90% accurate.
For emission factors, an uncertainty of 10% is acceptable for the use of average carbon values (assessment should be done per repository). If the uncertainty is greater than 10%, the 95% confidence interval's lower value should be applied.	The emission factors were chosen in accordance with the BCR0002 methodology , with a level of confidence of 80%

3.7 Leakage and non-permanence

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

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

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

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

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

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

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

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

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

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

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

3.8 Mitigation results

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

GHG emission reductions from REDD+ activities

Activity data

Deforestation

Annual historical deforestation in the reference region

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

Equation 1. Annual historical deforestation in the reference region.

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

Where:

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

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

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

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

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

Projected annual deforestation in the REDD+ project scenario

It is calculated with the following equation:

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

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

Where:

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

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

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

Annual historical deforestation in the leakage area

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

Equation 3. Annual historical deforestation in the leakage area.

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

Where:

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

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

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

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

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

Estimated using the following equation:

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

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

Where:

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

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

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

Degradation

Annual historical degradation in the baseline project area

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

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

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

Where:

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

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

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

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

And,

Equation 6. Annual Secondary Degradation in the Project Area

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

Where:

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

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

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

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

Annual historical degradation in leakage area in baseline scenario

This is done by using the following equations:

Equation 7. Historical primary degradation in the area of leakage

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

Where:

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

t_2 = Year end of reporting period; year

t_1= Initial year of the reference period; year

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

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

And,

Equation 8. Historical secondary degradation in the area of leakage

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

Where:

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

t_2 = Year end of reporting period; year

t_1= Año inicial del periodo de referencia; año

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

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

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

It is estimated by the use of the following equation:

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

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

Where:

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

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

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

And,

Equation 2. Annual secondary degradation the scenario with project

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

Where:

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

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

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

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

It is estimated by the use of the following equation:

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

$$DFP_{f,año} = DFP_f x\ (1 - \%Ef)$$

Where:

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

DFP_f= Annual historical primary degradation in the leakage area in the without-project scenario; ha

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

And,

Equation 4. Annual secondary degradation in the leakage area in the scenario with project

$$DFS_{f,año} = DFS_f x\ (1 - \%Ef)$$

Where:

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

DFP_f= Degradación secundaria histórica anual en el área de fugas en el escenario sin proyecto; ha

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

Quantification of the emission factor.

Deforestation

The following carbon pools are used to define deforestation emission factors: aboveground biomass, belowground biomass, dead wood, litter and soil organic carbon.

Carbon emission factor in total biomass

The estimation of the carbon emission factor in the total biomass is made from the following equation

Equation 5. Carbon dioxide equivalent contained in the total biomass

$$CBFeq = BT \times FC \times \frac{44}{12}$$

Where:

$CBFeq$	Carbon dioxide equivalent contained in the total biomass; $tCO_2e\ ha^{-1}$
BT	Total biomass
FC	Carbon fraction of dry matter (0,47)

Soil carbon emission factor

To estimate the soil carbon emission factor, a gross emission is assumed where the soil carbon content (COS) is emitted after the deforestation event, for 20 years in equal proportions, according to Equation 14.

Equation 6. Carbon dioxide equivalent contained in soils.

$$COSeq = \frac{COS}{20} \times \frac{44}{12}$$

Where:

$COSeq$	Carbon dioxide equivalent contained in soils; $tCO_{2e}\ ha^{-1}$
COS	Soil carbon content; $tC\ ha^{-1}$

Total carbon emission factor

The total carbon emission factor is calculated according to the following equation

Equation 7. Total equivalent carbon dioxide.

$$CTeq = CBTeq + COSeq$$

Where:

$CTeq$ Total equivalent carbon dioxide; tCO_{2e} ha^{-1}

$CBFeq$ Carbon dioxide equivalent contained in the total biomass; $tCO_{2}e$ ha^{-1}

$COSeq$ Carbon dioxide equivalent contained in soils; tCO_{2e} ha^{-1}

Degradation

To calculate the total biomass, aboveground and belowground biomass are added together, stratifying the forest area by ecological zone, to determine the total biomass by fragmentation class transition.

Equation 8. Difference total transitional biomass.

$$DBTi = DBA \times (1 + R)$$

Where:

$DBTi$ Difference total transition biomass i; t ha^{-1}

DBA Mean difference in aboveground biomass transition i (tC ha^{-1})

R Belowground to aboveground biomass ratio; (ton d. m.)$^{-1}$

i Type of degradation; 1-primary degradation, 2- secondary degradation

For total biomass content is the product of total biomass and its carbon fraction, as shown in Equation 17.

Equation 9. Difference carbon content in total biomass.

$$DCBTi = DBTi \times FC$$

Where:

$DCBTi$ Difference carbon content in total biomass; tC ha^{-1}

$DBTi$ Difference total biomass; t ha^{-1}

FC Carbon fraction; 0,47

i Type of degradation; 1-primary degradation, 2- secondary degradation

The carbon dioxide equivalent contained in the DBT is the product between the DCBT and the molecular ratio constant between carbon (C) and carbon dioxide (CO_2), according to the following equation.

Equation 10. Carbon dioxide equivalent contained in the DBT.

$$DBT_{co2eq} = DCBT \times \frac{44}{12}$$

Where:

$CTeq$ Total carbon dioxide equivalent; tCO_{2e} ha^{-1}

$CBFeq$ Carbon dioxide equivalent contained in total biomass; tCO_2e ha^{-1}

$COSeq$ Carbon dioxide equivalent contained in soils; tCO_{2e} ha^{-1}

3.8.1 Eligible areas within GHG project boundaries (AFOLU sector projects)

Starting from the boundaries of the indigenous reservation, taken from the National Land Agency (ANT, 2023), the eligible areas correspond to forest areas present in 2021, which were already present in 2005, following the definition of forest for Colombia according to IDEAM "Land occupied mainly by trees that may contain shrubs, palms, *guaduas*, grasses

and lianas, in which tree cover predominates with a minimum canopy density of 30%, a minimum canopy height (in situ) of 5 meters at the time of identification, and a minimum area of 1.0 ha"[49], and correspond to 264,625.45 hectares, as reported in the geographic information layers (consult GeoDataBase). In order to determine the eligible areas, a multi-temporal analysis was carried out with the forest maps of 2010 and 2020, using Geographic Information Systems software, which allowed identifying the areas with forest cover 10 years ago or more in the limits of the project area, these are the eligible areas of stable forest, while, those that have gone from "forest" to "non-forest" category (deforested areas), that have gone from "non-forest" to "forest" (regenerated areas) and those that are preserved under the "non-forest" category, are considered as ineligible.

The eligible area, which corresponds to forest cover according to the national definition at the beginning of the project and at least 10 years before, is 264537.19 hectares. To verify the eligibility of the area, forest and non forest maps was used, corresponding to the dates:

December 31, 2010

December 31, 2015

December 31, 2020

[49] Ministerio de Ambiente y Desarrollo Sostenible – MINAMBIENTE. Instituto de Hidrología, Meteorología y Estudios Ambientales – IDEAM. PROPOSAL FOR A REFERENCE LEVEL OF FOREST EMISSIONS FROM DEFORESTATION IN COLOMBIA FOR REDD+ PAYMENT FOR RESULTS UNDER THE UNFCCC. Bogotá, 2020.

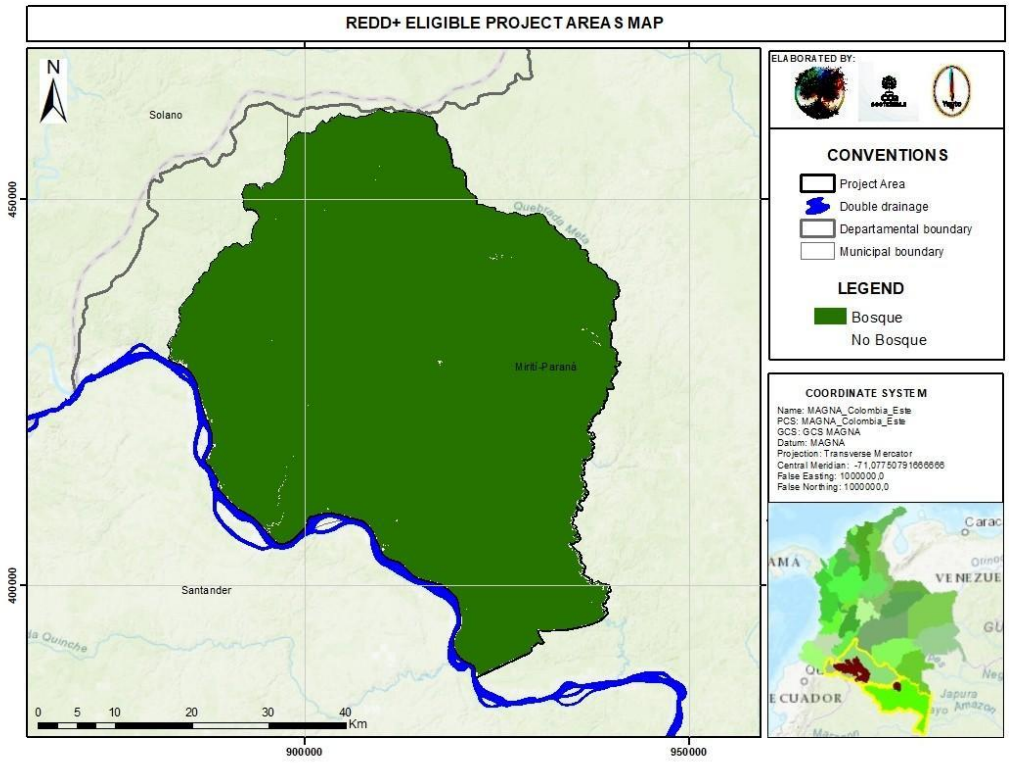


Figure 26. Map of eligible project area

3.8.2 Stratification (Projects in the AFOLU sector)

It is a REDD+ activities project, therefore, it does not apply.GHG emission removals and stratification in the baseline scenario.

3.8.3 GHG baseline emissions

The baseline scenario presents the following GHG emissions.

Emissions from unplanned deforestation in the baseline scenario are 88,663,964 tCO2e, with an annual average of 2,216,599 tCO2e per year for the total of 40 years:

The annual emission due to deforestation in the baseline scenario, for the reference region, according with the BCR0002 methodology, is estimated with the following equation:

$$AE_{R,bl,yr} = FSC_{R,bl,yr} x TCO_{2eq}$$

Where:

$AE_{R,bl,yr}$ Annual emission in the baseline scenario, in the reference region; tCO_2 ha^{-1}

$FSC_{R,bl,yr}$ Historical annual deforestation in the baseline scenario, in the reference region; ha

$xTCO_{2eq}$ Total carbon dioxide equivalent; tCO_2 ha^{-1}

Besides, the annual emission due to deforestation in the baseline scenario, for the project area, according with the BCR0002 methodology, is estimated with the following equation:

$$AE_{bl\ A,yr} = FSC_{A,yr} xTCO_{2eq}$$

Where:

$AE_{bl\ A,yr}$ Annual emission in the baseline scenario, in the project area; tCO_2 ha^{-1}

$FSC_{A\ ,yr}$ Historical annual deforestation in the baseline scenario, in the project area; ha

$xTCO_{2eq}$ Total carbon dioxide equivalent; tCO_2 ha^{-1}

Furthermore, the annual emission due to deforestation in the baseline scenario, for the leakage area, according with the BCR0002 methodology, is estimated with the following equation:

$$AE_{bl,LK,yr} = FSC_{bl,lk,yr} xTCO_{2eq}$$

Where:

$AE_{bl,lk,yr}$ Annual emission in the baseline scenario, in the leakage area; tCO_2 ha^{-1}

$FSC_{bl,lk,yr}$ Historical annual deforestation in the baseline scenario, in the leakage area; ha

$xTCO_{2eq}$ Total carbon dioxide equivalent; tCO_2 ha^{-1}

Table 23. Emissions from deforestation under the baseline scenario for 40 years.

Año		Deforestación histórica	Área de bosque	Biomasa total	Suelos	Emisión anual
Del proyecto (t)	Calendario	CSBlb	AP t-1	Estrato 1	Estrato 2	EAlbt
		ha	ha	tCO2eq	tCO2eq	tCO2eq
1	2.021	5.686,65	264.625,45	3.086.996,00	77.149,00	3.164.145
2	2.022	5.836,01	258.938,81	3.168.080,00	79.176,00	3.247.256
3	2.023	4.785,11	253.102,79	2.597.599,00	64.919,00	2.662.518
4	2.024	4.937,14	248.317,68	2.680.128,00	66.981,00	2.747.109
5	2.025	5.077,77	243.380,54	2.756.467,00	68.889,00	2.825.356
6	2.026	3.800,73	238.302,77	2.063.224,00	51.564,00	2.114.788
7	2.027	3.800,73	234.502,05	2.063.224,00	51.564,00	2.114.788
8	2.028	3.800,73	230.701,32	2.063.224,00	51.564,00	2.114.788
9	2.029	3.800,73	226.900,59	2.063.224,00	51.564,00	2.114.788
10	2.030	3.800,73	223.099,87	2.063.224,00	51.564,00	2.114.788
11	2.031	3.800,73	219.299,14	2.063.224,00	51.564,00	2.114.788
12	2.032	3.800,73	215.498,42	2.063.224,00	51.564,00	2.114.788
13	2.033	3.800,73	211.697,69	2.063.224,00	51.564,00	2.114.788
14	2.034	3.800,73	207.896,97	2.063.224,00	51.564,00	2.114.788
15	2.035	3.800,73	204.096,24	2.063.224,00	51.564,00	2.114.788
16	2.036	3.800,73	200.295,52	2.063.224,00	51.564,00	2.114.788
17	2.037	3.800,73	196.494,79	2.063.224,00	51.564,00	2.114.788

18	2.038	3.800,73	192.694,07	2.063.224,00	51.564,00	2.114.788
19	2.039	3.800,73	188.893,34	2.063.224,00	51.564,00	2.114.788
20	2.040	3.800,73	185.092,62	2.063.224,00	51.564,00	2.114.788
21	2.041	3.800,73	181.291,89	2.063.224,00	51.564,00	2.114.788
22	2.042	3.800,73	177.491,17	2.063.224,00	51.564,00	2.114.788
23	2.043	3.800,73	173.690,44	2.063.224,00	51.564,00	2.114.788
24	2.044	3.800,73	169.889,72	2.063.224,00	51.564,00	2.114.788
25	2.045	3.800,73	166.088,99	2.063.224,00	51.564,00	2.114.788
26	2.046	3.800,73	162.288,27	2.063.224,00	51.564,00	2.114.788
27	2.047	3.800,73	158.487,54	2.063.224,00	51.564,00	2.114.788
28	2.048	3.800,73	154.686,82	2.063.224,00	51.564,00	2.114.788
29	2.049	3.800,73	150.886,09	2.063.224,00	51.564,00	2.114.788
30	2.050	3.800,73	147.085,37	2.063.224,00	51.564,00	2.114.788
31	2.051	3.800,73	143.284,64	2.063.224,00	51.564,00	2.114.788
32	2.052	3.800,73	139.483,92	2.063.224,00	51.564,00	2.114.788
33	2.053	3.800,73	135.683,19	2.063.224,00	51.564,00	2.114.788
34	2.054	3.800,73	131.882,46	2.063.224,00	51.564,00	2.114.788
35	2.055	3.800,73	128.081,74	2.063.224,00	51.564,00	2.114.788
36	2.056	3.800,73	124.281,01	2.063.224,00	51.564,00	2.114.788
37	2.057	3.800,73	120.480,29	2.063.224,00	51.564,00	2.114.788
38	2.058	3.800,73	116.679,56	2.063.224,00	51.564,00	2.114.788
39	2.059	3.800,73	112.878,84	2.063.224,00	51.564,00	2.114.788
40	2.060	3.800,73	109.078,11	2.063.224,00	51.564,00	2.114.788
Total		159.348,06	-	86.502.110	2.161.854	88.663.964
Anual		3.983,70	-	2.162.553	54.046	2.216.599

Table 24. Emissions from degradation in the baseline scenario for 40 years.

Año		Degradación Primaria histórica en el área de proyecto	Degradación Secundaria histórica en el área de proyecto	Biomasa total Deg Primaria	Biomasa total Deg Secundaria	Emisión anual
Del proyecto (t)	Calendario	DFPlb,año	DFSlb,año	Núcleo - Parche	Perforado - Parche	EAlbt
		ha	ha	tCO2eq	tCO2eq	tCO2eq
1	2.021	25.640,22	93,83	572.835	549,94	573.384
2	2.022	25.640,22	93,83	572.835	549,94	573.384
3	2.023	25.640,22	93,83	572.835	549,94	573.384
4	2.024	25.640,22	93,83	572.835	549,94	573.384
5	2.025	25.640,22	93,83	572.835	549,94	573.384
6	2.026	25.640,22	93,83	572.835	549,94	573.384
7	2.027	25.640,22	93,83	572.835	549,94	573.384
8	2.028	25.640,22	93,83	572.835	549,94	573.384
9	2.029	25.640,22	93,83	572.835	549,94	573.384
10	2.030	25.640,22	93,83	572.835	549,94	573.384
11	2.031	25.640,22	93,83	572.835	549,94	573.384
12	2.032	25.640,22	93,83	572.835	549,94	573.384
13	2.033	25.640,22	93,83	572.835	549,94	573.384
14	2.034	25.640,22	93,83	572.835	549,94	573.384
15	2.035	25.640,22	93,83	572.835	549,94	573.384
16	2.036	25.640,22	93,83	572.835	549,94	573.384
17	2.037	25.640,22	93,83	572.835	549,94	573.384
18	2.038	25.640,22	93,83	572.835	549,94	573.384
19	2.039	25.640,22	93,83	572.835	549,94	573.384
20	2.040	25.640,22	93,83	572.835	549,94	573.384

21	**2.041**	25.640,22	93,83	572.835	549,94	**573.384**
22	**2.042**	25.640,22	93,83	572.835	549,94	**573.384**
23	**2.043**	25.640,22	93,83	572.835	549,94	**573.384**
24	**2.044**	25.640,22	93,83	572.835	549,94	**573.384**
25	**2.045**	25.640,22	93,83	572.835	549,94	**573.384**
26	**2.046**	25.640,22	93,83	572.835	549,94	**573.384**
27	**2.047**	25.640,22	93,83	572.835	549,94	**573.384**
28	**2.048**	25.640,22	93,83	572.835	549,94	**573.384**
29	**2.049**	25.640,22	93,83	572.835	549,94	**573.384**
30	**2.050**	25.640,22	93,83	572.835	549,94	**573.384**
31	**2.051**	25.640,22	93,83	572.835	549,94	**573.384**
32	**2.052**	25.640,22	93,83	572.835	549,94	**573.384**
33	**2.053**	25.640,22	93,83	572.835	549,94	**573.384**
34	**2.054**	25.640,22	93,83	572.835	549,94	**573.384**
35	**2.055**	25.640,22	93,83	572.835	549,94	**573.384**
36	**2.056**	25.640,22	93,83	572.835	549,94	**573.384**
37	**2.057**	25.640,22	93,83	572.835	549,94	**573.384**
38	**2.058**	25.640,22	93,83	572.835	549,94	**573.384**
39	**2.059**	25.640,22	93,83	572.835	549,94	**573.384**
40	**2.060**	25.640,22	93,83	572.835	549,94	**573.384**
Total		**1.025.608,8**	**3.753,2**	**22.913.380**	**21.998**	**22.935.378**
Anual		**25.640,2**	**93,8**	**572.834,5**	**549,9**	**573.384**

Emissions from forest degradation in the baseline scenario are 22,935,378 tCO2e, with an annual average of 573,384 tCO2e per year for the total of 40 years:

3.8.4 GHG project emissions

The annual emissions from deforestation in the project area, according with the BCR0002 methodology, are calculated as follows:

$$AE_{REDD+project,yr} = FSC_{REDD+project,yr} x TCO_{2eq}$$

Where:

$AE_{REDD+project,yr}$	Annual emission in the project scenario, in the project area; tCO_2 ha^{-1}
$FSC_{REED+project,yr}$	Annual change in forest cover in the project area, in the project scenario; ha
$xTCO_{2eq}$	Total carbon dioxide equivalent; tCO_2 ha^{-1}

Besides, the annual caused by deforestation in the leakage area, according with the BCR0002 methodology, is estimated with the following equation:

$$AE_{lk,project,yr} = FSC_{lk,project,yr} x TCO_{2eq}$$

Where:

$AE_{lk,project,yr}$	Annual emission in the project scenario, in the leakage area; tCO_2 ha^{-1}
$FSC_{lk,project,yr}$	Annual change in forest cover in the leakage area, in the project scenario; ha
$xTCO_{2eq}$	Total carbon dioxide equivalent; tCO_2 ha^{-1}

The baseline scenario presents the following GHG emissions.

