

# PARAMUNO PROJECT 1

Document Prepared by The Cataruben Foundation

Date of issue (version 2.4 of 01/25/2024)

<b>Monitoring Report (Version 2.4)</b>	
<b>Project name</b>	PARAMUNO Project 1
<b>Project ID BCR</b>	BCR-CO-635-14-003 BCR-CO-635-14-003
<b>Date of registration of the project activity</b>	05/11/2022
<b>Project owner</b>	The Cataruben Foundation
<b>Project Holder's contact information</b>	<p><b>María Fernanda Wilches</b> General Manager</p> <p><b>Sandra Duarte Chaparro</b> Superleader Carbon</p> <p><b>Daniela Orjuela</b> Project Director</p> <p><a href="mailto:paramuno@cataruben.org">paramuno@cataruben.org</a> Tel. 3204435972 / 3203108839 Cra. 20 #36 04 Yopal - Casanare</p>
<b>Version number of the Project Document applicable to this monitoring report</b>	version 2.4 of 01/25/2024
<b>Methodology applied</b>	<p>Methodological Document AFOLU Sector / BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects. Version 3.1. 15 September 2022</p> <p>Methodological Document AFOLU Sector / BCR0003 Quantification of GHG Emission Reductions- Activities that avoid land use change</p>

<b>Monitoring Report (Version 2.4)</b>	
	<i>and improve management practices of peatlands and other wetlands, in high mountain ecosystems of Projects Version 3.0. August 31, 2022</i>
<b>Project Location (Country, Region, City)</b>	<p>Colombia - Andean Region.</p> <p>Indicate the city(s) in which the project sites are located.</p> <ul style="list-style-type: none"> <li>• Boyacá: Arcabuco, Chinavita, Duitama, Gachantiva, Paez, Pajarito, Paya, San Eduardo, Santa Maria and Sogamoso.</li> <li>• Caldas: Pácora and Salamina.</li> <li>• Casanare: Aguazul, Chameza, Monterrey, Pore, Sacama, Tamara and Yopal.</li> <li>• Cauca: Inza, Purace, San Sebastian and Totoro.</li> <li>• Cundinamarca: Guasca, Venecia, Choachi, Paratebueno and Ubaque.</li> <li>• Norte De Santander: Salazar and Toledo.</li> <li>• Quindío: Córdoba, Génova and Salento.</li> <li>• Santander: Bolívar, Carcasi, Charalá, Gambita, Mogotes and Zapatoca.</li> <li>• Tolima: Chaparral, Rioblanco, Roncesvalles and San Antonio De Calarma.</li> <li>• Valle Del Cauca: El Cerrito, Guadalajara De Buga, Jamundí, Sevilla and Tuluá.</li> </ul>
<b>Project start date</b>	01/08/2017
<b>Period for quantification of GHG reductions/removals</b>	(01/08/2017 a 31/07/2037)
<b>Tracking period number</b>	01
<b>Monitoring period</b>	01/08/2017 - 31/12/2021
<b>Number of emission reductions or removals achieved by the project in this monitoring period.</b>	<p>Total reductions (2017-2021): <b>477,625 tCO<sub>2</sub>e</b></p> <p>Annual average (2017-2021): <b>95,525 tCO<sub>2</sub>e</b></p>

<b>Monitoring Report</b> <b>(Version 2.4)</b>	
<b>Contribution to the Sustainable Development Goals</b>	<i>SDG 6: Water and Sanitation SDG 13: Climate action SDG15: Life of terrestrial ecosystems</i>
<b>Special category, related to co-benefits</b>	<i>Orchid</i>

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## 1. General description of the project

*Paramuno Project 1 aims to contribute to climate change mitigation through the implementation of conservation measures, planning and comprehensive actions in the landscape, including the transition to more sustainable activities in high mountain ecosystems in the Colombian Andes (high Andean forests and Paramo). These measures were implemented to mitigate forest deforestation and land use change. Likewise, we were able to implement measures to monitor the conservation of fauna and flora, conservation and protection of water resources in 154 private properties enrolled in the project.*

*In the period from 2017 to 2021, Paramuno Project 1 has achieved a significant reduction of 477,625 tCO<sub>2</sub>e. This achievement is based on the meticulous application of methodological documents of the AFOLU sector, specifically BCR 0002 quantification of GHG emission reductions of REDD+ projects in its version 3.1, and BCR 003 for the quantification of GHG reductions activities that avoid land use change and improve management practices in peatlands and other wetlands, in high mountain ecosystems.*

*These methodologies are supported by the BCR standard in its version 3.2, and the implementation of its tools has been crucial to ensure quality in the management of greenhouse gas emission reductions.*

### 1.1 Sectoral scope and type of project

#### 1.1.1 Type of project

*Paramuno Project 1, is classified in the AFOLU sector, which includes REDD+ activities and activities focused on the high mountain ecosystem. The Project is eligible under the scope of the BCR Standard by meeting one or more of the following conditions mentioned in Table 1.*

*Table 1. Scope of the standard*

<i>The scope of the BCR Standard is limited to:</i>	
<i>The following greenhouse gases, included in the Kyoto Protocol: Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O).</i>	<b>X</b>
<i>GHG projects using a methodology developed or approved by BioCarbon Registry, applicable to GHG Removal Activities and REDD+ activities (AFOLU Sector).</i>	<b>X</b>
<i>Quantifiable GHG emission reductions and/or removals generated by the implementation of GHG Removal Activities and/or REDD+ activities (AFOLU Sector).</i>	<b>X</b>

<i>The scope of the BCR Standard is limited to:</i>	
<i>GHG projects using a methodology developed or approved by Biocarbon Registry, applicable to activities in the energy, transportation and waste sectors.</i>	
<i>Quantifiable GHG emission reductions generated by the implementation of activities in the energy, transportation and waste sectors.</i>	