Emission reductions from unplanned deforestation in the scenario with project are 76,823,889 tCO2e, with an annual average of 1,920,597 tCO2e per year for the total of 40 years:

Table 25. Emission reductions from deforestation in the scenario with Project for 40 years.

Año		Emisión anual Línea Base	Área de proyecto		Cinturón de fugas		Reducción de emisiones en el escenario con proyecto
			Deforestación proyectada anual	Emisión anual	Deforestación proyectada anual	Emisión anual	
Del proyecto (t)	Calendario	EAlbt	CSBlb	$EA_{lb,t}$	$CSB_{im,f}$	$EA_{,ft}$	
		tCO2eq	ha	tCO_2eq	ha	tCO_2eq	tCO_2eq
1	2.021	3.164.145	568,66	316.500	133,46	74.282	2.773.363
2	2.022	3.247.256	583,60	324.814	133,46	74.282	2.848.160
3	2.023	2.662.518	478,51	266.324	133,46	74.282	2.321.912
4	2.024	2.747.109	493,71	274.785	133,46	74.282	2.398.042
5	2.025	2.825.356	507,78	282.612	133,46	74.282	2.468.462
6	2.026	2.114.788	380,07	211.536	133,46	74.282	1.828.970
7	2.027	2.114.788	380,07	211.536	133,46	74.282	1.828.970
8	2.028	2.114.788	380,07	211.536	133,46	74.282	1.828.970
9	2.029	2.114.788	380,07	211.536	133,46	74.282	1.828.970
10	2.030	2.114.788	380,07	211.536	133,46	74.282	1.828.970
11	2.031	2.114.788	380,07	211.536	133,46	74.282	1.828.970
12	2.032	2.114.788	380,07	211.536	133,46	74.282	1.828.970
13	2.033	2.114.788	380,07	211.536	133,46	74.282	1.828.970
14	2.034	2.114.788	380,07	211.536	133,46	74.282	1.828.970
15	2.035	2.114.788	380,07	211.536	133,46	74.282	1.828.970
16	2.036	2.114.788	380,07	211.536	133,46	74.282	1.828.970
17	2.037	2.114.788	380,07	211.536	133,46	74.282	1.828.970
18	2.038	2.114.788	380,07	211.536	133,46	74.282	1.828.970
19	2.039	2.114.788	380,07	211.536	133,46	74.282	1.828.970
20	2.040	2.114.788	380,07	211.536	133,46	74.282	1.828.970

21	2.041	2.114.788	380,07	211.536	133,46	74.282	1.828.970
22	2.042	2.114.788	380,07	211.536	133,46	74.282	1.828.970
23	2.043	2.114.788	380,07	211.536	133,46	74.282	1.828.970
24	2.044	2.114.788	380,07	211.536	133,46	74.282	1.828.970
25	2.045	2.114.788	380,07	211.536	133,46	74.282	1.828.970
26	2.046	2.114.788	380,07	211.536	133,46	74.282	1.828.970
27	2.047	2.114.788	380,07	211.536	133,46	74.282	1.828.970
28	2.048	2.114.788	380,07	211.536	133,46	74.282	1.828.970
29	2.049	2.114.788	380,07	211.536	133,46	74.282	1.828.970
30	2.050	2.114.788	380,07	211.536	133,46	74.282	1.828.970
31	2.051	2.114.788	380,07	211.536	133,46	74.282	1.828.970
32	2.052	2.114.788	380,07	211.536	133,46	74.282	1.828.970
33	2.053	2.114.788	380,07	211.536	133,46	74.282	1.828.970
34	2.054	2.114.788	380,07	211.536	133,46	74.282	1.828.970
35	2.055	2.114.788	380,07	211.536	133,46	74.282	1.828.970
36	2.056	2.114.788	380,07	211.536	133,46	74.282	1.828.970
37	2.057	2.114.788	380,07	211.536	133,46	74.282	1.828.970
38	2.058	2.114.788	380,07	211.536	133,46	74.282	1.828.970
39	2.059	2.114.788	380,07	211.536	133,46	74.282	1.828.970
40	2.060	2.114.788	380,07	211.536	133,46	74.282	1.828.970
Total		88.663.964	15.934,81	8.868.795	5.338,5	2.971.280,0	76.823.889
Anual		2.216.599	398,37	221.720	133,5	74.282,0	1.920.597

Emission reductions due to forest degradation in the scenario with project (*Exante*) are 18,801,010 tCO2e, with an average of 470,025 tCO2e per year for the total of 40 years, that is, a reduction in emissions of 70% compared to the baseline scenario:

Table 26. Emission reductions from degradation in the scenario with Project for 40 years.

Año		Emisión anual Línea Base	Área de proyecto					Cinturón de fugas					REDUCCIONES EX ANTE	
			Degradación Primaria proyectada anual en el área del proyecto en el escenario con proyecto REDD+	Degradación Secundaria proyectada anual en el área del proyecto en el escenario con proyecto REDD+	Biomasa total	Biomasa total	Emisión anual	Degradación Primaria proyectada anual en el área de fugas en el escenario con proyecto REDD+	Degradación Secundaria proyectada anual en el área de fugas en el escenario con proyecto REDD+	Biomasa total	Biomasa total	Emisión anual	Reducción de emisiones ex ante neta Degradacion Primaria y Secundaria	
Del proyecto (t)	Calendario	EAlbt	DFPREDD+proy,año	DFSREDD+proy,año	Núcleo - Parche	Perforado - Parche	EAREDD+proy,año	DFPf,año	DFSf,año	Núcleo - Parche	Perforado - Parche	EA,ft	$RE_{DEG,REDD+proy}$	RE_m
		tCO2eq	ha	ha	tCO_2eq	tCO_2eq	tCO_2eq	ha	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq	tCO_2eq
1	2.021	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	470.025
2	2.022	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	940.051
3	2.023	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	1.410.076
4	2.024	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	1.880.101
5	2.025	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	2.350.126
6	2.026	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	2.820.152
7	2.027	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	3.290.177
8	2.028	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	3.760.202
9	2.029	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	4.230.227
10	2.030	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	4.700.253
11	2.031	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	5.170.278
12	2.032	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	5.640.303
13	2.033	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	6.110.328
14	2.034	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	6.580.354
15	2.035	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	7.050.379
16	2.036	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	7.520.404
17	2.037	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	7.990.429

18	2.038	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	8.460.455
19	2.039	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	8.930.480
20	2.040	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	9.400.505
21	2.041	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	9.870.530
22	2.042	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	10.340.556
23	2.043	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	10.810.581
24	2.044	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	11.280.606
25	2.045	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	11.750.631
26	2.046	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	12.220.657
27	2.047	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	12.690.682
28	2.048	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	13.160.707
29	2.049	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	13.630.732
30	2.050	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	14.100.758
31	2.051	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	14.570.783
32	2.052	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	15.040.808
33	2.053	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	15.510.833
34	2.054	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	15.980.859
35	2.055	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	16.450.884
36	2.056	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	16.920.909
37	2.057	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	17.390.935
38	2.058	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	17.860.960
39	2.059	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	18.330.985
40	2.060	573.384	2564,02	9,38	57283,45	54,99	57.338	2059,90	0,00	46020,75	0,00	46020,75	470.025	18.801.010
Total		22.935.378	102.560,88	375,32	2.291.338,04	2.199,77	2.293.538	82.396,0	-		-	1.840.830	18.801.010,28	
Anual		573.384	2.564,02	9,38	57.283,45	54,99	57.338	2.059,9	-		-	46.020,8	470.025	

Total, reductions of GHG emissions for deforestation and degradation for the quantification period (40 years):

2,390,622 tCO2e/year

95,624,899 tCO2e for a 40-year accreditation period

Reductions of GHG emissions for deforestation:

1,920,597 tCO2e/year

76,823,889 tCO2e for a 40-year accreditation period

Reductions of GHG emissions for degradation:

470,025 tCO2e/year

18,801,010 tCO2e for a 40-year accreditation period

4 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project adheres to national, regional, and local regulations, including the National Code of Renewable Natural Resources and Environmental Protection, as well as the Colombian Political Constitution. Additionally, it aligns with national and regional development strategies while respecting the rights of indigenous communities. Moreover, the project's features and activities fully comply with greenhouse gas (GHG) regulations.

Type of legislation	Legislation	Issue	Project Compliance
Relevant National	Decree 2811 of 1974	National Code of Renewable Natural Resources and Environmental Protection.	Following Article 196, the project's activities enhance adaptive capacity to the adverse effects of climate change and promote climate resilience and low greenhouse gas emission development in a manner that does not compromise food production.
Relevant International	C169 Indigenous and Tribal Peoples Convention, 1989	Convention Concerning Indigenous and Tribal Peoples in Independent Countries.	The Project recognizes the right of Indigenous communities to exercise control over their institutions, ways of life, identity, language, and religion, as well as their right to consultation.
Relevant National	Political Constitution of Colombia,1991	The maximum normative compendium within the set of national laws.	The project is in line with Article 79 of the Colombian Constitution, which establishes that all people have the right to enjoy a healthy environment and that the law shall guarantee community participation in decisions that may affect it. It also complies with Article 8, since being an initiative of the communities, they comply with their duty to protect natural resources and ensure the conservation of the environment. Additionally, the project complies with Article 330, adhering to the governance of the territory according to the uses and customs of the Indigenous communities.
Relevant National	Law 21 of 1991	Approving Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries, adopted by the 76th session of the General Conference of the	The project recognizes and protects the rights of the communities in the project area, under Article 15: "*The rights of the peoples concerned to the natural resources of their lands shall be specially protected. These rights include the right of these peoples to*

Type of legislation	Legislation	Issue	Project Compliance
		International Labour Organization, Geneva 1989.	*participate in the utilization, management, and conservation of these resources*".
Relevant National	Law 29 of 1992	Approving the Montreal Protocol on Substances that Deplete the Ozone Layer.	The project is in line with Colombia's commitment to take appropriate measures to protect human health and the environment against the harmful effects of human activities that modify the ozone layer.
Relevant National	Law 99 of 1993	Whereby the Ministry of the Environment was created, the Public Sector in charge of the management and conservation of the environment and renewable natural resources is management.	The project complies with Article 76 because it is carried out without detriment to the cultural, social, and economic integrity of the indigenous communities, furthermore, the decision to carry out the project was made with prior consultation with the communities.
Relevant National	Law 164 of 1994	Adoption of the "*United Nations Framework Convention on Climate Change*", done in New York on May 9, 1992".	The project is in line with Colombia's commitment under the 1992 United Nations Framework Convention on Climate Change to "*promote the sustainable management of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests, and oceans, as well as other terrestrial, coastal and marine ecosystems*".
Relevant National	Decree 2164 of 1995	Land endowment and titling to the Indigenous communities for the constitution, restructuring, expansion, and reorganization of the Indigenous Reserves in the national territory.	The project complies with Articles 21 and 22 (Legal Nature of the Indigenous Reservations, Management, and Administration), in this sense, the land tenure is demonstrated with the collective property title of the Resguardo Indígena Nonuya De Villazul and Resguardo Indígena Amenanae Mesai, which enjoys the guarantees of private property (see section 5)
Relevant National	Decree 1320 of 1998	Regulating prior consultation with indigenous and black communities for the exploitation of natural	Following Articles 2 and 3, the project identifies the communities (Resguardo Indígena Nonuya De Villazul and Resguardo Indígena Amenanae Mesai) and the respective prior consultation.

Type of legislation	Legislation	Issue	Project Compliance
		resources within their territory.	
Relevant National	Law 629 of 2000	Approving the "*Kyoto Protocol to the United Nations Framework Convention on Climate Change*".	The project complies with Article 2 of the Kyoto Protocol, for which Colombia committed to protect and enhance GHG sinks and reservoirs by promoting sustainable forest management practices, afforestation, and reforestation.
Relevant Iternational	A/RES/61/295 of 2007	United Nations Declaration on the Rights of Indigenous Peoples the Rights of Indigenous Peoples.	The project is under the recognition of Indigenous rights, among which are: • Self-determination, full participation. • practice of their traditional and cultural customs. • Improvement of their economic and social conditions. • Use and development of their lands, territories, and resources. • Conservation and protection of the environment.
Relevant National	Decree 2941 of 2009	Provision and titling of land to Indigenous communities for the constitution, restructuring, expansion and, reorganization of Indigenous Reservations in the national territory.	The project follows the legal nature, management, and administration of the Indigenous reservation, according to Article 21: "*The reservations are a legal and socio-political institution of special character, formed by one or more Indigenous communities, which with a collective property title that enjoys the guarantees of private property, own their territory and are governed for the management of it and its internal life by an autonomous organization protected by the Indigenous jurisdiction and its normative system*".
Relevant National	National Climate Change Adaptation Plan,2016	Reduce the country's vulnerability and increase its capacity to respond to climate change hazards and impacts.	The project is in line with the national strategy for reducing emissions from deforestation and forest degradation in developing countries, the role of conservation, sustainable management of forests, and

Type of legislation	Legislation	Issue	Project Compliance
			enhancement of forest carbon stocks in developing countries - ENREDD+.
Relevant National	Law 1844 of 2017	Adopting the "*Paris Agreement*", adopted on December 12, 2015, in Paris, France.	The project is following Article 5 of the Paris Agreement, for which Colombia committed to take measures to conserve and enhance GHG sinks and reservoirs, including forests through activities related to reducing emissions from deforestation and forest degradation.
Relevant National	Decree 926 of 2017	National carbon tax	The project reduces GHG emissions that meet the characteristics of Article 2-2.11.2. 1 on GHG emission reductions and removals to be certified as carbon neutral, such as: • Coming from a GHG mitigation initiative developed in the national territory • Coming from GHG initiatives formulated and implemented through certification schemes or carbon standards, • Not developing activities mandated by an environmental authority to offset the impact produced by a work or activity subject to an environmental authorization, • Being registered in the National Emissions Registry- (RENARE by its acronym in Spanish). In other words, the emissions reduced by the project can be used within the framework of the carbon tax exemption.
Relevant National	Law 1931 of 2018	Climate Change Management Guidelines	The Project uses the Forest Emissions Reference Levels – (NREF by its acronym in Spanish) of the Forest and Carbon Monitoring System, following the guidelines for Climate Change management.

Type of legislation	Legislation	Issue	Project Compliance
Relevant National	Resolution 1447 of 2018	Regulating the System for Monitoring, Reporting, and Verification of mitigation actions at the national level.	The project establishes its baseline based on the updated NREF for Colombia, also it generates a net benefit to the atmosphere in terms of reduced GHG emissions. In addition, according to the Resolution, the project is registered with the National Registry of Greenhouse Gas Emission Reductions (RENARE, by its acronym in Spanish), and contributes to mitigation goals aimed at meeting the objectives set out in the Comprehensive Strategy for Deforestation Control and Forest Management and other national climate change objectives submitted to the UNFCCC. Finally, the project is not overlapping, as there is no REDD+ program registered for the same period and for the same activities in the geographic area.
Relevant National	Sentence 4360 of 2018	Colombian Amazon as a subject of rights	The project is in line with the Supreme Court's recognition of the Colombian Amazon region as a rights holder, which requires the adoption of measures aimed at reducing deforestation and greenhouse gas emissions to zero, with the participation of local communities.
Relevant National	Law 1955 of 2019	National Development Plan 2018-2022	Project activities are in line with the objectives of the National Development Plan, related to the protection and conservation of Amazonian ecosystems, through strategies such as controlling deforestation and expanding the agricultural frontier; slowing deforestation through territorial control, and generating new economic and sustainable opportunities at the local level.
Relevant National	CONPES 4021 of 2020	Deforestation policy in Colombia	The project is in line with the National Council for Economic and Social Policy because REDD+ projects

Type of legislation	Legislation	Issue	Project Compliance
			correspond to a strategy for the sustainable use of forests to improve the quality of life and the local economy of communities.
Relevant National	NDC of 2020	Colombia's Nationally Determined Contribution	The project contributes to Colombia's deforestation reduction target, which in terms of emissions reduction translates to 59,183,432 t CO2eq by 2030. The project's activities are in line with the Integral Strategy for Deforestation Control and Forest Management, which aims to "*reduce deforestation and forest degradation by promoting and establishing forest management in the Colombian territory*".
Relevant National	Law 2169 of 2021	Climate Action Act	The project is within the pillars of the Climate Action Law for the transition to carbon neutrality, resilience, and low-carbon development (Article 3), which seeks strategies for the protection of forests and woodlands of the national territory, to end deforestation, and recognize the importance of establishing measures for sustainability and responsible use of natural resources. Additionally, the Project contributes to the goals established in the Law regarding forest mitigation (Article 5), which seeks to reduce net deforestation of natural forests to 0 hectares/year by 2030, based on the implementation of policy tools, as well as cooperative and market measures; and in terms of climate change adaptation, to promote activities related to the reduction of emissions from deforestation and degradation of forest ecosystems and management of

Type of legislation	Legislation	Issue	Project Compliance
			non-timber forest products following the provisions of the Paris Agreement.
Relevant Local	Environmental Management Plan for The Southern Colombian Amazon Region, 2018-2038		The project is in line with the specific Management of the Zone, which aims to Forest Conservation and Sustainability in the Heart of the Amazon, and other schemes of benefit-sharing schemes for ecosystem services.

5 Carbon ownership and rights

5.1 Project holder

The land tenure belongs to the Nonuya de Villazul Community and is legally established by the Colombian Institute of Agrarian Reform (dINCORA) through Resolution No. 034 of April 6, 1988.

Individual or organization	**Resguardo Indígena Nonuya de Villazul**
Contact person	Danixa Moreno
Job position	Coordination of the Nonuya de Villazul REDD Committee
Address	Nonuya de Villazul Indigenous Reserve, Miritíi-Paraná Departmental District (Campoamor), Amazonas Department
Phone number	(+57) 3206505104
Email	rinonuyavillazul@gmail.com,

Individual or organization	**Resguardo Indígena Nonuya de Villazul**
Contact person	Diorfel Paky
Job position	Coordination of the Nonuya de Villazul REDD Committee

Address	Nonuya de Villazul Indigenous Reserve, Miritíi-Paraná Departmental District (Campoamor), Amazonas Department
Phone number	*(+57) 321 9617135*
Email	rinonuyavillazul@gmail.com,

5.2 Other project participants

For this REDD+ project, the partner companies of the Nonuya de Villazul Indigenous Reserve, Yauto SAS, CO_2 Sostenible SAS, and Quye Wyna SAS, are responsible for the formulation, enrollment, registration, validation, and certification of the project. Their responsibilities, as partners of the proponents and project holders, are mainly to respect the autonomy of the communities in decision-making and their self-governance structures.

At the formulation stage, it is the communities themselves that prioritize the needs and activities to be carried out in accordance with the general requirements of the REDD+ program. The companies, as supporting partners, conduct the technical studies that quantify the tons of carbon stored in the territory and provide the necessary tools for the communities to formulate their project.

During the implementation phase, the necessary technical support will be provided to ensure the proper execution of the activities outlined in this document.

Individual or organization	**YAUTO SAS**
Contact person	Alicia Micolta Cabrera
Job position	Manager and Legal Representative
Address	*Carrera 9 No. 81A-26 Oficina 203*
Phone number	(+57) 316 831 23 67
Email	yautosas@gmail.com

Individual or organization	**CO_2 Sostenible SAS in partnership with Quye Wyna SAS**
Contact person	Carlos Abondano Leal
Job position	GHG Projects Director
Address	66th Street #27-26, Bogotá
Phone number	(+57) 601 742 41 08
Email	quyewynaproyectos@gmail.com

5.3 Agreements related to carbon rights

The carbon rights of the REDD+ NONUYA DE VILLAZUL "Mo fiivo Jagaba Imibachu Baj+ - Bosque que purifica el aire de vida" Project have been agreed upon by means of mandate contracts between the ancestral owners and possessors of the land, i.e. the indigenous reservations, where the conditions for the formulation and implementation of the project are defined. (See Drive 01_ACUERDOS Y CERTIFICADOS). These agreements were carried out in a general assembly with each of the communities and have letters of free, prior and informed consent for the implementation of the REDD+ project. All agreement documents have been signed by the traditional and administrative authorities of the reservations (caciques and governors) in full compliance with national laws and REDD+ safeguards, and are intended to establish the participation and contribution agreements between the communities (the principals) and the companies developing the project (mandataries).

Although the start date of the project is January 1, 2021, linked to the early actions that the communities have historically been carrying out to conserve the forests and the letters of intent that show the communication between the principals and mandataries with the intention of developing the REDD+ project (see Drive 03_START DATE) assemblies held in the territory. These contracts define an emission reduction quantification period of 40 years, i.e. January 1, 2021 to December 31, 2060. In these contracts it is agreed that the communities are the project proponents as well as the main implementers, and the companies are in charge of registration, formulation, technical development and implementation support.

5.4 Land tenure (Projects in the AFOLU sector)

The land tenure for the Nonuya de Villazul indigenous reservation, is demonstrated under the resolution assigned by the Colombian Institute of Agrarian Reform, where it is constituted with the legal character, for the benefit of these ethnic groups, a globe of vacant land, located in the jurisdiction of the Amazonas department with their respective boundaries according to resolution 034 of 1988 (See Drive 02_TENECIA DE LA TIERRA) and extension agreement 203 where the extension is approved, as shown in the following table:

Table 27. Land tenure within the project area.

Indigenous reservation	**Resolution and agreement**	**Entity**
Nonuya de Villazul	No. 034 of April 6, 1988 No. 203 of 2009	Instituto Colombiano de la Reforma Agraria

6 Climate change adaptation

The project meets the requirements for adaptation to climate change as explained below:

Requirement	**Compliance**
General requirements	
(a) consider one or more of the strategic lines proposed in the National Climate Change Policies and/or focuses aspects outlined in the regulations of the country where the project is implemented	The project is in line with the National Climate Change Policy, whose objective is to promote climate change management that contributes to advancing a path of climate-resilient and low-carbon development (IDEAM, 2018), this being a project framed in strategies for the reduction of GHG emissions.
(b) improve conditions for the conservation of biodiversity and its ecosystem services, in the areas of influence, outside the project boundaries; i.e., natural cover on environmentally key areas, biological	According with several sources (Secretaría del Convenio sobre la Diversidad Biológica, 2011; UICN, 2013; Acosta Lucero, 2024), REDD projects, among many benefits, have positive impacts on the biodiversity of the territory where they are implemented, benefiting not

Requirement	Compliance
corridors, water management in watersheds, among others;	only the existing communities, but also improving the quality of ecosystem services.
(c) implement activities that generate sustainable and low-carbon productive landscapes;	Project activities are associated with a form of sustainable harvesting to make forests productive landscapes.
(d) propose restoration processes in areas of specific environmental importance;	N/A, the project activities do not include restoration
(e) design and implement adaptation strategies based on an ecosystem approach;	
(f) strengthen the local capacities of institutions and/or communities to take informed decisions to anticipate negative effects derived from climate change (recognition of conditions of vulnerability); as well as to take advantage of opportunities derived from expected or evidenced changes.	The project activities include which strengthen the local capacities of communities to take informed decisions to anticipate negative effects derived from climate change.
AFOLU requirements	
(a) agricultural, forestry, and fisheries production systems better adapted to high temperatures, droughts, or floods, to improve competitiveness, income, and food security, especially in vulnerable areas;	The project activities include the reduction of Chagras, which is a sustainable agriculture technique derived from the ancestral knowledge of indigenous communities.
(b) integrated actions that assist in the efficient use of soil, including, i.e., the conservation of existing natural cover, land use consistent with land vocation and agroecological conditions, family farming, and agricultural technology transfer that increases competitiveness by reducing vulnerability to climate change;	The project integrates actions that assist in the efficient use of soil, in-cluding, land use consistent with land vocation and agroecological conditions that increases competitiveness by reducing vulnerability to climate change, as the project activities description evidence.

Requirement	Compliance
(c) reduction of GHG emissions from agricultural activities, compared to the non-project scenario (i. e., replacement of pastures for livestock feed and use of planting methods that reduce emissions from crop management	N/A, this is a REDD project.
(d) actions causally related to climate change adaptation measures, such as use and management of seeds resistant to temperature change, water management through rainwater harvesting, recycling, drainage, and irrigation, reforestation of watersheds to prevent erosion, soil management with practices that reduce compaction, and techniques to reduce fertilizer use.	The initiative is a REDD project, which in accordance to (Locatelli, Evans, Wardell, & Andreade, 2012), have the potential to facilitate the adaptation of forests to climate change by reducing anthropogenic pressures on forests, enhancing connectivity between forest areas and conserving biodiversity hotspots.

7 Risk management

In accordance with the BCR Tool "Permanence and Risk Management" version 1.1, the project analyze the environmental, financial and social risks through the methodology proposed by the PMBOK Project Management Fundamentals Guide (PMBOK, 2013).

On the other hand, it is important to clarify that, and as identified in the ex-ante balances of reduced emissions of the project, a minimum value of **20%** for reserves is conservatively assumed for the registration and verification of the project.

To identify the measures and actions required to control and eliminate sources of risk before they begin to affect compliance of the project objectives, the guidance of the PMBOK project management fundamentals was applied, which has the following steps:

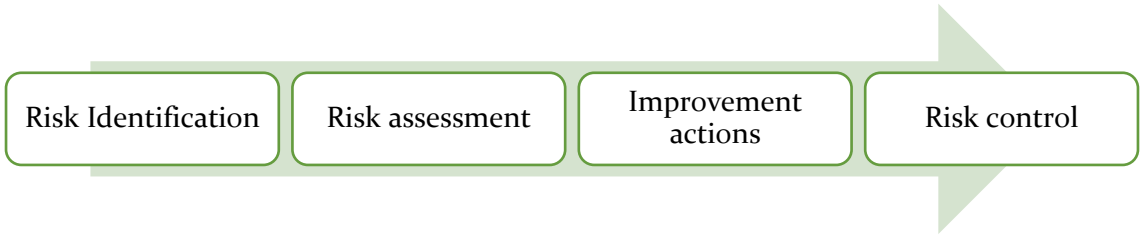


Figure 27 - Risk Management according to the Project Management Fundamentals Guide (PMBOK)

Identification and classification of the risks

The process began with a joint review with the participation of representatives from different areas of the company such as projects, Legal, Communities, HSE, Purchasing, Contracting, Finance and Physical Security, where as a result of the meeting an initial list of possible risks was obtained. to materialize for the project. Therefore, as a result of the risk identification and validation exercises, the registered risks were defined according to the following classification:

Table 28 – Classification of the risks

Type	ID	Category	Risk Event
Specific risks	1	Anthropic	Deficiency in communication routes
	2		Illegal logging
	3		Risks associated with the management of the occupational safety of personnel linked to the project
	4		Lack of technical assistance
	5	Environmental/Natural	Low soil fertility
	6		Wildfires
	7		Increasing the physicochemical and biotic properties of the project's area of influence
	8	Economic/Financial	Lack of credit
	9		Impetus for the development of new economic activities
	10	Participation Partners	Social conflict due to the presence of ethnic communities
	11		Shortage of trained labor in the area for project activities
Systemic risks	1	Economic/Financial	Delays in the approval and granting of established disbursements

Risk assessment and analysis

For the risk analysis process, the following matrix was used:

Matrix RAM							
Probability	Almost certain (>75%) - E	It has happened during the last year in the system	Moderate	High	High	Extreme	Extreme
	Probable (51 - 75%) - D	Has occurred in the industry in the last year and/or during the last 5 years of the system	Moderate	Moderate (8)	High Upper limit of acceptability	High	Extreme
	Possible (26 – 50%) - C	Has occurred in the industry in the last 5 years and/or during the last 10 years of the system	Low (3) Lower limit of acceptability	Moderate (6)	Moderate (9)	High	High
	Improbable (6 – 25%) – B	Has occurred in the industry in the last 10 years and/or over the life of the system	Low	Low (4)	Moderate	Moderate	Moderate
	Rare (0 – 5%) - A	It's happened in the industry over the last 20 years	Low	Low	Low (3)	Low	Moderate
Level of impact or consequence			Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Impact on project scope, cost and timing			Minimum	Minor	Moderate	Loud	Total
Impact on Objectives							
Cost (Budget Variance - Increment)			Less than 0.05% Negligible cost increase	Less than 10%	Between 10 and 20%	Between 20 and 40%	Equal to or greater than 40%
Time (deviation from schedule – time increment)			Negligible Time Increment	Less than 5%	Between 5 and 10%	Between 10 and 20%	Equal to or greater than 20%
Scope (Deviation in deliverables)			No deviation	Pending 1 deliverable	Pending 2 deliverables	Pending 3 deliverables	Pending more than 3 deliverables

Figure 28 - Risk matrix assigned for the Project

Taking into account the classification of risks and the matrix presented above, the following table shows the result of the qualitative analysis for the project risks.

Table 29 - Risk assessment for the project.

ID	Category	Risk Event	Inherent Risk
1	Anthropic	Deficiency in communication routes	**Moderate**
2		Illegal logging	**Moderate**
3		Risks associated with the management of the occupational safety of personnel linked to the project	**Low**
4		Lack of technical assistance	**Low**
5	Environmental/Natural	Low soil fertility	**Moderate**
6		Wildfires	**Low**
7		Increasing the physicochemical and biotic properties of the project's area of influence	**Low**
8	Economic/Financial	Lack of credit	**Low**

ID	Category	Risk Event	Inherent Risk
9		Impetus for the development of new economic activities	Low
10		Delays in the approval and granting of established disbursements	Low
11	Participation Partners	Social conflict due to the presence of ethnic communities	Low
12		Shortage of trained labor in the area for project activities	Moderate

When reviewing these results, it can be concluded that in terms of inherent risks, of the 12 events identified and assessed, 33% constitute Moderate risks (4), 67% are Low risks (8) and 17% correspond to opportunities (2).

Within the identification of risks, two opportunities were evident that drive the development of the project with each of the components of the system:

- Opportunity 1: Increase in the physicochemical and biotic properties of the project area of influence (O7)
- Opportunity 2: Boost for the development of new economic activities (O9). In this case, it is highlighted that according to the financial report and cash flow of the project, the project investment is viable taking into account that its cost/benefit ratio was 2.60 (anexo).

In this sense, the map of inherent risks (before controls and improvement actions) is shown in the following figure:

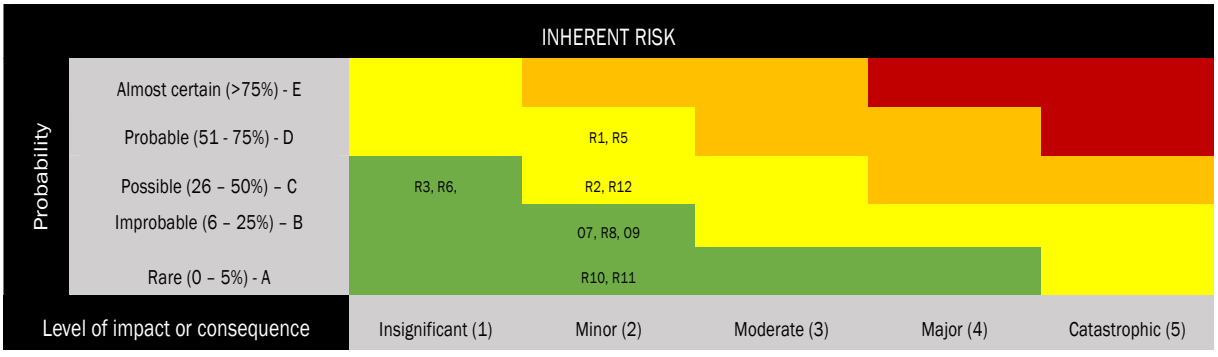


Figure 29 - Map of inherent project risks

General risk management

The treatment plan entails the formulation and execution of actions designed to mitigate threats and enhance business opportunities within the scope of the project's development. This plan prioritizes addressing risks by their level of importance and ensures the implementation of activities and allocation of resources in alignment with the established schedule, budget, and project management plan.

The strategy focuses on managing inherent risks exceeding acceptable thresholds—classified as extreme, high, and select moderate risks—by reducing them to, or closer to, an acceptable level or lower. For risks identified as low priority, it is unnecessary to design and implement specific treatment plans; instead, these risks should be maintained at desired levels and incorporated into the project's risk monitoring and follow-up processes.

Accordingly, this section aims to provide guidelines for defining the most appropriate actions to address the inherent risks identified. Based on the project's results and characteristics, the risk treatment strategy employed during its development will consider the necessity to mitigate or avoid all risks categorized as extreme and high, mitigate moderate risks, and monitor low-level risks.

This assessment facilitates the identification of strategies or actions for risk management, depending on the criticality of the risk's classification. However, these guidelines do not preclude the possibility of adopting alternative measures to effectively address the risks.

The four treatment strategies that were considered are expressed based on the priority level of inherent risk identified and assessed, as follows:

Table 30 - Project Risk Treatment Strategies

Priority	Qualification	Treatment Strategy
1	Extreme	Mitigate – Avoid: Requires immediate action to resolve, mitigate or avoid extreme risk
2	High	Mitigate – Avoid: Requires immediate action to resolve, mitigate or avoid the high risk
3	Moderate	Mitigate – Transfer: Requires implementation of other improvement actions to optimize risk
4	Low	Accept – Monitor: Requires continuation of the current risk management process and monitoring

For the implementation of these strategies in the project, the following criteria or concepts were considered:

Table 31 – Common measures by management risk action

Action	Description	Measures
Avoid risk	This action consists of not carrying out or withdrawing the activities causing the risk, in which their additional treatment is not effective in terms of benefit/cost for the company. As the title indicates, this action also consists of changing the project plan to protect the objectives that could be impacted by the materialization of the risk	• Reduce the scope • Add resources • Allocate more time • Avoid unknown contractors • Obtain more information • Hire experts
Reduce risk	This action has to do with taking measures to reduce the probability of the risk occurring or its magnitude of impact, or possibly both	• Adopt simpler processes • Perform more tests • Select more stable suppliers
Transfer the risk	This action consists of taking measures aimed at transferring to a third party the responsibility for risk management and/or the obligation for the financial consequences of the risk in the event of its occurrence	• Establish "outsourcing" by hiring suppliers for the processes that are intended to be outsourced. • Buy insurance policies that provide protection • Design hedging operations • Performance bonuses • Guarantees and fines • Subcontracts
Accept the risk	This action consists of accepting the risk given that its level of criticality is within the defined acceptable risk levels or because the required treatments are not technically feasible, or their implementation does not represent a greater benefit in relation to its cost	• Active, which consists of establishing a reserve that includes time, money or resources to address the accepted risks. This reserve is determined by the impacts of the risks that are going to be assumed. • Passive, which consists of not taking any action, and if the risk materializes, the project team will be in

Action	Description	Measures
		charge of managing it reactively with the existing contingency plan

Detailed treatment actions

In accordance with the characteristics of the project and the classification of the specific risks obtained, the improvement actions that must be implemented to bring the specific risks classified as moderate to lower levels as shown below:

Table 32 - Improvement actions for risks associated with the project.

ID	Risk Event	Inherent Risk	Management Actions
1	Deficiency in communication routes	Moderate	• **Incorporate the traditional** knowledge of indigenous communities to identify and enhance natural water routes, including safe passage areas and seasonal variations in water levels.
2	Illegal logging	Moderate	• **Community Monitoring**: Establish a community-based monitoring program, empowering indigenous members to report illegal logging activities. • **Partnerships**: Collaborate with local law enforcement and environmental organizations to enhance enforcement and monitoring of protected areas. • **Awareness and Education**: Conduct workshops to educate the community and surrounding stakeholders about the environmental, social, and legal consequences of illegal logging.
3	Low soil fertility	Moderate	• **Agroecological Practices**: Introduce and train the community in permaculture techniques, such as crop rotation, intercropping, and the use of nitrogen-fixing plants to improve soil fertility. • **Composting Programs:** Develop community-based composting programs to produce organic fertilizers that can be used to enrich the soil.

ID	Risk Event	Inherent Risk	Management Actions
4	Shortage of trained labor in the area for project activities	Moderate	• **Training Programs**: Design training modules specific to the project's activities, such as sustainable forest management, monitoring and evaluation, and project logistics. Besides, also ensure that the training incorporates practical, hands-on sessions aligned with the skills needed for project implementation.

The initiation of the implementation of these improvement actions involves mitigating risks in the event of their materialization or transferring them immediately and progressively. Upon the execution of these actions, it is anticipated that the associated risks will diminish in severity.

7.1 Reversal Risk

As it was mentioned in section 7, in accordance with the BCR Tool "Permanence and Risk Management" version 1.1, the project analyze the environmental, financial and social risks through the methodology proposed by the PMBOK Project Management Fundamentals Guide (PMBOK, 2013).

Environmental, financial and social risks were analyzed, and a total of 12 risks were identified (see TABLE), of which 4 were classified in the moderate category, and management measures were designed to address them (see TABLE).

7.1.1 Loss Event Report

8 Sustainable development safeguards (SDSs)

In accordance with BCR Standard requirements, the BCR Sustainable Development Safeguards SDSs tool was applied.