*Source: BioCarbon Registry, 2023.*

### *1.2 Project start date*

*Paramuno Project 1 started on August 1, 2017.*

### *1.3 Project quantification period*

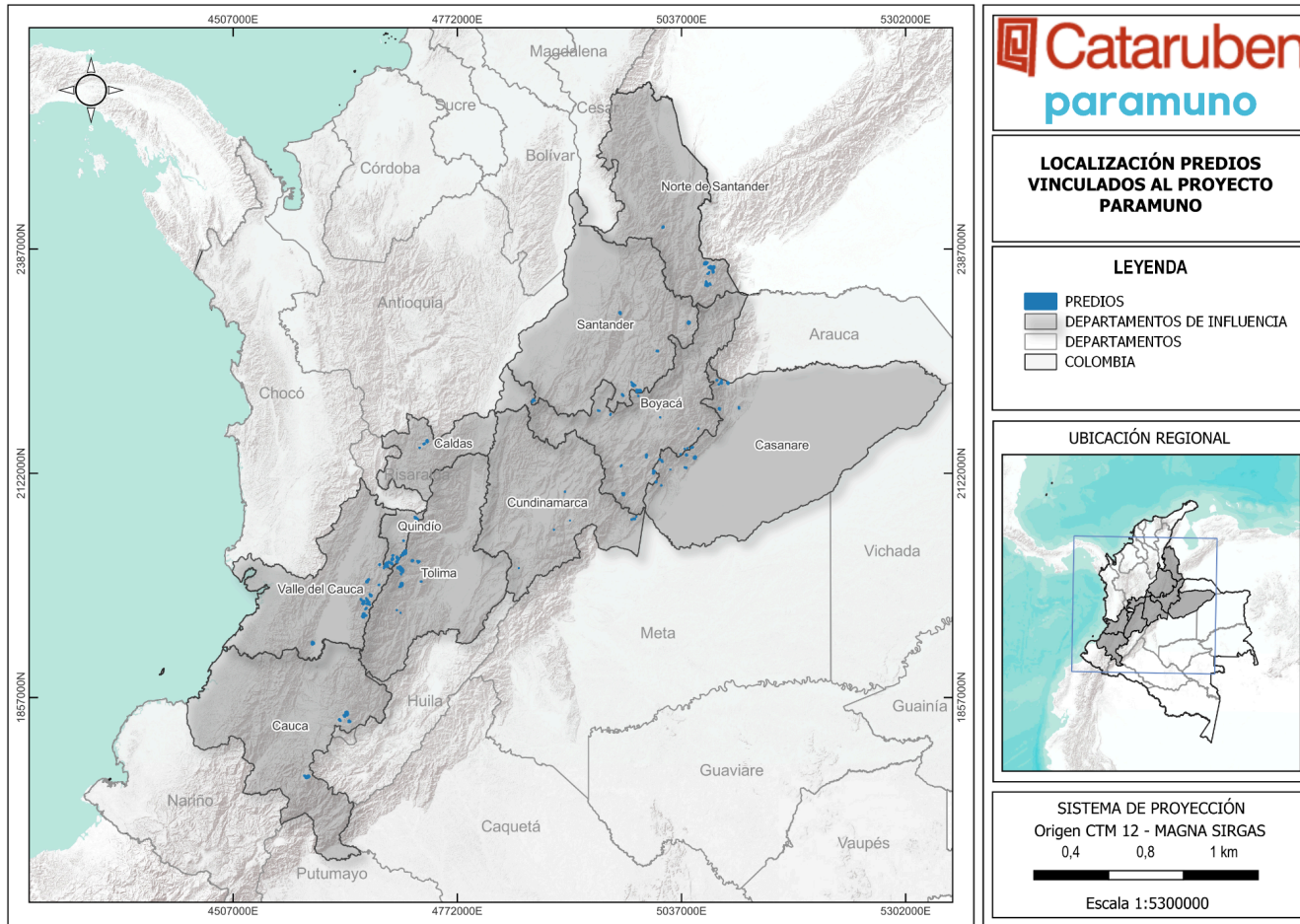
*According to the BCR Standard guidelines (section 10.5) for REDD+ projects and the AFOLU sector, the quantification of GHG emission removals and/or reductions contemplates the following periods:*

- Period of accreditation: August 01, 2017 - July 31, 2037.*
- Verification period 1: August 01, 2017 - December 31, 2021.*

### *1.4 Project location and Project boundaries.*

*Paramuno Project 1 is located in the Andean Region of the Colombian territory, which is characterized by a wide variety of high mountain ecosystems located in the central and eastern mountain ranges. These landscapes, which include montane forests, cloud forests, high Andean forests and Paramos, among others, are found in the departments of Boyacá, Caldas, Casanare, Cauca, Cundinamarca, Norte de Santander, Quindío, Santander, Tolima and Valle del Cauca, as shown in **image 1**.*

Image 1. Location map of the Project.



Source: The Cataruben Foundation, 2023.

The following are the **154** enrolled properties of private landowners participating in **PARAMUNO Project 1**, listed by department, municipality, rural district and property. Additionally, the KML of the coordinates of the area of [intervention](#) and [influence](#) of the project are attached.

Table 2. Location of the properties enrolled in the project

DEPARTMENT	MUNICIPALITY	VEREDA	PROPERTY NAME
VALLE DEL CAUCA	EL CERRITO	THE MORAL	THE PAILON
		THE COFFEE	THE PENSIL
		TENERIFE	LA LOMA
		TOCHE	THE HEART
		TENERIFE	THE SUMMIT
		TENERIFE	THE SUMMIT
		TENERIFE	LOT
		EL CERRITO	THE JUNGLE
		EL CERRITO	THE ALBANIA
		TENERIFE	LOT 1 BETANIA OR LA ITALIA
		TENERIFE	ISABELA
	GUADALAJARA DE BUGA	RIO LORO	LA MELBA PARAJE LAS HERMOSAS
		EL ROSARIO	THE PRADERA
		EL ROSARIO	SPRING
		THE COFFEE	LA TORRE LOT
	JAMUNDÍ	JAMUNDÍ	LOT CALLED HACIENDA LOS ALAMOS
		JAMUNDÍ	LOT OF LAND CALLED HACIENDA AGUASUCIA
	PALMIRA	TOCHE INSIDE BEDBUG	BLUE SKY
		PALMIRA	LOT M BEFORE TODAY BELLAVISTA

DEPARTMENT	MUNICIPALITY	VEREDA	PROPERTY NAME
		TOCHE	LAS VEGAS
		COMBIA	RURAL FARM CALLED HACIENDA RIVERIA
		TOCHE	LOT OF LAND WITH HOUSE
	SEVILLE	CRYSTALS	THE TACHIRA
		JOY	LA GAITANA
	TULUA	SANTA LUCIA	THE BREEZES
		CULEBRAS	PARAGUAY
	TOLIMA	CHAPARRAL	SAN JOSE DE LAS HERMOSAS
THE BEAUTIFUL			SANTA INÉS PROPERTY
RIOBLANCO		MANZANARES	LA LUNA PROPERTY
		THE DELIGHTS	PROPERTY TRES ESQUINAS AGUAS CLARAS
RONCESVALLE		THE COCO	EL CHORLO FRACTIO N EL CHORLO RONCES VALLES
		THE COCO	LA ALBANIA FRACCIÓN N LA CAMELIA RONCES VALLES
		THE COCO	PLOT N 7
		CHILI	HOPE
		SANTA ELENA	HOLANDA FRACCIÓN CHILI ALTO RONCESVALLES

DEPARTMENT	MUNICIPALITY	VEREDA	PROPERTY NAME
		SUCKERS	VACANT LAND OF THE NATION PARAJE CHUPADERO
		LARGE GORGE	BRAMADERO LOT
		LARGE GORGE	THE TRIBUNE FRACTION
		LARGE GORGE	NAGASAKI
		LARGE GORGE	THE EMERALD
		LARGE GORGE	THE BREEZES
		LARGE GORGE	THE STATION AND STATION N 2
		DIAMOND CHILI	SOLITUDE
		SAN ANTONIO DE CALARMA	THE DIAMOND
QUINDÍO	PIJAO-CÓRDOBA .	LA PALMERA	ARGENTINA LOT
	GÉNOVA	GRAY RIVER	LA COCA LOT
		SAN JUAN ALTO	LAS COLINAS LOT
		GRAY RIVER	LA ESPERANZA LOT
		ST JOHN'S	LA MESETA LOT
		ST JOHN'S	EL BOSQUE LOT
		ST JOHN'S	LOT LA RIVERA 1 LOT
		SAN JUAN ALTO	THE SWALLOWS
		SAN JUAN ALTO	EL PANDO LOT
		ST JOHN'S	COSTA RICA LOT
		COSTA RICA	LOS ALPES LOT
		SAN JUAN ALTO	LAS PALMAS LOT
		ST JOHN'S	LA PLAYA LOT
		ST JOHN'S	BUENAVISTA LOT

<b>DEPARTMENT</b>	<b>MUNICIPALITY</b>	<b>VEREDA</b>	<b>PROPERTY NAME</b>
		SAN JUAN ALTO	LOT LA CUMBRE
		RED RIVER	LOT SERVIA
		PEDREGALES	LOS ARBOLITOS LOT
		ST JOHN'S	LA DORADA LOT
		SAN JUAN ALTO	LOT SAN BERNARDO
		PEDREGALES	LOT AGUA CLARA VALLE LINDO
		ST JOHN'S	LOT PLOT 1 EL MIRADOR
		LA PALOMA	EL PENSIL LOT
		PEDREGALES	CONQUEST LOT
	SALENTO	RIO ARRIBA	THE TREES
CAUCA	INZÁ	THE ALPS	HOPE
	SAN SEBASTIÁN	VALENCIA	THE ANDES
	TOTORO	CHUSCALES	CORNETEROS
		MALVAZA	LOT 1
		MALVAZA	THE MOUNTAIN
		MALVAZA	LOT 2 ALASKA
CALDAS	PACORA	THE VIRGINIA	LAS BRISAS LA VIRGINIA FARM
	SALAMINA	PORTACHUELO	CANDELARIA
		PORTACHUELO	LOT OF LAND PROPERTY NUMBER ONE
		LOS MOLINOS	THE BANKRUPTCY
CUNDINAMARCA	PARATEBUENO	VILLAPACHELLY	LOT NO 3
		VILLAPACHELLY	MI RANCHITO FARM LOT
		VILLAPACHELLY	THE ACACIAS
		SAN MANUEL	LOS

DEPARTMENT	MUNICIPALITY	VEREDA	PROPERTY NAME
			TRONQUITOS LOT
	GUASCA	THE SANCTUARY	SAN ANTONIO
	VENICE	THE MERCEDES	LAS PALMAS
	CHOACHÍ	CHATASUGA	EL ALGARROBO LOT
	UBAQUE	BELEN	FINCA CARDONAL
BOYACA	ARCABUCO	RUPAVITA	LOT N 2
	CHINAVITA	DITCH ABOVE	CLEAR WATER
			THE TALK SHOW
	DUITAMA	TUTAZA	SAN ANTONIO
	GACHANTIVA	IGUA DE PAEZ	THE BOX OF SAN MARTIN
		IGUA DE PAEZ	THE BRAMADERO
	PAEZ	GUAMAL	LA FLORIDA
		GUAMAL	EL PORVENIR 1
		MONSERRATE	THE TULIPPANS
		GUAMAL	EL PORVENIR 2
	PAJARITO	USAMENA	LOT 2 LA ESPERANZA
		USAMENA	LOT 1 LA ESPERANZA
		MONSERRATE	NO ADDRESS BUENAVISTA
	PAYA	EL GUACAL	LA ESPERANZA FARM
	SAN EDUARDO	CARDOZO	THE CORDILLERA
	SANTA MARIA	BLACK CAÑO	BUENAVISTA PART
BLACK CAÑO		SAN PEDRO	
SOGAMOSO	OMBACHITA	EL RUCHICAL LOT	
SANTANDER	CHARALÁ - HOLM OAK	CALF RAVINE	RNSC HEART OF THE MOUNTAIN



DEPARTMENT	MUNICIPALITY	VEREDA	PROPERTY NAME	
	MOGOTS	SAN JOSE	SAN JOSÉ FARM TODAY "EL CAIRO".	
	CARCASI	BABEJA	LA VALEROSA	
	BOLIVAR	ERMITAÑO	ERMITAÑO	ALTAMIRA RURAL PROPERTY
		ERMITAÑO	ERMITAÑO	EL CAMINO RURAL PROPERTY
		THE ERMITAÑO	THE ERMITAÑO	EL EDEN RURAL PROPERTY
		THE ERMITAÑO	THE ERMITAÑO	LA MONTAÑITA RURAL PROPERTY
		THE ERMITAÑO	THE ERMITAÑO	RURAL PROPERTY LAS PALMAS
		HERMITAÑO	HERMITAÑO	RURAL PROPERTY VISTA HERMOSA
	CHARALÁ	CAÑAVERALES	CAÑAVERALES	LOT 7 SEVEN
		VIROLIN	VIROLIN	NEW WORLD
	ZAPATOCA	SAN JAVIER	SAN JAVIER	LA FLORESTA
		SAN JAVIER	SAN JAVIER	THE PARAMO OF DON TORIBIO
	GAMBITA	CHINATA	CHINATA	RURAL PROPERTY PIE DE FIMIQUE
		THE BOARD	THE BOARD	RURAL LOT HONDURA
		THE BOARD	THE BOARD	EL ROBLEGAL OR SANTA BÁRBARA LOT
	NORTH OF SANTANDER	SALAZAR	CAMPO NUEVO NORTE	THE PROVIDENCE
			THE YELLOW	LOT LA VICTORIA LA AMARILLA
TOLEDO		SANTA ISABEL	PALO COLORADO 2	

DEPARTMENT	MUNICIPALITY	VEREDA	PROPERTY NAME
		SANTA ISABEL	RURAL PROPERTY EL PARAMO 2
		SAMARIA	LA SELVA RURAL PROPERTY
		SARARITO	EL PORVENIR RURAL PROPERTY
		MIRALINDO	DON NEMECIO RURAL PROPERTY
		SANTA RITA	LA PAZ
		ALTO DEL ORO	TEBAIDA RURAL PROPERTY
		SANTA RITA	EL PINAL RURAL PROPERTY
CASANARE	BLUE WATER	EL SALITRE	NO ADDRESS CARTAGENA
		ALTO CUNAMA	MONSERRATE LOT
		SAN IGNACIO	NO ADDRESS BACKWATER
		CUNAMA	NO ADDRESS SAN IGNACIO
	CHAMEZA	OLD WORLD	EL PORVENIR
		MALPASO	FORGETTING
		CENTER	THE CHEAT
		OLD WORLD	PROGRESS
		LA PALMA	SAN PEDRO
		NORTH CENTER	THE PROVIDENCE
		NORTH CENTER	SAN FRANCISCO FARM
	MONTERREY	NORTH CENTER	THE ACACIAS
		PIÑALERA	SAN JOSE
	PORE	THE PLEASURE	PALMIRA
		TASAJERAS	THE SITES