Table 33 BCR Sustainable Development Safeguards SDSs

Requirement		Compliance
GENERAL	Not violate local, state/provincial, national or international regulations or obligations	The project activities do not violate local, state/provincial, national, or international regulations or obligations (as it can be seen in section 4 Compliance with Laws, Statutes and Other Regulatory Frameworks).
	Identify potential environmental and socio-economic effects resulting from the implementation of the project/initiative	The project identifies environmental and social effects resulting from its implementation (as it can be seen in section 8 Sustainable development safeguards (SDSs))
	Develop actions to manage the risks	Assessment and risk management was performed by the project (as it can be seen in section 7 Risk management)
	Periodically review and revise the assessment questions throughout the lifecycle of the project/initiative to ensure comprehensive consideration and management of all pertinent risks	The project will periodically develop a review and revise the assessment questions throughout the lifecycle to ensure comprehensive consideration and management of all pertinent risks (as it can be seen in section 7 Risk management).
	Provide the necessary criteria and indicators for monitoring the implementation of action plans and achievement of action-plan targets	General risk management plan was performed by the project (as it can be seen in section 7 Risk management).
	Carry out the validation/verification or certification by the CAB/CB, aimed at certifying that the Sustainable Development Safeguards of project/initiative activities are in compliance	The project us carrying out the validation/verification by the CAB/CB, aimed at certifying that the Sustainable Development Safeguards of project/initiative activities are in compliance

Table 34 BCR SDSs - Land use: Resource Efficiency and Pollution Prevention and Management

Could the project/initiative activities potentially entail or result in:	**Response**	**Mitigation or preventive action**
Land degradation or soil erosion, leading to the loss of productive land?	☐Yes ☒ Potentially ☐ No	The introduction of inappropriate agricultural techniques such as slash-and-burn forest clearing for subsistence crops and the conversion of overgrazed areas into pastureland have led to the continued deterioration of surrounding areas, erosion, and soil loss (Corpocesar, 2016). These impacts could be generated by activities C1 - Construction and adaptation of Malokas, D1 - Improvement of the population's quality of life in terms of health, education, and infrastructure, and E1 Productive projects. Establish special areas for carrying out the works described in the activities. These areas must comply with land use and fertility studies to prevent degradation and loss of potentially productive land.
Contaminating soils and aquiferswith pollutants, chemicals, or hazardous materials?	☒Yes ☐ Potentially ☐ No	Water is also contaminated by gas or oil leaks from motorboats. Such contamination can lead to the proliferation of algae, known as eutrophication—the process that causes a decrease in the availability of oxygen for organisms living in contaminated reservoirs (European Commission, n.d.). These impacts could be generated by activities B2 - Conditioning and Strengthening of Own Monitoring, D1 - Improvement of the quality of life of the population in health, education, and infrastructure, and E1 - Productive Projects." Perform water quality analyses during each monitoring period. Establish hazardous waste and/or pollutant collection points according to their classification for removal from the territory.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Air and water pollution resulting from project-related emissions, discharges, or improper waste disposal practices?	☐Yes ☒ Potentially ☐ No	All construction or renovation generates waste, and this waste could be disposed of improperly, causing pollution in different sources (air, land, and/or water). Train residents in the proper disposal of waste. Establish collection points for hazardous and/or polluting waste according to its classification for removal from the territory.
Detrimental excess of nutrientscaused by the use of fertilizers and/or pesticides?	☐Yes ☒ Potentially ☐ No	Conventional agriculture depends on the application of soluble mineral fertilizers in order to achieve higher crop yields. However, excessive application has led to eutrophication, water toxicity, groundwater contamination, air pollution, soil and ecosystem degradation, biological imbalances, and reduced biodiversity. The main negative impacts of fertilizers on water are: leaching, groundwater, and surface water. In the case of soil, the negative impacts are: pH variation, deterioration of soil structure, and deterioration of microfauna. Finally, the effect on the air is mainly due to the improper application of fertilizers (González, P, 2019). These impacts could be generated by activity E1 - Productive projects. Align the activities of productive projects with the United Nations International Code of Conduct for the Sustainable Use and Management of Fertilizers and the environmental management plan for the reserves. Train residents on the use of fertilizers for each prioritized productive project and techniques for their replacement.
Inadequate waste management practices, leading to the improper disposal of project-	☒Yes ☐ Potentially ☐ No	All construction or renovation generates waste, and this waste could be disposed of improperly, causing pollution in different sources (air, land, and/or water).

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
related waste and potential environmental harm?		Train residents in the proper disposal of waste. Establish collection points for hazardous and/or polluting waste according to its classification for removal from the territory.
Inefficient resource use, including energy, water, and rawmaterials, leading to increased environmental footprint?	☐Yes ☐ Potentially ☒ No	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, so any destruction or fragmentation that affects biodiversity is contrary to the principles of the project.
Losing productive agricultural land to urban expansion, impacting local food production,rural livelihoods, and overall foodsecurity?	☐Yes ☐ Potentially ☒ No	The project does not contemplate urban expansion beyond the people who currently inhabit the territory.
Urbanization, leading to the urban heat island effect, impacting local climates and potentially contributing to higher energy consumption for cooling?	☐Yes ☐ Potentially ☒ No	The project does not contemplate urban expansion beyond the people currently inhabiting the territory or the use of cooling systems within it.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Disrupting natural drainage systems, leading to increased vulnerability to floods, soil erosion, or other hydrological issues?	☐Yes ☒ Potentially ☐ No	The environmental impacts associated with dam construction are difficult to predict in exact spatial terms, but it is known that those downstream are geographically more far-reaching, as they interrupt or modify erosion and sediment deposition processes, as well as natural flooding of plains and groundwater recharge (Martínez et al, 2012) These impacts could be generated by activity D1 - Improving the quality of life of the population in terms of health, education, and infrastructure. Create a spillway to maintain a constant flow of water in the riverbed, so that fish and other organisms that travel through the river can continue to circulate.
Inadequate recycling and reuse ofproject-related resources, leadingto unnecessary waste and environmental impact?	☐Yes ☒ Potentially ☐ No	All construction or renovation generates waste, and this waste could be disposed of improperly, causing pollution in different sources (air, land, and/or water). Train residents in the proper disposal of waste. Establish collection points for hazardous and/or polluting waste according to its classification for removal from the territory.
Deforestation or degradation of forested areas impacting carbon sequestration, biodiversity, and ecosystem services?	☐Yes ☐ Potentially ☒ No	The main objective of the project is to reduce emissions from deforestation and forest degradation, conserving the vegetation cover present in the territory and creating ideal conditions for the habitat of the species.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Changes in agricultural practices, such as intensive monoculture,leading to soil degradation, loss of biodiversity, and increased vulnerability to pests?	☐Yes ☒ Potentially ☐ No	Monoculture farming causes harmful effects such as disruption of the water cycle in the territories, changes in the abundance and composition of fauna and flora species, soil erosion, and modification of soil structure and composition (Fedegán, 2022) These impacts could be generated by activity E1 - Production projects. Creation of agroforestry systems with native species.
Urbanization or infrastructure development leading to changes in land use patterns and potentialhabitat fragmentation?	☐Yes ☐ Potentially ☒ No	The proposed infrastructure will be built in special areas that do not affect current land use or fragment the habitat.

Table 35 BCR SDSs - Water

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Exacerbating water scarcity ordepleting water resources?	☐Yes ☐ Potentially ☒ No	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, thereby ensuring the responsible use of natural resources, including water.
Water pollution, including contamination of rivers, lakes, oceans, or aquifers as a result of project-related activities such as emissions, spills, or wastedisposal?	☐Yes ☒ Potentially ☐ No	Water is also contaminated by gas or oil leaks from motorboats. Such contamination can lead to the proliferation of algae, i.e., eutrophication—the process that causes a decrease in the availability of oxygen for organisms living in contaminated reservoirs (European Commission, s.f.) These impacts could be generated by activities B2 - Conditioning and Strengthening of Own Monitoring, D1 - Improvement of the quality of life of the population in health, education, and infrastructure, and E1 - Productive Projects. Perform water quality analyses during each monitoring period. Establish hazardous waste and/or pollutant collection points according to their classification for removal from the territory.
Disrupting aquatic ecosystems,including marine life, river ecosystems, or wetlands, due to changes in water quality, temperature, or flow patterns?	☐Yes ☒ Potentially ☐ No	Water is also contaminated by gas or oil leaks from motorboats. Such contamination can lead to the proliferation of algae, known as eutrophication—the process that causes a decrease in the availability of oxygen for organisms living in contaminated reservoirs (European Commission, s.f.) These impacts could be generated by activities B2 - Conditioning and Strengthening of Own Monitoring, D1 - Improvement of the quality of life of the population in health, education, and infrastructure, and E1 - Productive Projects." Perform water quality analyses during each monitoring period. Establish hazardous waste and/or pollutant collection points according to their classification for removal from the territory.
Altering coastal	☐Yes	According to IDEAM's 2023 shapefile on Colombia's continental, maritime, and coastal ecosystems,

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
dynamics,including erosion, sedimentation, or changes in sealevels?	☐ Potentially ☒ No	there are no coasts or seas in the project area.
Displacing or negativelyimpacting wetland habitats, affecting the unique biodiversityand ecosystem services providedby wetlands?	☐Yes ☐ Potentially ☒ No	Good environmental practices are taken into account for activities, so there will be no impact on wetlands.
Altering river flow patterns, potentially leading to downstream impacts on water availability, sediment transport, and ecosystems?	☐Yes ☒ Potentially ☐ No	The environmental impacts associated with dam construction are difficult to predict in exact spatial terms, but it is known that those downstream are geographically more far-reaching, as they interrupt or modify erosion and sediment deposition processes, as well as natural flooding of plains and groundwater recharge (Martínez et al, 2012) These impacts could be generated by activity D1 - Improving the quality of life of the population in terms of health, education, and infrastructure. Create a spillway to maintain a constant flow of water in the riverbed, so that fish and other organisms that travel through the river can continue to circulate.
Depleting aquifers and groundwater resources as aresult of the project's activities, impacting local water supplies and ecosystem	☐Yes ☐ Potentially ☒ No	No excavations that affect groundwater resources will be carried out.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
sustainability?		
Mountainous terrains, including changes in snowmelt patterns,glacier dynamics, or alterations in water runoff?	☐Yes ☐ Potentially ☒ No	According to IDEAM's 2023 shapefile on continental, maritime, and coastal ecosystems in Colombia, there are no glaciers in the project area.
Disrupting lake ecosystems,including changes in water quality, nutrient levels, or habitat disturbance?	☐Yes ☐ Potentially ☒ No	According to IDEAM's 2023 shapefile on continental, maritime, and coastal ecosystems in Colombia, there are no lake ecosystems in the project area.
Contributing to oceanacidification, with potential consequences for marine life andcoral reef ecosystems?	☐Yes ☐ Potentially ☒ No	According to IDEAM's 2023 shapefile on Colombia's continental, maritime, and coastal ecosystems, there are no coasts or seas in the project area.

Table 36 BCR SDSs - Biodiversity and ecosystems

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Habitat destruction or fragmentation, impacting biodiversity by reducing available habitats for various species?	☐Yes ☐ Potentially ☒ No	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, so any destruction or fragmentation that affects biodiversity is contrary to the principles of the project.
Introducing invasive species, which could negatively affect native flora and fauna and disrupt local ecosystems?	☐Yes ☐ Potentially ☒ No	None of the project activities involve the introduction of invasive species into the project area. The national plan for the prevention, control, and management of introduced, transplanted, and invasive species of the Ministry of Environment and Sustainable Development is also adopted.
Altering ecosystem dynamics, including changes in species composition, trophicinteractions, or nutrient cycles on the environment?	☐Yes ☐ Potentially ☒ No	There will be no disruption to the dynamics of ecosystems because the traditions of the peoples will be maintained without introducing non-native species.
Disrupting	☐Yes	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, so disrupting the

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
migration patterns for wildlife species, such as birds, mammals, or aquatic organisms?	☐ Potentially ☒ No	migratory patterns of endemic species is contrary to the principles of the project.
Chemical contamination or pollution negatively impacting biodiversity in soil, water, or air?	☐Yes ☒ Potentially ☐ No	All construction or renovation generates waste, and this waste could be disposed of improperly, causing pollution in different sources (air, land, and/or water). Train residents in the proper disposal of waste. Establish collection points for hazardous and/or polluting waste according to its classification for removal from the territory.
Overexploiting naturalresources, such as timber, water,or other materials, leading to declines in biodiversity and ecological balance?	☐Yes ☐ Potentially ☒ No	Natural resources will be used responsibly and based on the environmental management plan of the Nunuya de Villazul indigenous reserve.
Overharvesting species at rates faster than they can actually sustain themselves in the wild?	☐Yes ☐ Potentially ☒ No	None of the project activities aim to exploit wildlife species directly or indirectly. Natural resources will be used responsibly and based on the environmental management plan of the Nunuya de Villazul indigenous reserve, for example, the use of wood for ancestral constructions.
Climate change-induced impactson	☐Yes	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, thereby seeking to mitigate climate change.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
biodiversity, including shifts in species distributions, changesin phenology, or increased vulnerability to extreme weather events?	☐ Potentially ☒ No	
Negatively impacting endangered or threatened species within the project area, either directly or indirectly through habitat changes or other disturbances?	☐Yes ☐ Potentially ☒ No	There will be no disruption to the dynamics of ecosystems because the traditions of indigenous peoples will be maintained, in line with their environmental management plan, which recognizes the importance of caring for endangered species as part of their ancestral balance.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Reducing genetic diversitywithin populations, potentially leading to decreased resilienceand adaptability of species in theface of environmental changes?	☐Yes ☐ Potentially ☒ No	One of the principles of the project is conservation, so no genetic alterations will be made to any species. Furthermore, the project aims to generate greater resilience and adaptation to climate change within the territory.
Inadequate monitoring and assessment of biodiversity within the project area, making it Challenging to identify and address changes over time?	☐Yes ☐ Potentially ☒ No	Activity B-2, Conditioning and Strengthening of Own Monitoring, aims to improve monitoring of what happens within the territory through the acquisition of equipment and adaptation of monitoring spaces. This will make it easier to observe whether there are any actions that affect the environment.
Pressure on vulnerable ecosystems?	☐Yes ☐ Potentially ☒ No	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, thereby preserving vulnerable ecosystems such as the tropical rainforests found in the Amazon, where the territory is located.

Table 37 BCR SDSs – Climate change

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Increasing greenhouse gas emissions?	☐Yes ☐ Potentially ☒ No	The main objective of the project is to reduce emissions from deforestation and forest degradation, so this would run counter to that objective.
Changes in habitat suitability forspecies due to climate change impacts, leading to shifts in species distributions or loss ofcritical habitat?	☐Yes ☐ Potentially ☐ No	The main objective of the project is to reduce emissions from deforestation and forest degradation, conserving the vegetation cover present in the territory and creating ideal conditions for the habitat of the species.
Disrupt ecosystem servicesprovided by biodiversity, such as pollination, water purification, and carbon sequestration, affecting overall ecosystem functioning?	☐Yes ☐ Potentially ☒ No	Conversely, Activity E-1 Productive Projects seeks to strengthen productive projects with training, tools, and inputs, offering alternatives that reduce pressure on the forest and decrease dependence on extractive or low-profit practices. This promotes stable livelihoods that are consistent with environmental conservation and the cultural dynamics of the community.
The spread of invasive species, leading to competition with native species and alteration of	☐Yes ☐ Potentially ☒ No	None of the project activities involve the introduction of invasive species into the project area. The national plan for the prevention, control, and management of introduced, transplanted, and invasive species of the Ministry of Environment and Sustainable Development is also adopted.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
ecosystem dynamics?		
Increased frequency or intensity of extreme weather events, such as storms, droughts, or floods,which can damage habitats and threaten species survival?	☐Yes ☐ Potentially ☒ No	The project does not have the capacity to modify meteorological phenomena.
Alteration of the phenology and behavior of species, affectingreproductive cycles, migration patterns, and interactions with other species, disrupting ecosystem dynamics?	☐Yes ☐ Potentially ☒ No	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, so disrupting the migratory patterns of endemic species is contrary to the principles of the project.
Reducing genetic diversity within species populations due to climate change-induced habitat loss or fragmentation, compromising the adaptive capacity of	☐Yes ☐ Potentially ☒ No	One of the principles of the project is conservation, so no genetic alterations will be made to any species. Furthermore, the project aims to generate greater resilience and adaptation to climate change within the territory.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
populations to environmental stressors?		
Exacerbation the prevalence ofdiseases and pathogens amongwildlife populations, leading to population declines and ecosystem destabilization?	☐Yes ☒ Potentially ☐ No	Monoculture farming causes harmful effects such as disruption of the water cycle in the territories, changes in the abundance and composition of fauna and flora species, soil erosion, and modification of soil structure and composition (Fedegán, 2022) These impacts could be generated by activity E1 - Production projects. Creation of agroforestry systems with native species.
Weakening the resilience of ecosystems to disturbances,making them more susceptibleto collapse or regime shifts, with cascading effects on biodiversityand ecosystem function?	☐Yes ☐ Potentially ☒ No	One of the principles of the project is conservation, so no genetic alterations will be made to any species. Furthermore, the project aims to generate greater resilience and adaptation to climate change within the territory.
New challenges in effectively incorporating climate change considerations into biodiversity conservation	☐Yes ☐ Potentially ☒ No	The project aims to conserve biodiversity and maintain or increase carbon reservoirs, thereby seeking to mitigate climate change.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
planning, such as identifying climate-resilienthabitats and prioritizing species and ecosystems for conservationaction?		
Habitat loss, pollution, and overexploitation, amplifying the impacts on biodiversity and complicating conservationefforts?	☐Yes ☐ Potentially ☒ No	Activity B-1, Own documents for environmental and cultural management of the territory, is aligned with the first objective of the plan, which is: "To guarantee permanence and territorial and environmental stability through the construction and implementation of an environmental management plan based on traditional knowledge of the territorial context, knowledge and practice of activities specific to the culture, as well as important aspects of Western culture." This guarantees the conservation of biodiversity.