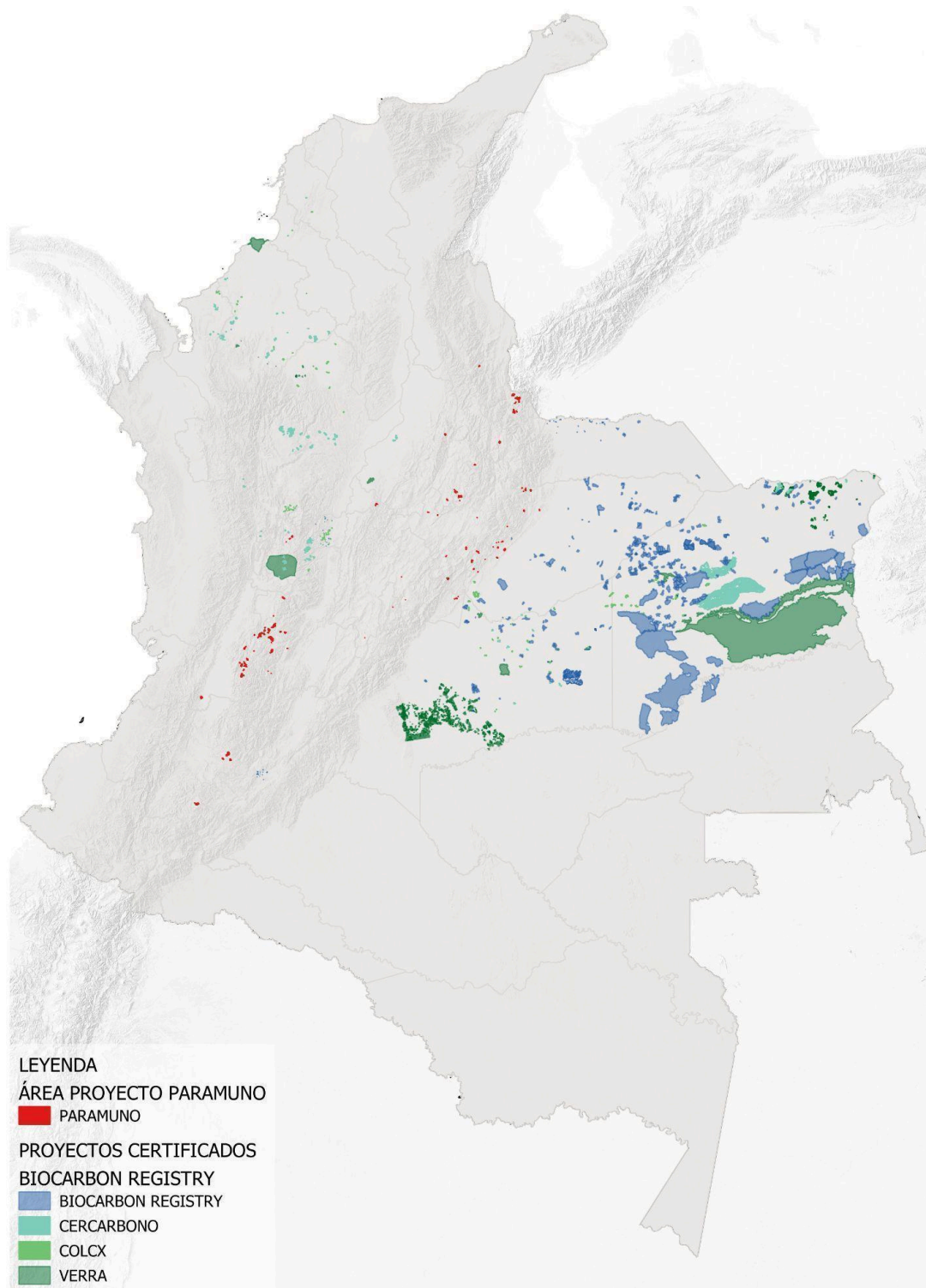
DEPARTMENT	MUNICIPALITY	VEREDA	PROPERTY NAME
	SACAMA	GUIVARIN	LA LAGUNA
		SABANALARGA	THE APPLE TREE
		MONTE OLIVO	THE EMERALD
		MACUEQUE	BELLA VISTA
		MOUNT LOS OLIVOS	LA FLORIDA
		MONTE OLIVO	THE DELIGHTS
	TAMARA	ECCEHOMO	THE LAGOONS
	YOPAL	VOLCANERA	BRISAS DEL CHARTE FARM
		VOLCANERA	FLOR AMARILLOS FARM

1.4.1 Area of influence of other projects in the area

In order to avoid double counting the project holder executes a spatial analysis on the geographical boundaries of the project. This analysis consists of 3 phases. i. Mapping of the territory for the identification of GHG mitigation projects, this phase concludes that to date there are 228 projects in the national territory with cartographic information, associated to the following carbon standards: Biocarbon Registry (56), COLCX (33), Cercarbon (61) and VERRA (78) ([Review of Standards-Paramuno Project 1](#)). ii. Download the spatial boundaries (spatial information) of each project from the official page of the standard and its corresponding storage in [vector format](#) in a spatial database [SIG Geodatabase](#). Third and finally, using the intersection algorithm of ArcGIS software, the vector files representing the areas of Paramuno Project 1 are superimposed with the vector file of other projects. The result is an empty shapefile indicating that the project areas are not enrolled with other projects or GHG mitigation targets. That is, there is NO double counting for the project. The corresponding analysis is stored in [Map Package](#) available for viewing in the ArcGIS Desktop - [ArcGIS Pro](#) platform.

**Image 2 shows** the spatial location of the carbon projects of the different standards as well as the geographical limits of the Paramuno Project 1 areas (red color).

Image 2. Carbon projects in the Paramuno project area of influence Project 1.



Source: The Cataruben Foundation, 2023.

### *1.5 Summary description of the status of project implementation*

*Under the guidelines of REDD+ and HME methodologies, Paramuno Project 1 has designed and implemented prevention and mitigation measures aimed at reducing land use change in high mountain ecosystems, specifically in the Paramo, as well as addressing deforestation and forest degradation. These measures, focused on the monitoring and conservation of flora and fauna, as well as the protection of water resources, seek to describe in detail the methodologies, frequencies, percentages of progress and compliance. It should also be noted that as a result of the implementation of these activities, a reduction of 477,625 tCO<sub>2</sub>e has been achieved in the period from 2018 to 2021.*

*The implementation status for each HME activity is presented in detail in **section 13.2**. The following table summarizes the degree of implementation of each activity.*

Summary description of the implementation status of HME project activities.