Table 38 BCR SDSs - Labor and Working Conditions

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Forced labor, or human traffickedlabor	☐Yes ☐ Potentially ☒ No	In Colombia, forced labor and human trafficking are prohibited by the Constitution (Articles 17 and 44), which outlaws slavery, servitude, and any form of trafficking. In addition, the Criminal Code (Law 599 of 2000, Article 188A) classifies human trafficking as a crime, punishing the recruitment, transportation, or reception of persons for the purpose of exploitation. Law 985 of 2005 establishes comprehensive measures

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
		against trafficking, including prevention, victim protection, and international cooperation. Given this background, the project does not violate any laws but rather seeks to protect the rights of vulnerable peoples, such as indigenous peoples. With the implementation of the activities, workers will be chosen through assemblies where, if necessary, internal agreements will be made.
Child labor or forced labor practices during the project, either directly or within the project's supply chain?	☐Ye ☐ Potentially ☒ No	In Colombia, forced labor and human trafficking are prohibited by the Constitution (Articles 17 and 44), which outlaws slavery, servitude, and any form of trafficking. In addition, the Criminal Code (Law 599 of 2000, Article 188A) classifies human trafficking as a crime, punishing the recruitment, transportation, or reception of persons for the purpose of exploitation. Law 985 of 2005 establishes comprehensive measures against trafficking, including prevention, victim protection, and international cooperation. Given this background, the project does not violate any laws but rather seeks to protect the rights of vulnerable peoples, such as indigenous peoples. With the implementation of the activities, workers will be chosen through assemblies where, if necessary, internal agreements will be made.
Unsafe working conditions, exposing project stakeholders topotential hazards or accidents before, during and after the implementation of the activities?	☐Yes ☒ Potentially ☐ No	In the development or construction of activities, safe working conditions could not be fully guaranteed due to geographical isolation, lack of infrastructure, and health services. In addition, the special indigenous jurisdiction means that work is organized according to local traditions and norms, which limits the uniform implementation of occupational safety standards. However, the project seeks to ensure the safety, well-being, and health of the population, mitigating this impact. Conduct an analysis of the accident rate for each project activity. Training on occupational hazards and implementation of PPE (personal protective equipment).
Exploitative labor practices, suchas inadequate wages,	☐Yes	Working hours, workers, duties, schedules, costs, and budgets will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community and

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
excessiveworking hours, or poor working conditions for the personnel engaged during the projectactivities?	☐ Potentially ☒ No	project partners from both technical and social backgrounds, listening to opinions and reaching consensus for the implementation of activities.
Discrimination in employment, including unequal opportunities,biased hiring practices, or unfairtreatment based on factors such as gender, ethnicity, or other Characteristics?	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community and project partners from both technical and social backgrounds, listening to opinions and reaching consensus for the implementation of activities.
Violating workers' rights, including issues related to freedom of association, collective bargaining, or other fundamental labor rights during the project's activities?	☐Yes ☐ Potentially ☒ No	In accordance with Colombian labor laws, no labor rights will be denied, including issues related to freedom of association or collective bargaining for workers who are formally employed on special occasions. However, in practice, this will not be the norm, as the project is governed by special indigenous jurisdiction and work is organized according to traditional community practices that respect the rights of the population.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Unfair treatment, exploitation, or inadequate protections for contractual workers or migrant laborers?	☐Yes ☐ Potentially ☒ No	In accordance with Colombian labor laws, no labor rights will be denied, including issues related to freedom of association or collective bargaining for workers who are formally employed on special occasions. However, in practice, this will not be the norm, as the project is governed by special indigenous jurisdiction and work is organized according to traditional community practices that respect the rights of the population.
Inadequate grievance mechanisms, making itchallenging for workers to address concerns, report issues, or seek resolution for labor-related problems?	☐Yes ☐ Potentially ☒ No	The project has mechanisms for handling PQRS (requests, complaints, claims, suggestions, and/or compliments) that are open to the public and the community at large, where labor disputes or any other issues related to the implementation of activities can be addressed. For this purpose, the email address redd. nonuya.amenanae@gmail.com for virtual reception. In addition, the direct contact details of the general project coordinator, who belongs to the community and whose duties include receiving PQRS and processing them, are available in person.
Insufficient social welfaresupport, such as healthcare, insurance, or other benefits for Workers engaged in projectactivities?	☐Yes ☒ Potentially ☐ No	In the development or construction of activities, safe working conditions could not be fully guaranteed due to geographical isolation, lack of infrastructure, and health services. In addition, the special indigenous jurisdiction means that work is organized according to local traditions and norms, which limits the uniform implementation of occupational safety standards. However, the project seeks to ensure the safety, well-being, and health of the population, mitigating this impact through activity E.1 Improvement of the population's quality of life in health, education, and infrastructure. Make internal agreements with communities to manage bonuses for project implementation. Implement activity E.1 Improving the quality of life of the population in terms of health, education, and infrastructure.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Displacement or negative impacts on local communities due to labor-related issues,including challenges related to employment opportunities and Livelihoods?	☐Yes ☐ Potentially ☒ No	The project aims to achieve sustainable forest management by promoting community participation in decision-making and creating alternative employment and income opportunities that reduce dependence on activities that cause deforestation, thereby conserving the ecosystem and improving the current living conditions of the population in terms of quality of life.
Lack of training	☐Yes ☐ Potentially ☒ No	Activity D-1 Improving the quality of life of the population in terms of health, education, and infrastructure seeks to implement multicultural education that contributes to the preservation of the native language, the transmission of ancestral knowledge, and the academic training of new generations through a comprehensive and multicultural training program for young people. Activity E-1, Productive Projects, seeks to provide technical training for the selection of community productive initiatives and for the process of strengthening the administrative capacities of their productive projects.

Table 39 - BCR SDSs - Gender equality and Women empowerment

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Gender-based discrimination in employment	☐Yes	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
opportunities, recruitment processes, or access to leadership positions, hindering women's participation and advancement?	☐ Potentially ☒ No	as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Unequal access to project benefits, resources, or decision-making processes, resulting in disparities between men and women in the distribution of project-related opportunities and rewards?	☐Yes ☐ Potentially ☒ No	The distribution of benefits is carried out in a fair and equitable manner, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed through the implementation of activities identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This is done jointly, identifying the problems faced by the population and establishing strategic lines of action to overcome them.
Limited participation and representation of women in project activities, consultations, or community engagements, potentially marginalizing their voices and perspectives?	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Increasing unpaid care work burden on women, such as caregiving responsibilities or household chores, due	☐Yes ☒ Potentially ☐ No	When implementing project activities, new responsibilities arise that could change community dynamics. For example, with greater participation in workshops, training sessions, meetings, or work on alternative productive projects, women may find their time available for domestic and caregiving tasks limited, as these continue to be socially assumed as their responsibility.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
to changes in community dynamicsor time constraints resulting from project activities?		Implement female leadership in activity E1—productive projects—to identify potential impacts on unpaid work.
Limited access to education, training, or capacity-building opportunities for women and girls, inhibiting their ability to develop skills and pursueleadership roles within the project or related industries?	☐Yes ☐ Potentially ☒ No	Activity D-1 Improving the quality of life of the population in terms of health, education, and infrastructure seeks to implement multicultural education that contributes to the preservation of the native language, the transmission of ancestral knowledge, and the academic training of new generations through a comprehensive and multicultural training program for young people. Activity E-1, Productive Projects, seeks to provide technical training for the selection of community productive initiatives and for the process of strengthening the administrative capacities of their productive projects and female leadership.
Gender-based violence or harassment occurring withinproject settings or project- affected communities, affecting women's safety, well-being, and ability to participate fully?	☐Yes ☐ Potentially ☒ No	The self-governance system allows for the full and effective participation of vulnerable populations such as children, women, youth, and older adults in decision-making through assemblies. In addition, through Basket B activities, they seek to preserve their customs, culture, and traditions, while Basket E1 activities—productive projects—aim to strengthen female leadership.
Inequitable access to land, natural resources, or economic opportunities, particularly disadvantaging women in rural or indigenous	☐Yes ☐ Potentially ☒ No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
communities affected by land use changes?		
Underrepresentation of womenin decision-making processes, including planning, governance structures, or stakeholder consultations, leading to lessinclusive and effectiveoutcomes?	☐Yes ☐ Potentially ☒ No	The representation of women and, in general, of the entire community in decision-making processes will be defined in assembly, following and respecting the community's own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Gender-blind policies, interventions, or project designsthat fail to consider the specific needs, priorities, and capacities of women and men, resulting in unintended negative consequences for gender equality and women empowerment?	☐Yes ☐ Potentially ☒ No	The representation of women and, in general, of the entire community in decision-making processes and projects will be defined in assembly, following and respecting the community's own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Limited economic empowermentand livelihood opportunities for women, such as access to credit, entrepreneurship support, orincome-generating activities,	☐Yes ☐ Potentially ☒ No	Activity E1 - Productive projects aims, among other things, to promote women's participation and leadership in projects, with a view to increasing their purchasing power.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
within project-affected communities?		
Health and safety risks that disproportionately affect specificgenders within the community, potentially leading to disparate impacts on men and women?	☐Yes ☐ Potentially ☒ No	Activity D-1 Improving the quality of life of the population in terms of health, education, and infrastructure seeks to improve the safety and health of the community without discrimination based on gender.
Cultural and social barriers that may hinder the advancement of gender equality and women empowerment within project settings or affected communities, such as stereotypes, norms, or traditional roles and expectations?	☐Yes ☐ Potentially ☒ No	The representation of women and, in general, of the entire community in decision-making processes and projects will be defined in assembly, following and respecting the community's own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Inadequate gender analysis and monitoring mechanisms,resulting in a lack of understanding of gender dynamics and missedopportunities for promoting gender equality and women empowerment?	☐Yes ☐ Potentially ☐ No	Activity E1 - Productive Projects aims, among other things, to promote women's participation and leadership in projects, with a view to increasing their purchasing power. This activity will include monitoring and analysis of participation with a focus on gender.

Table 40 - BCR SDSs - Land Acquisition, Restrictions on Land Use, Displacement, and Involuntary Resettlement

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Conflict over land resources and/or rights, such as competition for space betweendifferent land uses, communities, or stakeholders affected by the project?	☐Yes ☒Potentially ☐No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws of government, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.
Land acquisition, leading tochanges in land ownership patterns and potential conflicts with local communities and landholders?	☐Yes ☐Potentially ☒ No	The project area is defined according to the territory formalized and established by the National Land Agency (ANT), without changing current land ownership patterns. Therefore, project activities and implementation take place within the territory owned by the Nunuya de Villazul indigenous reserve.
Imposing restrictions ontraditional land use practices, affecting the livelihoods and cultural practices of communities in the project area?	☐Yes ☐Potentially ☒No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws of government, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
		reaching consensus for the implementation of activities.
Displacing communities or residents from their homes and lands, leading to social, economic, and cultural disruptions?	☐Yes ☐ Potentially ☒ No	The project area is defined according to the territory formalized and established by the National Land Agency (ANT), without changing current land ownership patterns. Therefore, project activities and implementation take place within the territory owned by the Nunuya de Villazul indigenous reserve.
Involuntary resettlement or relocation of communities, impacting their access to resources, services, andcommunity networks?	☐Yes ☐Potentially ☒No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.
Communities losing their livelihoods and agricultural productivity as a result of land acquisition or restriction on land use?	☐Yes ☐Potentially ☒No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.
Insufficient compensation and	☐Yes ☐Potentially	The distribution of benefits is carried out in a fair and equitable manner, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed through the

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
benefits for affected communities and individuals, leading to economic hardships and social discontent?	☒No	implementation of activities identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This is done jointly, identifying the problems faced by the population and establishing strategic lines of action to overcome them.
Lack of free, prior, and informed consent from affected communities, potentiallyresulting in conflict andchallenges to project implementation?	☐Yes ☐Potentially ☒No	Free, prior, and informed consent is obtained in accordance with local government laws, where decisions are made jointly and with a minimum level of community participation to ensure that they are valid and transparent, and where the community is informed of everything related to the project, including any positive and negative impacts that may arise.
Social and cultural disintegrationwithin displaced communities, leading to the erosion of social cohesion and cultural practices?	☐Yes ☐Potentially ☒No	The project will not displace communities. On the contrary, it will implement social, environmental, and economic alternatives that enable the conservation of the territory and the ethnic group that cares for it, through the defined project activities.
Communities losing access tocommon resources, such as forests, water bodies, or grazing lands, due to land acquisition or use restrictions?	☐Yes ☐Potentially ☒ No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws of government, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Inadequate resettlement plans, potentially leading to insufficientsupport, services, and infrastructure for resettled communities?	☐Yes ☐Potentially ☒ No	The project will not displace communities. On the contrary, it will implement social, environmental, and economic alternatives that enable the conservation of the territory and the ethnic group that cares for it, through the defined project activities.

Table 41 - BCR SDSs - Indigenous Peoples and Cultural Heritage

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Violating the right of indigenous peoples, including their right to land, resources, and self-determination?	☐Yes ☐ Potentially ☒ No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws of government, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.
Impacts on indigenous landsand territories,	☐Yes	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization,

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
potentially leading to the displacement of indigenous communities and disruption and loss oflivelihoods?	☐ Potentially ☒ No	generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.
Negatively impacting thetraditional livelihoods, such as hunting, fishing, or gathering,due to changes in land use or environmental conditions?	☐Yes ☐ Potentially ☒ No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.
Losing sacred sites and cultural heritage, impacting the spiritualand cultural identity of indigenous communities?	☐Yes ☐ Potentially ☒ No	Activity C1—Construction and adaptation of Malokas as sacred sites for the community—seeks to support compliance with the management plan, which highlights the importance of basing actions on traditional knowledge of the territorial context and knowledge and practice of activities specific to the culture. In addition, it seeks to strengthen indigenous knowledge and territorial and environmental autonomy through the governance and administration of traditional knowledge and cultural practices. For this reason, the activities in the governance basket are related to the management plan, as they strengthen indigenous governance, traditional knowledge and administration systems, and spaces of cultural importance.
The lack of free, prior and informed consent from indigenous	☐Yes ☐ Potentially ☒ No	Free, prior, and informed consent is obtained in accordance with local government laws, where decisions are made jointly and with a minimum level of community participation to ensure that they are valid and transparent, and where the community is informed of everything related to the project, including any positive and negative impacts that may arise.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
communities(FPIC), potentially resulting in conflicts and challenges toproject implementation? *		
Inadequate cultural impactassessments, potentially leadingto insufficient understanding ofthe project's impact on indigenous cultures and traditions?	☐Yes ☐ Potentially ☒ No	To this end, there is a monitoring plan for each activity that includes indicators, goals, objectives, units of measurement, and monitoring frequency, with the aim of evaluating the efficiency and effectiveness of the implementation of each activity. In addition, all phases, including project planning, are carried out in conjunction with the community and technical experts who use social methodologies to identify potential impacts, while respecting indigenous culture and traditions
Losing indigenous knowledge and practices related to land management, resourceutilization, and traditional ecological knowledge?	☐Yes ☐ Potentially ☒ No	This impact has been identified in the project baseline, which is why activity C-2 Cultural strengthening has been proposed with the aim of recovering, strengthening, and maintaining knowledge and practices. This project includes strengthening the language, preserving and strengthening the chagras, mingas, dances, among others.
Cultural disintegration and the erosion of social cohesion within indigenous communities?	☐Yes ☐ Potentially ☒ No	This impact has been identified in the project baseline, which is why activity C-2 Cultural strengthening has been proposed with the aim of recovering, strengthening, and maintaining knowledge and practices. This project includes strengthening the language, preserving and strengthening the chagras, mingas, dances, among others.
Inadequate recognition and	☐Yes	All decisions related to the project will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
respect for indigenous governance systems, potentiallyleading to conflicts over land and resource management?	☐ Potentially ☒ No	vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities.
Insufficient benefit-sharingmechanisms, resulting in the unequal distribution of benefitsderived from the project amongindigenous communities?	☐Yes ☐ Potentially ☒ No	The distribution of benefits is carried out in a fair and equitable manner, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed through the implementation of activities identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This is done jointly, identifying the problems faced by the population and establishing strategic lines of action to overcome them.
Conflicts arising over land rights, particularly when theproject involves changes in landuse that may be contested by different stakeholders, Including indigenous communities?	☐Yes ☐ Potentially ☒ No	Access to land is granted through Resolution 034 of April 6, 1988, which formally establishes the Nonuya de Villazul indigenous reserve, declaring it collective territory and distributing the land for use by families and communities in accordance with their own rules and traditional organization, generally through community agreements. Each family may have areas for subsistence farming, gathering, hunting, fishing, and housing, but ownership remains with the reserve as a whole. In addition, all decisions related to the project will be defined in assembly, following and respecting their own customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective, listening to opinions and reaching consensus for the implementation of activities.

Table 42- BCR SDSs - Community health and safety

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Exposure to hazardous materials, chemicals, or pollutants, potentially leading to adverse health effects or life-threateningrisks?	☐Yes ☒ Potentially ☐ No	All construction or renovation generates waste, and this waste could be disposed of improperly, causing pollution in different sources (air, land, and/or water) Train residents in the proper disposal of waste. Establish collection points for hazardous and/or polluting waste according to its classification for removal from the territory.
Degrading air quality in the project area due to emissions, dust, or other airborne pollutants?	☐Yes ☒ Potentially ☐ No	All construction or renovation generates waste, and this waste could be disposed of improperly, causing pollution in different sources (air, land, and/or water). Train residents in the proper disposal of waste. Establish collection points for hazardous and/or polluting waste according to its classification for removal from the territory.
Water contamination, including pollution of water sources or reduced access to clean water, affecting community health and well-being?	☐Yes ☒ Potentially ☐ No	Water is also contaminated by gas or oil leaks from motorboats. Such contamination can lead to the proliferation of algae, known as eutrophication—the process that causes a decrease in the availability of oxygen for organisms living in contaminated reservoirs (European Commission, n.d.). These impacts could be generated by activities B2 - Conditioning and Strengthening of Own Monitoring, D1 - Improvement of the quality of life of the population in health, education, and infrastructure, and E1 - Productive Projects. Perform water quality analyses during each monitoring period. Establish hazardous waste and/or pollutant collection points according to their classification for removal from the territory.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Increased noise levels or vibrations resulting from projectoperations, potentially causing disturbances and health impactsfor nearby communities?	☐Yes ☒ Potentially ☐ No	The project activities are planned on a smaller scale and locally, where construction is carried out in a traditional manner. This is considered a potential impact that could cause disturbances in the community due to increased noise while construction and/or improvements are being completed in their cultural spaces or homes. Inform the local community about the start of construction, completion times, and possible impacts. Conduct surveys on the community's perceptions of the construction and how it affects them. Provide training on occupational hazards and the use of PPE (personal protective equipment).
Traffic accidents or road safetyhazards associated with increased traffic flow or transportation activities related to the project?	☐Yes ☒ Potentially ☐ No	In the development or construction of activities, safe working conditions could not be fully guaranteed due to geographical isolation, lack of infrastructure, and health services. In addition, the special indigenous jurisdiction means that work is organized according to local traditions and norms, which limits the uniform implementation of occupational safety standards. However, the project seeks to ensure the safety, well-being, and health of the population, mitigating this impact on river mobility issues. Conduct an analysis of the accident rate for each project activity. Training on occupational hazards and implementation of PPE (personal protective equipment).
Workers exposure to hazardous conditions, physical attacks or inadequate safety measures?	☐Yes ☐ Potentially ☒ No	In the development or construction of activities, safe working conditions could not be fully guaranteed due to geographical isolation, lack of infrastructure, and health services. In addition, the special indigenous jurisdiction means that work is organized according to local traditions and norms, which limits the uniform implementation of occupational safety standards. However, the project seeks to ensure the safety, well-being, and health of the population, mitigating this impact. Conduct an analysis of the accident rate for each project activity. Training on occupational hazards and implementation of PPE (personal protective equipment).
Increased prevalence of vector- borne diseases or pest	☐Yes ☐ Potentially ☒ No	There will be no disruption to the dynamics of ecosystems because the traditions of indigenous peoples will be maintained, in line with their environmental management plan, which recognizes the importance of caring for endangered species as part of their ancestral balance.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
infestations as a result of changes in environmental conditions or habitat disruption?		
Community displacement or involuntary resettlement, leading to social disruption, stress, and negative health outcomes?	☐Yes ☐ Potentially ☒ No	The project will not displace communities. On the contrary, it will implement social, environmental, and economic alternatives that enable the conservation of the territory and the ethnic group that cares for it, through the defined project activities.
Community mental health andwell-being, including stress,anxiety, and social isolation resulting from changes in living conditions or community dynamics?	☐Yes ☐ Potentially ☒ No	All decisions related to the project will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities.
Inadequate emergency preparedness and response mechanisms, leading to challenges in	☐Yes ☐ Potentially ☒ No	The project has mechanisms for handling PQRS (requests, complaints, claims, suggestions, and/or compliments) that are open to the public and the community at large, where labor disputes or any other issues related to the implementation of activities can be addressed. For this purpose, the email address redd. nonuya.amenanae@gmail.com for virtual reception. In addition, the direct contact details of the general project coordinator, who belongs to the community and whose duties include receiving PQRS and processing them, are available in person.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
managing and mitigating potential health and safety emergencies?		
Changes in land use patterns, such as increased exposure to disease vectors or decreased access to natural resources essential for health?	☐Yes ☐ Potentially ☒ No	Through activity D-1, Improving the quality of life of the population in health, education, and infrastructure, community health actions will be carried out that focus on bringing basic medical care closer to the population, training local promoters, and coordinating traditional medicine with Western medicine to strengthen prevention and health care.
Inadequate health infrastructureand services in the project area, leading to challenges in addressing community health needs and emergencies?	☐Yes ☐Potentially ☒ No	Through activity D-1, Improving the quality of life of the population in health, education, and infrastructure, community health actions will be carried out that focus on bringing basic medical care closer to the population, training local promoters, and coordinating traditional medicine with Western medicine to strengthen prevention and health care.

Table 43 - BCR SDSs - Corruption

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Funds allocated for the project/initiative	☐Yes	The distribution of benefits is carried out in a fair and equitable manner, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed in the

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
being misappropriated or embezzled through fraudulent practices or kickbacks?	☐Potentially ☒No	implementation of activities that are identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This construction is carried out jointly, identifying the problems of the population and establishing strategic lines to overcome them. In addition, each assembly will monitor the progress and performance of those in charge and the activities, and this will be complemented by annual accountability to ensure that resources are allocated correctly and without fraud and/or bribery.
Bribery or kickbacks being solicited or offered to secure contracts, permits, or otherproject-related approvals?	☐Yes ☐Potentially ☒No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Nepotism or favoritism in the selection of contractors, suppliers, or project personnel, compromising the integrity and fairness of procurement processes?	☐Yes ☐Potentially ☒No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Fraudulent reporting ormanipulation of project data, such as inflating project costs oroverstating achievements, to obtain additional funding or meet	☐Yes ☐Potentially ☒No	The distribution of benefits is carried out in a fair and equitable manner, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed in the implementation of activities that are identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This construction is carried out jointly, identifying the problems of the population and establishing strategic lines to overcome them. In addition, each assembly will monitor the progress and performance of those in charge and the activities, and this will be complemented by annual accountability to ensure that resources are allocated correctly and without fraud and/or bribery.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
performance targets?		
Conflicts of interest among project stakeholders or personnel, such as individuals with financial interests in projectoutcomes or decision-makers with personal connections toproject contractors?	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Lack of transparency in project decision-making processes, budget allocations, or contractawards, leading to suspicions of corruption or malpractice?	☐Yes ☐Potentially ☒No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Weak regulatory oversight or enforcement mechanisms,allowing for corrupt practices togo undetected or unaddressed within project/initiative activities?	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Undue influence or pressure exerted by	☐Yes ☐Potentially	All decisions related to the project will be defined in assembly, following and respecting the customs and laws of the government, and with the effective participation of the majority of the

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
external parties, such as political figures or industry lobbyists, to sway project decisions or gain unfair advantages?	☒No	community, including vulnerable populations such as children, youth, women, and the elderly.
Inadequate accountability mechanisms or whistleblower protection, discouraging individuals from reportinginstances of corruption or unethical behavior?	☐Yes ☐Potentially ☒ No	The distribution of benefits is carried out fairly and equitably, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed in the implementation of activities that are identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This construction is carried out jointly, identifying the problems of the population and establishing strategic lines to overcome them. In addition, each assembly will monitor the progress and performance of those in charge and the activities, and this will be complemented by annual accountability to ensure that resources are allocated correctly and without fraud and/or bribery.
Corruption in the environmental permitting process, such asofficials accepting bribes to overlook environmental violations or grant permits unlawfully?	☐Yes ☐Potentially ☒No	Indigenous communities do not require permits for their traditional uses, but in the event of implementing activities that involve commercial exploitation or that may significantly affect the environment, the technical partner will provide support in completing the necessary procedures, in accordance with the applicable laws and regulations.
Corruption within subcontracting relationships, such as subcontractors paying bribes to secure	☐Yes ☐Potentially ☒No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
favorable terms or win subcontracting opportunities?		in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.

Table 44 - BCR SDSs- Economic Impact

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Compromising healthy competition, resulting in unhealthy rivalry and undermining collaboration and cooperation essential for achieving project goals?	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Loss of employment opportunities, particularly for vulnerable populations, as a result of changes in economic activities or restructuring?	☐Yes ☐Potentially ☒No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assemblies, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, participation in these spaces in the assemblies and decision-making of the project is promoted and achieved, and female leadership is implemented in activity E-1 Productive Projects.
Creating economic	☐Yes	The objectives of the REDD+ project include sustainable forest management, which seeks to

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
dependence, such as tourism or conservation initiatives, leading tovulnerability to fluctuations in project funding or market conditions?	☐Potentially ☒No	strike a balance between conserving the forest, using it responsibly, and ensuring that it is also available for future generations. In addition, a variety of economic alternatives are generated through productive projects that guarantee income diversity and resilience to market variations.
Market distortions or increased competition, such as changes in land use patterns or shifts in supply and demand dynamics within local economies?	☐Yes ☒ Potentially ☐ No	Alternative productive projects can generate distortions in the local market. By promoting activities such as agroforestry, ecotourism, or sustainable production, land use patterns and the supply of goods are modified. This can lead to greater competition among local producers and variations in the prices of agricultural or forestry products. Therefore, productive projects are designed with a focus on equity, community participation, and socioeconomic monitoring to prevent these dynamics from negatively affecting local economies. Train residents on the implementation of productive projects, including supply and demand. Support the value chain of products derived from productive projects
Increasing the cost of living for local communities as a consequence of project-related developments, such as infrastructure projects or influxes of external workers?	☐Yes ☐ Potentially ☒ No	The infrastructure projects seek to improve the quality of life of the population belonging to the indigenous reserve, generating economic alternatives that allow basic needs to be met without affecting the conservation of ecosystems. In addition, all activities will be carried out by the community with support and technical training that allows them to be the developers rather than external labor.
Inequitable distribution of	☐Yes ☐ Potentially	The distribution of benefits is carried out in a fair and equitable manner, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
benefits, leading to disparities inwealth, income, or access to resources among different segments of the population?	☒ No	in the implementation of activities that are identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This construction is carried out jointly, identifying the problems of the population and establishing strategic lines to overcome them. In addition, each assembly will monitor the progress and performance of those in charge and the activities, and this will be complemented by annual accountability to ensure that resources are allocated correctly and without fraud and/or bribery.
Losing traditional economic practices and knowledge systems, potentially undermining cultural heritageand resilience to economic shocks in communities?	☐Yes ☐ Potentially ☒ No	All decisions related to the project will be defined in assembly, following and respecting the customs and laws of the government, and with the effective participation of the majority of the community, including vulnerable populations such as children, youth, women, and the elderly. In addition, through activities C1-Construction and adaptation of Malokas and C2-Cultural strengthening, the loss of cultural knowledge and practices identified in the baseline as an impact will be mitigated, thereby strengthening the transfer and appropriation of traditional indigenous knowledge.
Negatively impacting small-scaleenterprises or informaleconomies that rely on natural resources or ecosystem services?	☐Yes ☐ Potentially ☒ No	Activity E1—productive projects—seeks to strengthen and support the value chain of informal economies and small community enterprises, with the aim of generating diversity in current income and in line with sustainability for the population of the indigenous reserve.
Financial uncertainties, such asproject delays, budget overruns, or changes in funding sources, affecting	☐Yes ☒ Potentially ☐ No	Uncertainty about the non-levy of the carbon tax could significantly affect the project, leading to a decrease in the supply of carbon credits on the market. Furthermore, no project can establish fixed timelines for compliance with the processes leading up to certification and issuance of credits. Even their value and commercialization are affected by third parties such as the Conformity Assessment Body (CAB), reviews of non-conformities by Biocarbon Standard, government entities such as IDEAM or the Ministry of the Interior, and the

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
investment confidence and economic stability?		demand from taxpayers, among others. Keep the community informed about progress in the project phases. Comply with current national regulations for marketing carbon certificates for tax exemption
Limited access to financial resources, such as credit or microfinance services, for entrepreneurs or smallholdersaffected by project-related changes in land use or economic activities?	☐Yes ☐Potentially ☒ No	It is identified within the baseline as a barrier, because limited access to financial services depends not only on changes in land use, but also on the perception of risk by lenders. If a bank or cooperative considers that use restrictions reduce farmers' income-generating capacity, it may deny credit or require greater collateral. Furthermore, the lack of a formal financial history in rural and indigenous communities often exacerbates this barrier.
Lack of economic resilience and adaptive capacity within project-affected communities, particularly in response to external shocks or long-term changes in market conditions?	☐Yes ☐ Potentially ☒ No	The objectives of the REDD+ project include sustainable forest management, which seeks to strike a balance between conserving the forest, using it responsibly, and ensuring that it is also available for future generations. In addition, a variety of economic alternatives are generated through productive projects that guarantee income diversity and resilience to market variations.
Inadequate compensation or	☐Yes ☐Potentially	The distribution of benefits is carried out in a fair and equitable manner, respecting the Cancun Safeguards and community decisions; Therefore, economic benefits are distributed

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
mitigation measures for economic impacts, such as loss of assets or disruptions to income streams, experienced by individuals or communities?	☒ No	through the implementation of activities identified as necessary for improving the quality of life of the population without affecting the ecosystem or traditions and customs. This is done jointly, identifying the problems faced by the population and establishing strategic lines of action to overcome them.

Table 45- BCR SDSs - Governance and Compliance

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Insufficient institutional capacity within project/initiative implementing agencies or partner organizations, leading tochallenges in effective governance and project management?	☐Yes ☐Potentially ☒No	The project involves various stakeholders, who support all the activities to be carried out, thereby ensuring the institutional capacity to achieve the objectives set.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Weak governance structures and mechanisms within theproject/initiative, such asunclear roles andresponsibilities, inadequate decision-making processes, and limited transparency and accountability?	☐Yes ☐ Potentially ☒ No	All decisions related to the project will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. Additionally, activity C3 - Governance, operations, and administration in the monitoring of agreements seeks to strengthen governance mechanisms.
Inadequate stakeholder engagement and participation in project/initiative decision-making processes, leading to governance gaps and reduced project legitimacy?	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, governance of the territory is promoted and achieved through activity C3 - Governance, operation, and administration in the monitoring of agreements seeks to strengthen governance mechanisms.
Ineffective or inadequate regulatory frameworks governing project activities,resulting in loopholes, inconsistencies, or	☐Yes ☐ Potentially ☒ No	The project complies with all environmental regulations and does not overlap with any specially protected areas. It also seeks to strengthen governance through activity C3 - Governance, operations, and administration in the monitoring of agreements, which aims to strengthen governance mechanisms.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
gaps in environmental protection and governance standards?		
Delays or challenges in obtaining necessary permits, licenses, and approvals for project activities due to regulatory complexities, bureaucratic inefficiencies, or legal requirements?	☐Yes ☐ Potentially ☒ No	The planned activities will undergo a planning and execution process in order to establish a schedule for requesting the necessary licenses and approvals in advance. It should be noted that very few activities will require this.
Political interference in project/initiative decision-making processes, such as pressure to prioritize certain projects or interventions based on political agendas rather than scientific or environmental	☐Yes ☐ Potentially ☒ No	All decisions related to the project will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. Additionally, activity C3 - Governance, operations, and administration in the monitoring of agreements seeks to strengthen governance mechanisms.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
considerations?		
Non-compliance with relevantlaws, regulations, permits, andinternational agreements governing GHG emissions, biodiversity conservation, environmental protection andland use management, leading tolegal challenges and reputationalrisks?	☐Yes ☐ Potentially ☒No	The project complies with all environmental regulations and does not overlap with any specially protected areas. It also seeks to strengthen governance through activity C3 - Governance, operations, and administration in the monitoring of agreements, which aims to strengthen governance mechanisms.
Conflicts of interest among project stakeholders or decision-makers, such as individuals withpersonal or financial interests that may influence project outcomes or decision-making processes?	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults, and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, governance of the territory is promoted and achieved through activity C3 - Governance, operation, and administration in the monitoring of agreements seeks to strengthen governance mechanisms.

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
Limited access to justice for communities affected by project activities, such as barriers to legal recourse or remedies for grievances related to land rights, environmental harm, or social impacts?	☐Yes ☐ Potentially ☒ No	The reserves are governed in the first instance by their own laws to govern their territory, but as Colombian citizens, they have all the protection mechanisms available to them to take any action they deem appropriate against the project if necessary.
Insufficient monitoring and evaluation mechanisms to assessproject performance, impacts,and compliance with governance standards, leading to gaps in accountability and learning?	☐Yes ☐ Potentially ☒ No	To this end, there is a monitoring plan for each activity that includes indicators, goals, objectives, units of measurement, and monitoring frequency, with the aim of evaluating the efficiency and effectiveness of the implementation of each activity. In addition, all phases, including project planning, are carried out in conjunction with the community and technical experts who use social methodologies to identify potential impacts, while respecting indigenous culture and traditions.
Inadequate capacity building and training for project	☐Yes ☐ Potentially ☒ No	Working hours, workers, duties, schedules, costs, and budgets will be defined in assembly, following and respecting local customs and laws, with the effective participation of the majority of the community, including vulnerable populations such as children, older adults,

Could the project/initiative activities potentially entail or result in:	Response	Mitigation or preventive action
stakeholders, such as government officials local communities, and civil society organizations, to effectively Participate in project governance and decision-making processes?		and women, as well as those associated with the project from a technical and social perspective. Opinions will be heard and consensus will be reached for the implementation of activities. In addition, governance of the territory is promoted and achieved through activity C3 - Governance, operation, and administration in the monitoring of agreements seeks to strengthen governance mechanisms,

9 Stakeholder engagement and consultation

Dissemination strategies:

The socialization of the project with the governors of the department of Amazonas with, with Corpoamazonia, and with the Serranía de Chiribiquete National Natural Park, are part of the REDD+ project dissemination strategy in the territory, to the relevant public institutions.

For the different sectors interested in the implementation of the project, it will be published on social networks such as instagram @reddcolombia, showing the formulation process, the established objectives, the implementation process and the expected results. The process carried out by the communities within the framework of their autonomy, to acquire tools and skills foreign to their culture, through training, to be themselves those who develop and implement the project, is an innovative way, with respect to the different projects and programs that have been implemented with public and private institutions with indigenous communities, changing the welfare approach that has historically characterized them. The importance of respecting the autonomy of the communities is constantly mentioned, valuing traditional knowledge in environmental conservation, but it is external agents that implement different initiatives in the territories. Therefore, it is more than relevant to disseminate the project in the comprehensive manner in which it has been developed, in different social networks.

Socialization meetings were held for all the actors involved and the PDD and RM documents will be available to the general public on the project registration page in the BCR standard.

9.1 Summary of comments received

The project began prior consultation on the standard platform[50] on July 22, 2024 and ended on August 21, 2024, during which time no public comments were received.

9.2 Consideration of comments received

Not applicable, no comments received.

[50] https://globalcarbontrace.io/public-consultation-form/89

10 Sustainable Development Goals (SDGs)

The project is applying the BCR SDGs tool v1.0 to identify the project's contribution to the sustainable development goals (annex), obtaining the following outcomes:

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
SDG 1. End poverty in all its forms everywhere 	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)	Generates livelihood alternatives and productive initiatives that increase family income and reduce economic vulnerability. They also improve the living conditions and incomes of community members.	E-1 Productive Projects and all other baskets	• # of productive project activities implemented • # of people participating in productive activities (workshops, trainings, implementation and monitoring) • # of women participating in productive activities (workshops, trainings, implementation and monitoring)	
	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.2.1 Proportion of population living below the national poverty line, by sex and age	Generates livelihood alternatives and productive initiatives that increase household income and reduce economic vulnerability.	E-1 Productive Projects	• # of productive project activities implemented • # of people participating in productive activities (workshops, trainings, implementation and monitoring) • # of women participating in productive activities (workshops, trainings, implementation and monitoring)	
		1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	Generates livelihood alternatives and productive initiatives that increase household income and reduce economic vulnerability.			

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable	It contributes to access to basic community services such as health, education and housing, which will also benefit different vulnerable population groups such as the elderly, people with disabilities, pregnant women and newborns.	D-1 Improving the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational activities or health care. • # of activities implemented to improve the quality of life of the population of the reserve	
	1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services	Contributes to access to basic community health, education and infrastructure services (including access to sanitation, electricity, among others).			

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	1.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people	Contributes to safe housing and helps mitigate climate change that causes natural disasters.	D-1 Improving the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational activities or health care	
		1.5.2 Direct disaster economic loss in relation to global gross domestic product (GDP)	Contemplates cultural strengthening activities such as the chagra that allows food sovereignty and reduces dependence on external economies.	C-2 cultural strengthening	• # of people participating in activities that contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of women participating in activities that contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of activities carried out that contribute to recover, strengthen and maintain	

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
					knowledge and cultural practices.	
SDG 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture 	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	2.1.1 Prevalence of undernourishment	Contemplates cultural strengthening activities such as the chagra, which allows food sovereignty and family nutrition.	C-2 cultural strengthening	• # of people participating in activities that contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of women participating in activities that contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of activities carried out that contribute to recover, strengthen and maintain knowledge and cultural practices.	
		2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)				
	2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional	2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	This activity encourages the implementation of practices such as chagra	C-2 cultural strengthening	• # of people participating in activities that contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of women participating in activities that	

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	needs of adolescent girls, pregnant and lactating women and older persons				contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of activities carried out that contribute to recover, strengthen and maintain knowledge and cultural practices.	
3. Ensure healthy lives and promote well-being for all at all ages 	3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	3.1.1 Maternal mortality ratio	This activity includes community health actions to provide basic medical care to the population, train local promoters and articulate traditional and western medicine to strengthen prevention and health care.	D-1 Improve the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational activities or health care. • # of activities implemented to improve the quality of life of the population of the resguardo.	
		3.1.2 Proportion of births attended by skilled health personnel				
	3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	3.2.1 Under-five mortality rate				
		3.2.2 Neonatal mortality rate				
	3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and	3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations				

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	3.3.2 Tuberculosis incidence per 1,000 population				
		3.3.3 Malaria incidence per 1,000 population				
		3.3.4 Hepatitis B incidence per 100,000 population				
		3.3.5 Number of people requiring interventions against neglected tropical diseases				
	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease				
		3.4.2 Suicide mortality rate				
	3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	3.5.1 Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders				

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)				
	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution				
		3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)				
		3.9.3 Mortality rate attributed to unintentional poisoning				
	3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that	3.b.1 Proportion of the population with access to affordable medicines and vaccines on a sustainable basis				

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all					

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	3.c.1 Health worker density and distribution				
	4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	4.1.1 Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex	This activity contemplates actions for the integral and multicultural strengthening of education that encourage school permanence and the transmission of knowledge in their own language, integrating traditional and academic knowledge for the benefit of new generations.	D-1 Improve the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational activities or health care. • # of activities implemented to improve the quality of life of the population of the reserve.	
	4.2 By 2030, ensure that all girls and boys have access to	4.2.1 Proportion of children under 5 years of age who are	This activity encourages the implementation of traditional practices that have been used	C-2 cultural strengthening	• # of people participating in activities that	

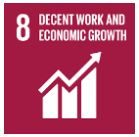
Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	quality early childhood development, care and pre-primary education so that they are ready for primary education	developmentally on track in health, learning and psychosocial well-being, by sex	for the care of the population. This also includes advice on child rearing, which includes both physical and learning and psychological aspects.		contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of women participating in activities that contribute to recovering, strengthening and maintaining knowledge and cultural practices. • # of activities carried out that contribute to recover, strengthen and maintain knowledge and cultural practices.	
	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex	This activity contemplates actions for the integral and multicultural strengthening of education that encourage school permanence, access to higher education and the transmission of knowledge in their own language, integrating traditional and academic knowledge for the benefit of new generations.	D-1 Improve the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational activities or health care. • # of activities implemented to improve the quality of life of the	
	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment,	4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill				