Component	ID	Activity	Monitoring methodology	Frequency of monitoring	Implementation dates	Percentage of compliance in the reporting period (2017-2021).	General progress of the activity
Implement land use change prevention and mitigation measures.	C-1	Satellite monitoring of land use change.	Analysis of vegetation cover and land use change in the areas of influence of the project using satellite images as input.	Every four (4) years	It has been carried out on an ongoing basis as of 2017.	90 %	20,0 %
	C-2	Manage land planning and promote the implementation of sustainable production practices.	Management report for the development of property planning (three phases): 1. Property characterization. 2. Generation of a property plan document. 3. Follow-up on the implementation of the property plan.	Every five (5) years	The operation of this activity starts from August 1, 2017 with the first visit of recognition and social characterization of the beneficiary household, as presented in the <u>relationship date of start of project activities for each Property</u> .	91.30%	13,7 %
	C-3	Conduct a training cycle to strengthen knowledge on high mountain ecosystem conservation and governance structures.	Training protocol describing the topics covered, number of people trained and number of women trained, with their respective attendance lists. A training cycle will be carried out based on the identified gaps such as ecosystem services, land planning, ecological restoration and climate change, etc.	Every two (2) years	The first training was held on August 6, 2017. However, the operation of the same begins before with the organization and preparation of the logistics of the same.  The supports of the activities carried out can be found in the following Annex <u>2.1.1.3</u> .	100%	30,0 %

<b>Component</b>	<b>ID</b>	<b>Activity</b>	<b>Monitoring methodology</b>	<b>Frequency of monitoring</b>	<b>Implementation dates</b>	<b>Percentage of compliance in the reporting period (2017-2021).</b>	<b>General progress of the activity</b>
	C-4	Hot spot monitoring report identified through the IDEAM hot spot platform.	Hot spot monitoring report identified through the IDEAM hot spot platform.	Permanent	It has been carried out on an ongoing basis as of 2017.	100%	25,0 %
Implement flora and fauna monitoring and conservation measures.	B-1	Monitoring threatened ecosystems	Threatened ecosystem layers were obtained from: Update of the Red List of Terrestrial Ecosystems of Colombia: Tool for Ecosystem Management. Etter, A., Andrade, A., Saavedra, K. and J. Cortés. (2018). Alexander von Humboldt Biological Resources Research Institute.	Every 5 years	Realized with information from 2018 IUCN	100%	25,0 %
	B-2	Participatory wildlife monitoring	This activity is divided into three phases of execution: 1. Structuring a logistical model to validate the implementation of participatory ecoacoustic monitoring in some properties. 2. Sampling is carried out with each landowner on his or her Property. 3. The acoustic data will be analyzed by designated	Every 5 years	No monitoring activities have been initiated, but a monitoring plan has been submitted.	12.50%	12,5 %

Component	ID	Activity	Monitoring methodology	Frequency of monitoring	Implementation dates	Percentage of compliance in the reporting period (2017-2021).	General progress of the activity
			professionals.				
	B-3	Zoning areas with presence of endangered species	List of threatened species taken from: IUCN 2023. The IUCN Red List of Threatened Species. Version 2022-2.	Every 5 years	Based on information from 2018 - 2021 with SIB GBIF reports.	100%	25,0 %
Implement measures for the conservation and protection of water resources.	A-1	Plans for efficient use and saving of water on the Property.	Characterization through ODK surveys to gather information on water resource management.	every 5 years	The operation of this activity begins on January 3, 2021 with the social, environmental, economic and productive characterization.	25%	25%
	A-2	Develop a conservation plan for areas of importance for water resources.	Characterization through ODK surveys to gather information on water resource management.	every 5 years	The operation of this activity began on April 12, 2021.	23%	23%

Source: The Cataruben Foundation, 2023



**Section 13.3 presents** a detailed status of implementation for each REDD+ project activity. The following table summarizes the implementation status for each activity.

*Summary description of the implementation status of REDD+ project activities.*

<b>Component</b>	<b>ID</b>	<b>Activity</b>	<b>Monitoring methodology</b>	<b>Frequency of monitoring</b>	<b>Implementation dates</b>	<b>Percentage of compliance in the reporting period (2017-2021).</b>	<b>General progress of the activity</b>
Implement land use change prevention and mitigation measures.	C-1	Satellite monitoring of changes due to deforestation	Analysis report of the change in the dynamics of the eligible areas using satellite images as input.	Every four (4) years	It has been carried out on an ongoing basis as of 2017.	100%	20,0 %
	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Protocol of training sessions carried out, face-to-face and/or virtual, describing the topics covered, the number of people trained and the number of women trained, with their respective attendance lists. A training cycle will be carried out based on the gaps identified, such as sustainable agricultural practices, land planning, ecological restoration and climate change, etc.	Every two (2) years	The first training was held on August 6, 2017. The start date of the operations of this activity begins one month before with the organization and preparation of the logistics of this activity.  The supports of the activities carried out can be found in the following Annex: <a href="#">3.1.1.2.</a>	100%	25,0 %
	C-3	Perform ground-based hot spot monitoring	Hot spot monitoring report identified through the IDEAM hot spot platform.	Permanent	It has been carried out on an ongoing basis as of 2017.	100%	25,0 %

Component	ID	Activity	Monitoring methodology	Frequency of monitoring	Implementation dates	Percentage of compliance in the reporting period (2017-2021).	General progress of the activity
	C-4	Manage land and promote the implementation of sustainable production practices.	Management report for the development of property planning (three phases): 1. Property characterization. 2. Generation of property plan document. 3. Follow-up on the implementation of the property plan.	Every five (5) years	The implementation of this activity begins on August 1, 2017 with the first visit aimed at the recognition and social characterization of the beneficiary household. as presented in the <u>list of project activities start date for each Property</u> .	96,71%	14,5 %
Implement flora and fauna monitoring and conservation measures.	B-1	Monitoring threatened ecosystems	Threatened ecosystem layers were obtained from: Update of the Red List of Terrestrial Ecosystems of Colombia: Tool for Ecosystem Management. Etter, A., Andrade, A., Saavedra, K. and J. Cortés. (2018). Alexander von Humboldt Biological Resources Research Institute.	Every 5 years	Realized with information from 2018 IUCN	100%	25,0 %
	B-2	Participatory wildlife monitoring	This activity is divided into three phases of execution: 1. Structuring a logistical model to validate the implementation of participatory ecoacoustic monitoring in some properties. 2. Sampling is carried out with each landowner on his or her Property. 3. The acoustic data will be analyzed by designated professionals.	Every 5 years	No monitoring activities have been initiated, but a monitoring plan has been submitted.	12,50%	12,5 %

<b>Component</b>	<b>ID</b>	<b>Activity</b>	<b>Monitoring methodology</b>	<b>Frequency of monitoring</b>	<b>Implementation dates</b>	<b>Percentage of compliance in the reporting period (2017-2021).</b>	<b>General progress of the activity</b>
	B-3	Zoning areas with presence of endangered species	List of threatened species was taken from: IUCN 2023. The IUCN Red List of Threatened Species. Version 2022-2. < <a href="https://www.iucnredlist.org">https://www.iucnredlist.org</a> >	Every 5 years	Based on information from 2018 - 2021 with SIB GBIF reports.	100%	25,0 %
Implement measures for the conservation and protection of water resources.	A-1	Characterize the use and management of water on the Property.	Characterization through ODK surveys to gather information on water resource management.	every 5years	The operation of this activity begins on January 3, 2021 with the social, environmental, economic and productive characterization.	25%	25%
	A-2	Develop a conservation plan for areas of importance for water resources.	Characterization through ODK surveys to gather information on water resource management.	every 5 years	The operation of this activity began on April 12, 2021.	23%	23%

Source: The Cataruben Foundation, 2023

### **Title, reference and version of the baseline and monitoring methodology applied to the project.**

*Paramuno Project 1 is supported by the Biocarbon Registry voluntary standard version 3.2 and its methodologies described below:*

- *AFOLU SECTOR METHODOLOGY DOCUMENT for the Quantification of GHG Emission Reductions from REDD+ Projects in its version 3.1. September 15, 2022.*
- *For the High Mountain area, the AFOLU SECTOR METHODOLOGICAL DOCUMENT for the quantification of GHG Emission Reductions, activities that avoid land use change and improve management practices of peatlands and other wetlands in high mountain ecosystems in its version 3.0 of August 31, 2022 will be used as a reference.*

*In addition, the following tools provided by the BCR standard were used:*

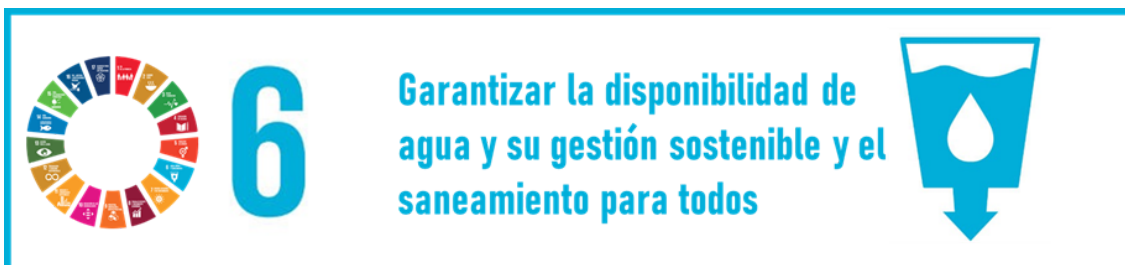
- *Tool to demonstrate compliance with REDD+ Safeguards Version 1.1, January 26, 2023.*
- *Baseline and Additionality Tool Version 1.2, September 27, 2023*
- *No net harm Environmental and social safeguards (NNH) Version 1.0, dated March 7, 2023.*
- *Tool for determining contributions to the achievement of the Sustainable Development Goals (SDGs) Version 2.0, March 1, 2022.*
- *Avoidance of Double Counting (ADC) Tool Version 1.0 dated March 9, 2023.*
- *Monitoring, Reporting and Verification (MRV) Tool Version 1.0 dated February 13, 2023.*
- *Permanence and Risk Management Tool. Version 1.0 dated March 7, 2023.*
- *The Monitoring Report Document in its template version 1.0 .*

### **3. Contribution to the Sustainable Development Goals (SDGs)**

*According to the guidelines set out in the BCR standard in its version 3.2 and the new tool "No Net Harm", which refers to the importance of the evaluation of the project's contribution to the Sustainable Development Goals (SDGs). And taking into account that the monitoring period of Paramuno Project 1 is between 2017-2021 (4 years), below is the analysis of the results of the [SDG Monitoring Report \(Paramuno Project 1\)](#) (See sheet: **SDG Monitoring Report**).*

3.1 SDG 6: Water and sanitation

Figure 3. SDG 6 Target (Water and sanitation)



Adapted from: <https://www.isglobal.org/>, 2023.

After using the [SDG tool \(version 3.0\) for Paramuno Project 1](#), it was determined that Sustainable Development Goal (SDG) 6, related to Water and Sanitation, seeks to achieve indicator 6.4.1. To achieve this, the land has been characterized in terms of its water component, which allows identifying the sources of water supply and the disposal of domestic wastewater. This, in turn, helps identify the main needs of the project community.

Using the data obtained from this survey, Water Efficient Use and Saving Plans (PUEAA) are formulated to raise awareness of the importance of sustainable water resource management and to promote water saving and efficient water use practices. It is essential to emphasize that these activities are essential to achieve equitable access to drinking water and basic sanitation, which has a direct impact on people's quality of life and the achievement of sustainable development.

Through the four methodological stages proposed in the Project Design Document, SDG 6 is implemented in Paramuno Project 1. The following equation is used to calculate the percentage of project progress:

$$\% \text{ de Progreso} = \frac{(N^{\circ}D * 0,10) + (N^{\circ}DI * 0,15) + (N^{\circ}I * 0,55) + (N^{\circ}S * 0,20)}{n}$$

**Equation 1.** Calculation to determine the percentage of progress in meeting SDG 6 Paramuno Project 1.

Where:

**N°D** = Number of Diagnosed Properties

**N°DI** = Number of Properties with Design

**N°I** = Number of Properties Implemented

**N°S** = Number of Properties with Follow-up.

**n** = Total number of Properties

This document focuses on the diagnosis and design of plans for efficient use and water saving in the **154** properties that are part of Paramuno Project 1. These plans have led to the creation of water resource management sheets, which will be implemented in order to improve water conditions for human consumption and proper disposal of wastewater. To date, **144** properties have been characterized and **144** PUEAA's have been developed, which are available in the annexes folder of the SDG 6 ([Sustainable Development Goals](#)) monitoring report together with the diagnosis, where the statistical results obtained from the property characterization (water component) are presented. It is worth mentioning that the PUEAA documents corresponding to the other **10** remaining properties are in process and are expected to be completed during the design phase.

In summary, Paramuno Project 1 has achieved to date **9.4%** of the 10% equivalent of the **diagnostic stage** (130 properties characterized). On the other hand, **14%** of the 15% equivalent to the **design stage** has been achieved (144 properties with PUEAA's). With these advances, **23%** progress has been made towards the proposed global goal, as can be seen in the distribution of the stages in the equation:

$$\% \text{ de Progreso} = \frac{(144*0,10)+(144*0,15)+(0*0,55)+(0*0,20)}{154} = \mathbf{23}$$

**Equation 2.** Calculation to determine the percentage of progress in meeting SDG 6 Paramuno Project 1.

### 3.1.1 Increasing the change in water use efficiency over time

In relation to indicator 6.4.1, a baseline or reference value has been established for 2016 of zero (0), which corresponds to the absence of activities for the improvement of efficient use and saving of water.

Visualization of the current progress of indicator 6.4.1 of SDG 6 according to BCR'S TOOL ODS.

Indicador	Unidad	Meta	Valor de referencia	Año1		Año2		Año3		Año4	
				Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia
6.4.1 Cambio en la eficiencia del uso del agua con el tiempo	%	Aumentar	0	23	Aumentar	23	IGUAL	23	IGUAL	23	IGUAL

o Promedi	Tendencia (promedio vs referencia)	Cumple (respecto al promedio)
23	Aumentar	Si

Source: The Cataruben Foundation, 2023

3.1.2 Progress of the indicator against the global target

Table 5. Result of the progress made in meeting indicator 6.4.1 of SDG 6 (Water and sanitation), with respect to the global target of the SDG monitoring plan.

SDG S	Target	Goal - Indicator(s)	Approach and/or Compliance	Progress (%) Period 2017-2021 with respect to the overall goal.
6	6.4	6.4.1 Increasing change in water use efficiency over time	The initial stages of the project are currently underway: diagnosis and design. Of the 154 properties associated with the Project, a total of 144 diagnoses have been completed (9.4%) and a set of 144 PUEAA's have been formulated (14%). So far, the main activities carried out have been the characterization of the properties (Property Characterization - Water Component), preparation of plans for the saving and efficient use of water and Project diagnosis.	23.38%

Source: The Cataruben Foundation, 2023.