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	decent jobs and entrepreneurship				population of the reserve.	
	4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated				
	4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy	4.6.1 Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex				

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
SDG 5: Achieve gender equality and empower all women and girls 	5.1 End all forms of discrimination against all women and girls everywhere	5.1.1 Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex	Each of these activities includes indicators related to women's participation in order to promote and monitor that women are being included.	• B-3 Traditional knowledge of the territory • B-4 Monitoring of plots and forests • C-2 Cultural strengthening • D-1 Improvement of the quality of life of the population in health, education and infrastructure. • E-1 Productive Projects	• B-3 # of women participating in territorial characterization activities • B-4 # of women participating in activities (workshops, meetings, mambeaderos, trainings) for monitoring plots and forests • C-2 # of women participating in activities that contribute to recover, strengthen and maintain knowledge, cultural practices • D-1 # of women benefiting from community infrastructure, educational activities or health care • E-1 # of women participating in productive activities (workshops, trainings, implementation and monitoring)	Section 2.3 – Project activities

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	5.5.2 Proportion of women in managerial positions	This activity seeks to strengthen the monitoring and accountability processes, fostering social control by the inhabitants of the territory and thus strengthening governance. This activity also seeks to improve the participation of women in the accountability processes as well as in operational and administrative positions.	C-3 Governance, operability and administration in the monitoring of agreements	• # of accountability spaces • # of women participating in and/or carrying out accountability spaces	
SDG 6: Ensure availability and sustainable management of water and sanitation for all 	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services	Contributes to the construction of a community aqueduct	D-1 Improve the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational activities or health care	
	6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1 Change in the extent of water-related ecosystems over time	This activity seeks to monitor the changes and effects on the territory's ecosystems in order to create prevention and mitigation strategies.	B-4 Monitoring of plots and forests	• # people participating in activities (workshops, meetings, mambeaderos, trainings) of monitoring of plots and forests • # of women participating in activities (workshops, meetings, mambeaderos,	

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
					trainings) of plot and forest monitoring. • # of activities of conformation or follow-up of implemented permanent plots or forests	
	6.b Support and strengthen the participation of local communities in improving water and sanitation management	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	Since this is a community infrastructure, it will require management by the communities of the resguardo.	D-1 Improve the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational activities or health care	
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all 	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity	This project is expected to construct a solar electric system	D-1 Improve the quality of life of the population in health, education and infrastructure.	• # of people benefiting from community infrastructure, educational activities or health care • # of women benefited by community infrastructure, educational	
	7.1.2 Proportion of population with primary reliance on clean fuels and technology					

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	7.2.1 Renewable energy share in the total final energy consumption				activities or health care	
SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all 	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	8.3.1 Proportion of informal employment in non-agriculture employment, by sex	Generates livelihood alternatives and productive initiatives provides employment opportunities and supports local economic initiatives	E-1 Productive Projects	• # of people participating in productive activities (workshops, trainings, implementation and follow up) • # of women participating in productive activities (workshops, trainings, implementation and monitoring)	
	8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training				

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
SDG 10: Reduce inequality within and among countries 	10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population	Generates livelihood alternatives and productive initiatives provides employment opportunities and supports local economic initiatives, increasing household income	E-1 Productive Projects	• # of people participating in productive activities (workshops, trainings, implementation and follow up) • # of women participating in productive activities (workshops, trainings, implementation and monitoring)	
SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable 	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)	These activities encourage the implementation of traditional practices among populations of different ethnic groups living in the reserve (mingas, mambeaderos, chagras, medicinal plants, among others). In addition, the interaction of cultural and natural knowledge makes it possible to characterize the territory and generate mitigation strategies. Therefore, these are activities that allow the protection of the Amazon and its cultures.	• C-2 cultural strengthening • B-3 Traditional knowledge of the territory • B-4 Plot and forest monitoring	• C-2# of people participating in activities that contribute to recover, strengthen and maintain knowledge, cultural practices • C-2# of women participating in activities that contribute to recover, strengthen and maintain knowledge, cultural practices • C-2# of activities carried out that contribute to recover, strengthen and maintain knowledge, cultural practices • B-3# of people participating in activities of	

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
					territorial characterization • B-3# of women participating in activities of territorial characterization • B-3# of activities carried out for the characterization, identification, control and territorial care • B-4# people participating in activities (workshops, meetings, mambeaderos, trainings) of monitoring of plots and forests • B-4# women participating in activities (workshops, meetings, mambeaderos, trainings) of monitoring of plots and forests • B-4# of activities of conformation or follow-up of permanent plots implemented or forests	

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
SDG 13 – Climate action 	13.b: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate change-related planning and management, including focusing on women, youth and local and marginalized communities	All these activities include training in topics that allow the generation of actions to mitigate climate change. This is done by integrating traditional knowledge with scientific knowledge..	• C-2 cultural strengthening • B-3 Traditional knowledge of the territory • B-4 Plot and forest monitoring	• C-2# of people participating in activities that contribute to recover, strengthen and maintain knowledge, cultural practices • C-2# of women participating in activities that contribute to recover, strengthen and maintain knowledge, cultural practices • C-2# of activities carried out that contribute to recover, strengthen and maintain knowledge, cultural practices • B-3# of people participating in activities of territorial characterization • B-3# of women participating in activities of territorial characterization • B-3# of activities carried out for the characterization, identification, control and territorial care • B-4# people participating in	Section 3 - Quantification of GHG emissions reduction\ Quantifications and see section **¡Error! No se encuentra el origen de la referencia.**

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
					activities (workshops, meetings, mambeaderos, trainings) of monitoring of plots and forests • B-4# women participating in activities (workshops, meetings, mambeaderos, trainings) of monitoring of plots and forests • B-4# of activities of conformation or follow-up of permanent plots implemented or forests	
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	15.1 - By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and the services they provide, in particular forests, wetlands, mountains and arid areas, in line with the obligations under international agreements	15.1.1 Forest area as a proportion of total land area	These activities allow knowledge, monitoring and care of forests, wetlands, water sources, among others, to prevent their degradation and deforestation.	• C-2 cultural strengthening • B-3 Traditional knowledge of the territory • B-4 Plot and forest monitoring	• C-2# of people participating in activities that contribute to recover, strengthen and maintain knowledge, cultural practices • C-2# of women participating in activities that contribute to recover, strengthen and maintain knowledge, cultural practices • C-2# of activities carried out that	

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
	15.2 - By 2020, promote sustainable management of all types of forests, end deforestation, restore degraded forests and increase afforestation and reforestation globally				contribute to recover, strengthen and maintain knowledge, cultural practices • B-3# of people participating in activities of territorial characterization • B-3# of women participating in activities of territorial characterization • B-3# of activities carried out for the characterization, identification, control and territorial care • B-4# people participating in activities (workshops, meetings, mambeaderos, trainings) of monitoring of plots and forests • B-4# women participating in activities (workshops, meetings, mambeaderos, trainings) of monitoring of plots and forests • B-4# of activities of conformation or	
	15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management				
	15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	15.4.1 Coverage by protected areas of important sites for mountain biodiversity				

Number of SDGs to contribute	Target related	*Global indicators*	Contribution	Project activity	Activity unit of measurement	Annex related
					follow-up of permanent plots implemented or forests	
SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels 	16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	16.7.2 Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group	This activity seeks to improve the application of manuals, statutes and accountability processes for territorial governance, ensuring that decisions and actions respond to the collective interest and the protection of ecosystems.	C-3 Governance, operability and administration in the monitoring of agreements	• # of accountability spaces • # of women participating in and/or carrying out accountability spaces	

11 REDD+ Safeguards (For REDD+ projects)

The project is applying the BCR Tool to demonstrate compliance with the REDD+ safeguards v1.1, obtaining the following outcomes:

Requirement	Compliance	Evidence
1."That actions complement or are consistent with the objectives of national forest programs and relevant international conventions and agreements".		
Demonstrate that national forest programs have been taken into account for the structuring and implementation of the Project and that the activities of the Project complement them	The project complement of national forest programs and relevant international conventions and agreements through the implementation of its activities.	Document: Safeguard 1
Demonstrate that the activities of the Project conform to these policies and are not opposed to them.		Document: Safeguard 1
2."Transparent and effective national forest governance structures, taking into account national legislation and sovereignty." Provide transparent and consistent information that is accessible by all relevant stakeholders and updated on a regular basis. Be transparent and flexible to allow for improvements over time. Build upon existing systems, if any.		
The Project holder shall ensure the effective, transparent and efficient disclosure of information related to the Project's activities by means of tools that guarantee its effective, transparent and efficient disclosure.	The project has effective, transparent and efficient disclosure of information related to the Project's activities with community and other stakeholders. From the outset, socialization activities were carried out, including the translation of documents into the native language and the creation of spaces for questions during assemblies. Topics addressed included key REDD+ concepts, the functioning of the mechanism, the history of the projects, the political and commercial context, the SDGs, and the Cancun Safeguards. This ensured clear, transparent, and understandable access to information. Since the project holders are Indigenous communities, information regarding the program's policies, the scope of the project, and the commitments made between the	To this end, a record will be kept of the channels used for dissemination, as indicated below (Table 1). Radio A log of all recordings shall be kept. Video calls A log of all recordings shall be kept. Brochures, billboards, illustrative documents, guides, among others. A full copy of every document shall be kept. In-person workshops Attendance sheets and recordings of the sessions

Requirement	Compliance	Evidence
	parties is not only disclosed but also discussed and built collectively through group dialogues held in the communities' traditional spaces. This approach ensures that the information is accessible to everyone within their framework of understanding and language, while also being adapted and expressed according to their cultural concepts and principles. In addition, assemblies will be held as collective spaces for accountability and decision-making, where all community members participate, thereby reinforcing the transparency of the process. The project also has mechanisms for handling PQRs (Petitions, Complaints, Claims, Suggestions, and/or Commendations), open to the public and the community at large, through which labor-related concerns or any other issues related to the implementation of activities can be addressed. For this purpose, the email address rinonuyavillazul@gmail.com has been established for virtual submissions. Additionally, in-person submissions can be made directly to the Project's General Coordinator, who is a member of the community and is responsible for receiving PQRs and ensuring their proper processing.	shall be kept. E-mails, web sites. Every e-mail shall be kept and permanent access to the website shall be ensured. Via organizations, associations or interest groups, as, for example,the general coordinator of the project, governor and council board of the reservation:. A record will be kept of every document produced or activity undertaken (minutes, audio or video recordings, copies).
3."Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;"		
The Project holder shall recognize and respect the rights of the communities present in the territory under the minimum applicable standard of law and international declarations on the rights of indigenous peoples	The recognition of the territory is carried out through community mapping, which identifies a strategy for respecting their rights according to their characteristics and conditions. The territory is acknowledged as an Indigenous Reserve with collective land ownership and its own governance laws.	The results of the above are reflected in a written community mapping document. Document: Safeguard 3
The Project holder will organize work sessions with the communities, and other mechanisms facilitating their involvement in the Project, from	. From the outset, awareness and socialization activities were carried out, including the translation of documents into the native language and the creation of	In the Safeguards 4 folder, all supporting documents are included regarding community participation in

Requirement	Compliance	Evidence
the pre-feasibility and structuring phase, regarding the inclusion in the Project of the ancestral and traditional knowledge.	spaces for questions during assemblies. Topics addressed included key REDD+ concepts, the functioning of the mechanism, the history of the projects, the political and commercial context, the SDGs, and the Cancun Safeguards. This ensured clear, transparent, and understandable access to information. Since the project holders are Indigenous communities, information regarding the program's policies, the scope of the project, and the commitments made between the parties is not only disclosed but also discussed and built collectively through group dialogues in the traditional spaces of the communities. This approach ensures that the information is accessible to all within their framework of understanding and language, while also being adapted and expressed through their cultural concepts and principles. Furthermore, assemblies will be held as collective spaces for accountability and decision-making, with the participation of all community members, thereby reinforcing the transparency of the process.	assemblies, project socialization sessions, and agreements between the parties.
The Project holder may suggest new ways for a sustainable use of the territory. In addition, it may limit some of the activities carried out by the communities, as long as they accept it in an agreement signed by their representatives.	The project is developed with the community; a signed agreement was established to carry out the project activities. In addition, it is ensured that the agreements between the parties are signed by the Governor of the Indigenous Reserve, who is elected by the community and registered with the Ministry of the Interior, with the purpose of promoting conservation actions in the territory throughout the lifespan of the project.	Section: 5.3 Agreements related to carbon rights
4.“The full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities, in the actions referred to in paragraphs 70 and 72 of this decision”		

Requirement	Compliance	Evidence
The Project holder shall show evidence to demonstrate that the information has been disseminated, diffused, and shared with the communities in a transparent, clear, complete, inclusive and effective manner, using appropriate means.	Since every action required by the project has a direct impact on the community, from the formulation phase the national provisions on Free, Prior, and Informed Consent (FPIC) have been applied through assemblies and other meetings, in order to guarantee and demonstrate the full participation of the community in each decision. In addition to the documents and contracts that certify compliance with this obligation, community members themselves can testify to how the process has been carried out and how they have engaged with the guidelines of the REDD+ project, highlighting the transparency and access to information ensured by all parties. For example, prior to the start of the project formulation, a Free, Prior, and Informed Consent agreement was signed. To this end, an assembly meeting was held with the participation of members of the two communities that make up the reserve, where key REDD+ concepts, the functioning of the mechanism, the history of the projects, the political and commercial context, the SDGs, and the Cancun Safeguards, among other topics, were presented and discussed. Based on this information, the communities collectively authorized their political and traditional authorities to sign the consent document after it had been read aloud. Additionally, it was clarified that this consent may be reiterated, if the communities so wish, in order to reaffirm their approval in different spaces such as the assemblies. From the outset, socialization activities were carried out, including the translation of documents into the native language and the creation of spaces for questions during assemblies. Topics addressed included key REDD+ concepts, the functioning of the mechanism, the history of the projects, the political and commercial context, the SDGs, and the Cancun Safeguards. This ensured clear, transparent, and understandable access to information. As the project holders are Indigenous communities, information on the program's policies, the scope of the	In the Safeguards 4 folder , all supporting documents are included regarding community participation in assemblies, project socialization sessions, and agreements between the parties.
The Project holder shall show evidence to demonstrate that the community was given the opportunity to participate in a real and effective manner from the feasibility and structuring phase of the Project.		

Requirement	Compliance	Evidence
	project, and the commitments undertaken between the parties is not only disclosed but also discussed and collectively built through group dialogues in the traditional spaces of the communities. This approach ensures that the information is accessible to everyone within their framework of understanding and language, while also being adapted and expressed according to their cultural concepts and principles. Furthermore, assemblies will be held as collective spaces for accountability and decision-making, with the participation of all community members, thereby reinforcing the transparency of the process.	
5.“That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;”		
Project holders shall work in coordination with the communities to conserve, protect, restore and use the ecosystems in a sustainable manner.	The activities proposed in the project have been evaluated to ensure that their impacts do not undermine the conservation of forests and their biodiversity. This is because the central purpose of the project is the conservation of forests and the biodiversity they harbor. To achieve this, activities from the governance and monitoring baskets are integrated to ensure the comprehensive care of the territory. Within the governance basket, cultural strengthening (C-2) and the construction/adaptation of malokas (C-1) encourage the transmission of knowledge and the practice of chagras, mingas, and mambeaderos, which contribute to maintaining species diversity and the sustainable use of resources. Within the monitoring basket, activities such as B-1 Development of community-based environmental management documents, B-2 Strengthening of community monitoring, B-3 Traditional knowledge of the territory, and B-4 Monitoring of plots and forests allow ecosystems to be observed, threats to be identified, and conservation actions to be generated.	See sections Carbon ownership and rights, and Project activities

Requirement	Compliance	Evidence
	These practices ensure the permanence of wildlife species, the control of deforestation and degradation, and reinforce sovereignty over resource use. In this way, the safeguard is fulfilled by integrating traditional knowledge and technical tools that guarantee the active conservation of forests and biodiversity.	
The activities undertaken within the framework of the Project shall observe the applicable environmental regulations on the use and exploitation of natural resources.	The project complies the applicable environmental regulations on the use and exploitation of natural resources.	See section 4 Compliance with Laws, Statutes and Other Regulatory Frameworks
The Project holder shall demonstrate that the Project has not incurred in activities intended to convert natural forests to other types of land use.	The project does not generate conversion of natural forests to other types of land use. The eligible area, which corresponds to forest cover according to the national definition at the start of the project and at least 10 years prior, is 264,625.45 hectares.	
6."Actions to address the risks of reversals".		
The Project holder shall take measures to reduce the risks of reversals.	An analysis is carried out of the reversal risks that the Project faces, or may face in the future, and the ways in which these could be mitigated. In addition, it is demonstrated that the actions will be sustained over time through agreements that ensure permanence, and risk management plans are developed to address potential reversals	See section 7 Risk management
7."Actions to reduce displacement of emissions".		
The project holder shall identify the leaks and their causes, and design strategies to: (i) ensure their monitoring and control, and (ii) minimize them.	.	See section 3.7 Leakage and non-permanence
The Project holder shall implement response protocols to	To comply with this safeguard, leakage maps were developed during the formulation workshops, which made it possible to identify the main threats of deforestation and degradation in the territory, as well as to define strategies for their continuous monitoring	

Requirement	Compliance	Evidence
identify leaks and how to control them.	through the activities included in the governance and monitoring baskets. The governance basket includes an activity aimed at improving the implementation of established agreements, such as statutes, which enables the exercise of self-governance and, at the same time, strengthens territorial control and monitoring. In addition, cultural strengthening activities help reinforce traditional strategies of control, surveillance, and care of the territory that have traditionally been carried out by the knowledge holders (Activities: C-1 Construction and adaptation of Malokas, C-2 Cultural strengthening, C-3 Governance, operations, and administration for monitoring agreements). For its part, the monitoring basket proposes the development of socio-environmental management documents that enhance sovereignty, control, and territorial monitoring. Likewise, territorial characterization and monitoring activities allow for measurements to assess ecosystem impacts. These also contribute to greater appropriation and understanding of the territory, as the monitoring basket interacts with the governance basket. (Activities: B-1 Community-based documents for environmental and cultural management of the territory, B-2 Adaptation and strengthening of community-based monitoring, B-3 Traditional knowledge of the territory, B-4 Monitoring of plots and forests).	

12 Special categories, related to co-benefits (optional)

Not applicable.

13 Grouped projects (if applicable)

Not applicable.