Compliance with indicator 6.4.1

In order to demonstrate compliance with indicator 6.4.1 of Sustainable Development Objective 6, equation 3 is presented, where the 3 management sheets attached to each of the PUEAA's are associated and enrolled. It should be noted that depending on the needs of the Property, all of the sheets will be used.

$$\% \text{ Cumplimiento indicador 6.4.1 (ODS 6)} = \frac{\left( \sum_{i=1}^n \bar{X} \text{ Imp. Fichas} \right) * n \text{ P. Imp.}}{n}$$

Calculation to determine the percentage of compliance with indicator 6.4.1.

**Where:**

$\sum_{i=1}^n \bar{x} \text{ Imp. Chips}$  = Sum of the average implementation of the 3 management chips per Property.

**n P. Imp.** = Number of implemented Properties

**n** = Total number of Properties

The sum of the average implementation of the management sheets can be understood as follows:

$$\sum_{i=1}^n \bar{x} \text{ Imp. Fichas} = \sum_{i=1}^n \frac{\left( \frac{\%Cum. F1 + \%Cum. F2 + \%Cum. F3}{n \text{ Fichas. P. 1}} \right) \left( \frac{\%Cum. F1 + \%Cum. F2 + \%Cum. F3}{n \text{ Fichas P. 2}} \right) \dots}{n}$$

**Equation 4.** Sum of the average of the implementation of the 3 management sheets.

**Where:** the average percentage of compliance with the three management sheets for each of the properties enrolled in Paramuno Project 1 must be taken into account. The topics of the three sheets are framed as follows: 1.

Each of the cards has a total of six activities. According to the development and fulfillment of these activities, the percentage of compliance is calculated. Based on this, the following equation shows specifically how the percentage of compliance with Indicator 6.4.1 (SDG 6) is calculated:

$$\% \text{ Cumplimiento indicador 6.4.1 (ODS 6)} = \frac{\left( \sum_{i=1}^n \left( \frac{\%Cum. F1 + \%Cum. F2 + \%Cum. F3}{n \text{ Fichas. P. 1}} \right) + \left( \frac{\%Cum. F1 + \%Cum. F2 + \%Cum. F3}{n \text{ Fichas P. 2}} \right) \dots \right)}{n} * n \text{ P. Imp.}$$

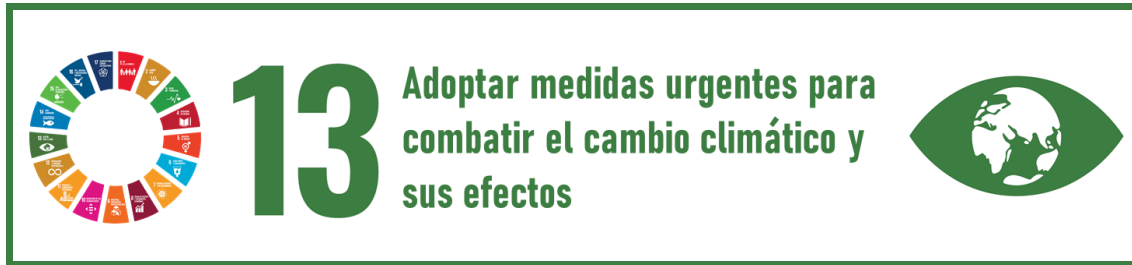
**Equation 5.** Calculation for the percentage of compliance with Indicator 6.4.1.

### 3.2 SDG 13: Climate Action

One of the objectives of SDG 13 (Climate Action) is to incorporate climate change-related measures into national policies, strategies and plans:



SDG 13 Target (Climate Action).



Source: <https://www.isglobal.org/>, 2023.

Following the implementation of the [TOOL SDG applied to Paramuno Project 1](#), it was determined that Sustainable Development Goal (SDG) 13 focuses on compliance with an indicator aimed at reducing total greenhouse gas (GHG) emissions per year. Under this premise, below are the results per year for the period in question.

3.2.1 Reducing total greenhouse gas emissions per year

SDG 13 is focused on achieving the reduction of total greenhouse gas emissions per year. To account for the progress of this target, it can be measured through the indicator found in Objective 13.2 and is identified as Indicator 13.2.2.

Figure 6. Completion of indicator 13.2.2 of SDG 13 in BCR's TOOL ODS (HME).

Indicador	Unidad	Meta	Valor de referencia	Año1		Año2		Año3		Año4		Año5	
				Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia
13.2.2 Emisiones totales de gases de efecto invernadero por año	Ton CO <sub>2</sub> e	Reducir	2.101,89	85,3	Reducir	85,3	IGUAL	85,3	IGUAL	85,3	IGUAL	85,3	IGUAL

Resultado Promedio	Tendencia (promedio vs referencia)	Cumple (respecto al promedio)
85,3	Reducir	Si

Source: The Cataruben Foundation, 2023.

Figure 7. Completion of SDG 13 indicator 13.2.2 in BCR's TOOL ODS (REDD+).

Indicador	Unidad	Meta	Valor de referencia	Año1		Año2		Año3		Año4		Año5	
				Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia
13.2.2 Emisiones totales de gases de efecto invernadero por año	Ton CO <sub>2</sub> e	Reducir	85,630,28	21950,00	Reducir	21950,00	IGUAL	21950,00	IGUAL	21950,00	IGUAL	21950,00	IGUAL

Resultado Promedio	Tendencia (promedio vs referencia)	Cumple (respecto al promedio)
21950	Reducir	Si

Source: The Cataruben Foundation, 2023.

Thus, based on the GHG emissions monitoring carried out for the analysis period, it is possible to demonstrate the reduction of total GHG emissions per year. The compliance report for this activity can be found in the following links:

1. [REDD GHG emission reduction monitoring report.](#)
2. [GHG emissions reduction monitoring report in HME.](#)

3.2.1.1. Progress of the indicator against the overall goal

Thus, although GHG emissions were recorded during the monitoring period, the figures are below the baseline value, which shows a reduction of 82.55% in GHG emissions compared to the annual average estimated in the baseline scenario, as well as 19% compliance with the overall goal for the project's implementation period.

Progress of compliance with indicator 13.2.2 of SDG 13 (Climate action) with respect to the global target of the SDG monitoring plan.

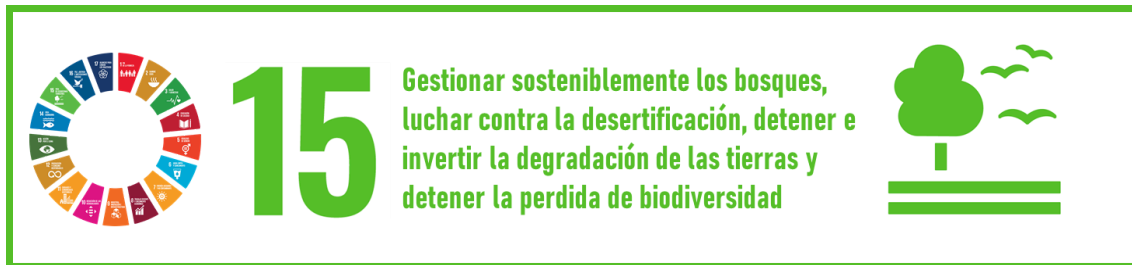
SDG S	Target	Goal - Indicator(s)	Approach and/or Compliance	Progress (%) Period 2017-2021 with respect to the overall goal.
13	13.2	13.2.2 Reducing total greenhouse gas emissions per year	Annual GHG emissions monitoring was conducted for the period 2017-2021, for the REDD+ and HME components, under which compliance with the target in terms of GHG emissions reduction with respect to the baseline value was evaluated.	19%

Source: The Cataruben Foundation, 2023.