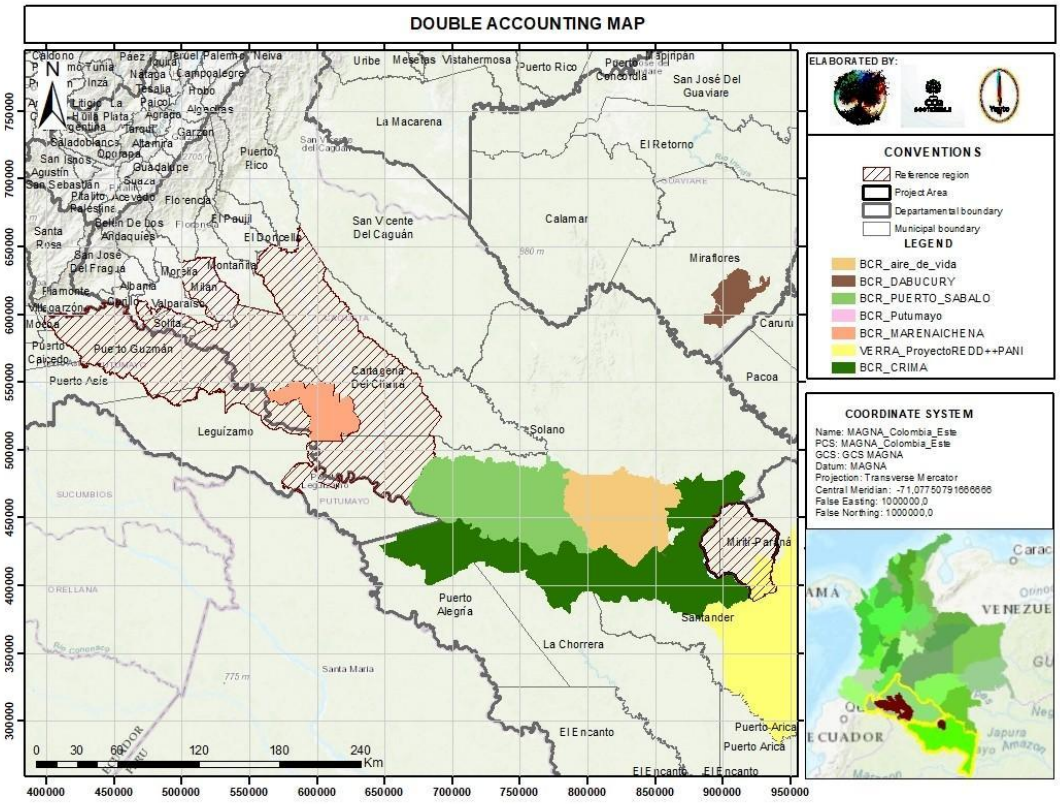
14 Other GHG program

Not applicable.

15 Double counting avoidance

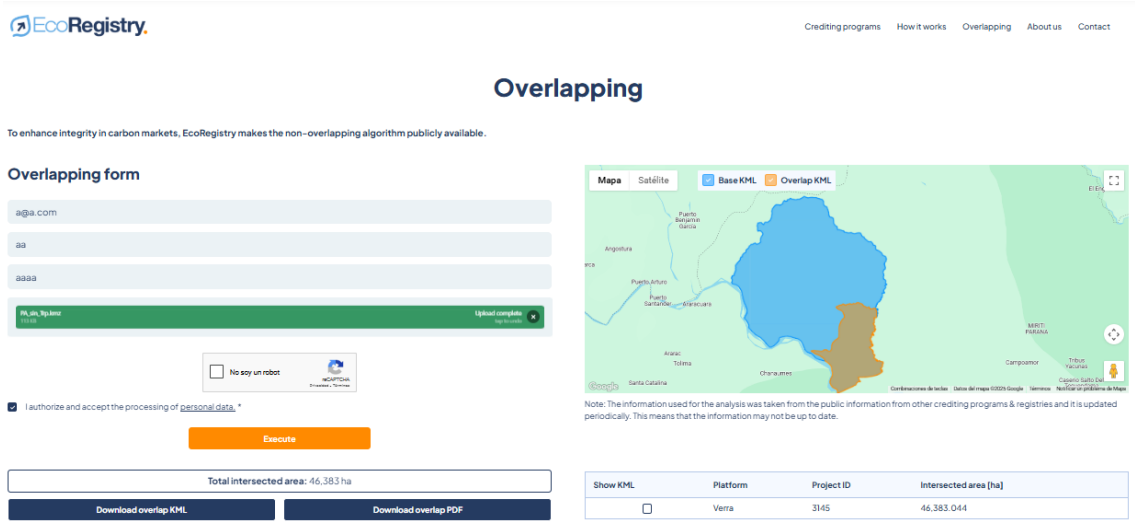
In accordance with the guidelines established by the Biocarbon Standard and the Tool called “AVOIDANCE OF DOUBLE COUNTING (ADC). Avoid double counting of emissions reductions or removals, version 3.0”, an exhaustive analysis was carried out to guarantee the absence of double counting on the territorial units included in the REDD+ NUNUYA DE VILLAZUL- AMENANAE Project, developed in the department of Amazonas, Colombia, during the period 2020–2025.Apply the relevant requirements with regard to double counting avoidance, considering the requirement that prohibits the accounting, issuance, and retirement of GHG mitigation results.

Figure 30. Double accounting map



The objective of the analysis was to demonstrate that the emission reductions estimated and reported by this project are not simultaneously registered or claimed in other GHG initiatives. To do so, a methodology based on Geographic Information Systems (GIS) was used, which included reviewing the project boundaries against records available on the main international and national carbon project platforms, including the Verra Registry (VCS), Gold Standard, Cercarbono, Biocarbon Standard, and ColCX (Figure 1). Additionally, the overlap verification tool published by Cercarbono was used.

Figure 31. Result of overlaps with EcoRegistry Overlapping.



During the spatial analysis, a partial overlap was identified between the Nonuya REDD+ Project and the PANI REDD+ Project (registered on the Verra platform), located in the area of the Nonuya Indigenous Reserve (Figure 2). This finding was communicated and verified, and as part of the corrective actions, the PANI REDD+ Project officially removed the overlapping areas from its registered geographic boundary. The exclusion was confirmed through a document review and analysis of the updated polygons on the Verra platform (Figure 3).

Figure 32. Reduction of areas of the REDD+ PANI project to avoid conflict with the Nonuya indigenous reserve.

4. PANI and CRIMA-Andoke de Aduche boundary: the indigenous territories bordering PANI and the CRIMA Association are the Nonuya Villa Azul Reservation and the Andoke de Aduche Indigenous communities, to endorse the territorial agreements two meetings were held, the first when the REDD++ CRIMA project was formulated in the BioCarbon Registry, CRIMA endorsed the territorial agreements with PANI and corrected the boundary of the project because in the first version of the polygon the area reached the limit of the Cahuinarì National Natural Park, this meeting was held on May 11, 2022 in Leticia and was attended by the president of the CRIMA Association Mr. Levy Andoke Andoke and Mr. Jarvis Vernanza Bora, the Minutes of this meeting contain the map with corrected area of the REDD project called "*CRIMA Predio Putumayo y Andoque de Aduche REDD+ Project*" validated and verified by the BioCarbon Registry at this time there is no overlap in the area of the two projects or conflict between boundaries.

PANI and CRIMA- Nonuya Villa Azul Limit: The second meeting was held on August 4, 2023, through Act 001, the ancestral territorial limits are endorsed with the Nonuya Villa Azul Reservation. However, due to conflict with the area, the area of the Nonuya Villa azul reservation is excluded from the project area.

Likewise, during the public comment phase of this project, the REDD+ PANI project was asked to update the KMZ file on its registration platform, so that the digitally reflected boundaries coincided with the exclusion of the areas of the Nonuya indigenous reserve (Figure 4), already corrected in its technical documentation (PDD and monitoring report).

Figure 33. Project Boundary Adjustment Request Email for Public Comments.


Gmail - Public comment on Project 3145 Proyecto REDD++ PANI https://mail.google.com/mail/u/7/?ik=4437fda8df&view=pt&search=al...

Gmail Proyecto REDD Nonuya de Villazul <redd.nonuya.amenanae@gmail.com>

Public comment on Project 3145 Proyecto REDD++ PANI
1 message

Proyecto REDD Nonuya de Villazul <redd.nonuya.amenanae@gmail.com> Tue, Jul 29, 2025 at 1:37 PM
To: secretariat@verra.org

Hello,

Dear Verra technical secretary, in order to submit public comments to the project in the subject line we send in attach files the comments from Nonuya de Villazul indigenous reservation authorities.

Contact name: Carlos Abondano
Country: Colombia
Organization name: Resguardo indígena Nonuya de Villazul
email address: redd.nonuya.amenanae@gmail.com

Best regards,

Carlos Abondano
Proyecto REDD+ Nonuya de Villazul

OVERLAP_public comments_withAnnex.pdf
3202K

As evidence of the verification process, there are comparative shapefiles, overlap maps before and after correction, screenshots of the platforms consulted, query logs, and a complete traceability of the GIS analysis. All this documentation is available

Based on the above, it is concluded that there is no risk of double counting in the NUNUYA DE VILLAZUL-AMENANAE REDD+ Project. In addition, ongoing monitoring of spatial boundaries will be carried out. The conflict areas were removed by the project previously registered in Verra, and the technical documentation for this project has been developed considering only the non-conflict areas.

16 Monitoring plan

The monitoring plan presents the procedures for adequate follow-up of project activities, compliance with safeguards and reduction of GHG emissions in the project area.

The plan foresees collecting relevant information and data for:

i. Verify applicability conditions listed in section 2 Applicability of the methodology.
ii. Monitor environmental policy related to the project and the guidelines for implementing Colombia's agreements and commitments to the UNFCCC.
iii. Verify changes in carbon stocks in selected reservoirs.
iv. Verify project emissions and leakage.
v. Verification of project implementation activities with compliance with the SDGs and co-benefits of the *Orquídea* category.
vi. Verification of compliance with social and environmental safeguards.

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

16.1 Description of the monitoring plan

The procedures for monitoring project emissions are described below. These procedures were taken from BCR0002 methodology version 4.0.

According to BCR0002 methodology version 3.1, deforestation in the project area during the monitoring period is estimated as follows:

Equation 11. Annual change in the area covered by forest in the project area.

$$CBS_{año} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{REDD+Proy,1} - A_{REDD+Proy,2}\right)$$

Where:

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

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{REDD+Proy,1}$= Forest area in the project area at the beginning of the monitoring period: ha

$A_{REDD+Proy,2}$= Forest area in the project area at the end of the monitoring period: ha

16.1.1.1 Annual deforestation in the leakage area

Annual deforestation in the leakage area is calculated using the following equation.

Equation 12. Annual change in the area covered by forest in the leakage area

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

Where:

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

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{f,1}$= Forest area in the leakage area at the beginning of the monitoring period: ha

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

16.1.1.2 Annual degradation in the project area

Annual primary degradation within the project area is estimated using the following equation:

Equation 13. Annual primary degradation in the project area

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

Where:

$CFP_{REDD+proy,año}$ = Annual primary degradation in the project area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{núcleo}$= Area of the project in core class, in the year of the beginning of the monitoring period; ha

$A_{núcleo-parche}$= Project area changing from core to patch, in the final year of the monitoring period; ha

And secondary degradation within the project area, by means of the following equation:

Equation 14. Annual secondary degradation in the project area

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

Where:

$CFS_{REDD+proy,año}$ = Annual secondary degradation in the project area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{perforado}$= Area of the project in class drilled, in the year of the beginning of the monitoring period; ha

$A_{perforado-parche}$= Project area changing from drilled to patch, in the final year of the monitoring period; ha

16.1.1.3 Annual degradation in leakage area

The following equation is used for the annual degradation in the leakage area:

Equation 15. Annual primary degradation in the area of leakage

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

Where:

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

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{núcleo,f}$= Leakage area in core class, in the year of the beginning of the monitoring period; ha

$A_{núcleo-parche,f}$= Leakage area changing from core to patch, in the final year of the monitoring period; ha

And,

Equation 16. Annual secondary degradation in the area of leakage

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

Where:

$DFP_{f,año}$ = Annual secondary degradation in the leakage area; ha

t_2 = End year of monitoring period

t_1= Initial year of the monitoring period

$A_{núcleo,f}$= Area of leakage in perforated class, in the year of the beginning of the monitoring period; ha

$A_{núcleo-parche,f}$= Area of leakage changing from borehole to patch, in the final year of the monitoring period; ha

16.1.2 GHG emissions in the monitoring period

The variables used to monitor the activities are presented below.

16.1.2.1 Deforestation

The annual emission associated with deforestation in the project area is estimated according to the following equation.

Equation 17. Annual emission in the project area

$$EA_{REDD+proy,año} = DEF_{REDD+proy,año} \, x \, TCO_{2eq}$$

Where:

$EA_{REDD+proy,año}$ = Annual emission in the project area; tCO_2 ha^{-1}

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

TCO_{2eq} = Total carbon dioxide equivalent; tCO_{2e} ha^{-1}

And the annual emission associated with deforestation in the leakage area through:

Equation 18. Annual emission in the leak area

$$EA_{f,año} = (DEF_{f,año} \text{ x } TCO_{2eq}) - EA_{lb,f,año}$$

Where:

$EA_{f,año}$ = Annual emission in the leakage area; tCO_2 ha^{-1}

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

TCO_{2eq} = Total carbon dioxide equivalent; tCO_{2e} ha^{-1}

$EA_{lb,f,año}$ = Annual emission from deforestation in the leakage area in the baseline scenario; tCO_{2e}

16.1.2.2 Degradation

The annual emission from degradation within the project area is calculated using the following equation.

Equation 19. Annual emission in the project area for the monitored period

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

Where:

$EA_{REDD+proy,año}$ = Annual emission in the project area for the monitored period; tCO_2 ha^{-1}

$DFP_{REDD+proy,año}$ = Historical annual primary degradation in the project area; ha

$DFS_{REDD+proy,año}$ = Annual historic secondary degradation in the project area; ha

$DTBCO_{2eq,1}$= Dióxido de carbono equivalente contenido en la diferencia biomasa total por hectárea en la clase de degradación primaria; tCO_{2e} ha^{-1}

$DTBCO_{2eq,2}$= Dióxido de carbono equivalente contenido en la diferencia biomasa total por hectárea en la clase de degradación secundaria; $tCO_{2e}\ ha^{-1}$

16.1.3 Quantification of project emission reductions

The equations needed to quantify the emissions reduced by the implementation of the project are presented below.

16.1.3.1 Deforestation

The following equation is used for emissions reduced by avoided deforestation.

Equation 20. Annual emission in the project area for the monitored period

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

Where:

$RE_{REDD+proy,año}$ = Annual emission in the project area for the monitored period; $tCO_2\ ha^{-1}$

t_2 = End year of monitoring period; year

t_1= Initial year of the monitoring period; year

$EA_{DEF,lb,año}$ = Annual emissions from deforestation in the baseline scenario; $tCO_{2e}\ ha^{-1}$

$EA_{DEF,REDD+proy,año}$ = Annual emission of deforestation in the project area for the monitored period; $tCO_{2e}\ ha^{-1}$

$EA_{DEF,f,año}$ = Annual emission from deforestation in the leakage area for the monitored period.; $tCO_{2e}\ ha^{-1}$

16.1.3.2 Degradation

The following equation is used for degradation.

Equation 21. Annual emission in the project area for the monitored period.

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

Where:

$RE_{DEG,REDD+proy,año}$ = Annual emission in the project area for the monitored period; $tCO_2\ ha^{-1}$

t_2 = End year of monitoring period; year

t_1= Initial year of the monitoring period; year

$EA_{DEG,lb,año}$ = Annual emission of degradation in baseline scenario; tCO_{2e} ha^{-1}

$EA_{DEG,REDD+proy,año}$ = Annual emission of degradation in the project area for the monitored period; tCO_{2e} ha^{-1}

$EA_{DEG,f,año}$ = Annual emission of the degradation in the leakage area for the monitored period; tCO_{2e} ha^{-1}

16.2 Data and parameters determined at registration and not monitored during the quantification period, including default values and factors

The monitoring of the project boundaries will be carried out using Geographic Information Systems (GIS) tools based on the processing of official information issued by IDEAM with forest and non-forest cover, following the technical specifications required for cartographic products. Consequently, all the information on the project boundaries and its follow-up and monitoring is stored in a GeoDataBase, which is attached in the 08_SIG.

16.3 Data and parameters monitored

Following the guidelines of the methodological document BCR0002 version 4.0, in its section 14.2 Monitoring the implementation of REDD+ activities and considering the large number of tables associated with this monitoring plan, the attached Excel file presents all measures of the monitoring plan for the project activities, including compliance with the Sustainable Development Goals (SDGs) (See 04_ACTIVIDADES REDD+/Plan Monitoreo Indicadores Proyectos.

16.4 Monitoring of REDD+ safeguards

Following the guidelines of the methodological document BCR0002 version 3.1, section 14.3, a REDD+ safeguards monitoring systematization tool was developed, which is presented in the annex (see 06_SALVAGUARDAS ODS COBENEFICIOS Y CATEGORIA ORQUIDEA/SALVAGUARDAS/ Cumplimiento de Salvaguardas-RM1.xlsx)

16.5 Monitoring of REDD+ project permanence

Following the guidelines of the methodological document BCR0002 version 4.0, in section 14.4, the Project identified the possible risks and prepared a risk management plan called Risk Management Plan MI-NER v1, which can be consulted in the attached information (see 07_PDD/TOOLS/EVALUACIÓN_IMPACTOS).

Also, in case of forest fires as a permanent risk, the following table is presented to report the monitoring and, in case of forest fires, a format for their registration and follow-up was prepared (see 09_ESTIMACIONES CARBONO/Perturbaciones/Formato_Reporte_Incendios_v1.pdf).

Data / Parameter	Presence or absence of forest fires
Unit	Binary answer (Yes or No)
Source	It comes from the forest fire report format and the measurements come from the processing and analysis of forest cover change maps generated by the Forest and Carbon Monitoring System (SMByC). For years where the aforementioned inputs are not available, a cartographic processing is performed for the classification of satellite images according to the availability of remote sensing sources.
Monitoring equipment or instrument	From forest fire report format and measurements are from remotely sensed data provided by IDEAM, FIRMS or other sources) - GIS Software
Justification and Purpose	Estimated emission reductions during each monitoring period
Comments	In the event of fires, it is necessary to measure and report the emissions associated with all GHGs.

16.6 Quality control and quality assurance procedures

The project has elaborated from the guidelines of the methodological document BCR0002 version 4.0, in its section 14.4, the Quality Control/Assurance Control (QA/QC) tool (see 14_GESTION DE LA INFORMACION/Control Calidad/ 2024_Check list_GC_CC_v1.xlsx).

With this tool it is possible to follow up and review the processing of the information.

For the recording and filing system of the data, as established in the protocol, the organization responsible for the project must have a database that includes the information presented in Table 46. Information management.

Table 46. Information management.

Information required	Location
Project area	08_SIG
Geographic coordinates	08_SIG
Vegetation cover at the beginning of forestry activities.	08_SIG
Information on tenure and land use rights.	02_TENENCIA DE LA TIERRA
Species(s).	Not applicable – Conservation program
Provenance and production of plant material.	Not applicable - Conservation program
Objective of the forestry activity (e.g., conservation, recovery, production, etc.).	Conservation
Management cycle of the species(es) and duration of forestry activities.	Not applicable - Conservation program
Date of beginning of forestry activities.	03_FECHA DE INICIO
Silvicultural management	Not applicable - Conservation program

Information required	Location
Annual growth in biomass, if periodic measurements are taken.	Not applicable
Parameters related to biomass conservation to carbon variation according to the selected methodology.	Not applicable - Conservation program
Results of the quantification of removals.	09_ESTIMACIONES CARBONO
Disruption events (if present)	If submitted, they will be collected and stored in the folder: 09_ESTIMACIONES CARBONO\Perturbaciones
Monitoring	11_REPORTE MONITOREO

In addition to the information presented in the table above, the organization will have within the database a folder called 12_*Histórico de Certificaciones* to track the avoided removals assigned to the project as a result of the verification processes, to ensure that no double counting occurs. The file name must contain the monitoring delivery date and the verification number.

All information in the database will be reviewed periodically to ensure compliance with the proposed goals and that the information is accurate. Likewise, in the event that errors or omissions are found in the reviews, these will be dealt with by generating a report of the finding, after which a respective adjustment must be made and the appropriate person must be notified. Having the documentary information database makes it possible to generate an adequate document control, including those corresponding to removals and compensation issued for such removals.

Appendix 1. Post-registration changes summary.