### 3.3 SDG 15: Terrestrial Ecosystem Life

SDG 15 (Life of terrestrial ecosystems) aims to ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services. In particular forests, Wetlands, mountains and drylands. And this, in line with obligations under international agreements.

Figure 8. SDG 15 Target (Life of terrestrial ecosystems)



Source: <https://www.isglobal.org/>, 2023.

Therefore, and taking into account that Paramuno Project 1 meets this sustainable development objective, the following results are presented for consideration:

- **Proportion of sites important for terrestrial biodiversity**

To obtain the proportion of sites of importance for biological diversity, a characterization was made per property based on Species Richness, Protected Areas, AICAS, the general ecosystems in the input of Continental, Coastal and Marine Ecosystems of Colombia, the ecosystems in some degree of threat present and the fauna and flora species in some degree of threat (CR, EN and VU) that could have a potential distribution in these areas. A value was assigned to each property by adding the presence of each characteristic to define the areas of importance (1-6). Finally, according to the value, the signage priority was categorized on a scale of High, Medium, and Low, starting with the High priority properties until the signage was completed, as presented in the schedule (Annex [Paramuno Project 1 AIDB and Signage Plan](#)). Four properties were identified as high priority, 88 as medium priority and 62 as low priority. In general, from year 6 to year 8 the high priority properties will be marked, from year 9 to 14 the medium priority properties and from 15 to 20 the low priority properties.

- **Coverage of sites important for mountain biodiversity**

The establishment of coverages of sites of importance for biological diversity is vital to consolidate the areas to be preserved. Therefore, the area of general ecosystems

present and their association with threatened ecosystems was calculated for each property. The result of this analysis indicates that this coverage of sites of importance for biological diversity comprises 65.89% of the total area of the project ([Annex Property by ecosystems and forests](#)). Our goal is to maintain the coverage of these sites of importance for biological diversity with respect to the total area of the properties.

3.3.1 Increasing forest area as a proportion of total forest area

Sustainable Development Goal (SDG) 15 focuses on achieving a specific indicator that seeks to increase forest area as a proportion of total area. This indicator is found within Goal 15.1 and is identified as Indicator 15.1.1.

Completion of indicator 15.1.1 of SDG 15 in BCR's SDG TOOL.

Indicador	Unidad	Meta	Valor de referencia	Año1		Año2		Año3		Año4	
				Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia	Resultado	Tendencia
15.1.1 Superficie forestal como proporción de la superficie total	%	Aumentar	47,81	59,12	Aumentar	59,13	Aumentar	59,3	Aumentar	58,93	Aumentar
15.1.2 Proporción de lugares importantes para la diversidad biológica terrestre y del agua dulce que forman parte de zonas protegidas, desglosada por tipo de ecosistema	%	Aumentar	0		IGUAL	5	Aumentar		Reducir	10	

Resultado o Promedio	Tendencia (promedio vs referencia)	Cumple (respecto al promedio)
59,12	Aumentar	Si
7,5	Aumentar	Si

Source: The Cataruben Foundation, 2023.

3.3.2 Progress of the indicator against the global target

As a result of the implementation of the project, 11.05% of the forest cover or PSBN is increased compared to the total project areas; the project activities promote the protection of the forest resource.

Progress of compliance with indicator 15.1.1 of SDG 15 (Life of terrestrial ecosystems) with respect to the global target of the SDG monitoring plan.

SDG S	Target	Goal - Indicator(s)	Approach and/or Compliance	Progress (%) Period 2017-2021 with respect to the overall goal.

15	15.1	15.1.1 Increasing forest area as a proportion of total forest area	The calculation and reporting followed the guidelines defined in the environmental indicators of the Ministry of Environment and Sustainable Development and IDEAM corresponding to the indicator "Proportion of the area covered by natural forest".	11,05%  Global Target 13
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Source: The Cataruben Foundation, 2023.

#### 4. Compliance with Applicable Legislation

Applicable legislation covers a wide variety of areas, including social, environmental, economic and cultural aspects, among others. These regulations are constantly updated to reflect ongoing changes and the need to keep them up to date. In this context, a rigorous control of the updating of the regulatory matrix was implemented, following the procedure stipulated in the document management system called "Procedure GJP-14: Management of Legal Requirements". This process ensures timely and adequate compliance with the regulations applicable to the project, which aims to conserve biodiversity, carbon stocks and clean water on enrolled private properties.

In Colombia, environmental preservation is promoted through the adoption of international agreements such as the Paris Agreement and the United Nations Framework Convention on Climate Change, as well as national regulations, including the National Climate Change Policy, the National Environmental Education Policy and the National Policy for the Control of Deforestation and Sustainable Forest Management, among other policies that regulate areas related to the reduction of greenhouse gas (GHG) emissions.

In addition, tax regulations related to carbon have been implemented, such as Law 1753 of 2015, which in its Article 175 establishes the creation of the National Registry of Emissions and Transfer of Pollutants (RENARE), Law 1819 of 2016, which introduces the tax reform with the creation of the carbon tax, and Law 2277 of 2022, which modifies Articles 221 to 223 in relation to the non-causation of the carbon tax. Likewise, Decree 926 of 2017 regulates the non-causation of the carbon tax.

Law 1931 of 2018 provides guidelines for climate change management, and Resolution 1447 of 2018, as amended by Resolution 0831 of 2020, establishes the system for monitoring, reporting and verification of mitigation actions at the national level. These regulations allow defining the conditions and guidelines for the development of climate change mitigation projects.

*On the other hand, regarding the strict regulations applied to Paramo ecosystems, Law 1930 of 2018 is positioned as an essential regulatory framework for the conservation and comprehensive management of these ecosystems in Colombia. Paramos, characterized as high mountain ecosystems with a fundamental role in ecology and water regulation, are subject to specific restrictions, as established in Article 5 of said law. This article prohibits 13 activities that could jeopardize the integrity of these environments.*

*In the legal context and in consideration of the demographic and economic dynamics, through the analysis of historical changes in land use, an annual transformation of the environment in the project area has been identified. In the Cordillera Central, this annual transformation rate is 0.9%, which could imply a loss of approximately 20.45 hectares per year in the project areas. Meanwhile, in the Eastern Cordillera, this transformation rate reaches 1.3%, which would probably result in an annual loss of 8.38 hectares in the high mountain ecosystem, specifically in the Paramo coverage.*

*These transformations are derived from the predominant economic dynamics in each mountain range. In the Eastern Cordillera, agricultural activity is the main driver of landscape change, contributing 61.16%, followed by cattle ranching with 34.49%. On the other hand, in the Central Cordillera, a transformation of the Paramo to agricultural activities is observed at a moderate rate of change of 45.53%, which shows the significant impact of agricultural activity on the structure of the natural landscape.*

*These findings highlight the urgent need to address long-term conservation actions that reduce the pressure on these ecosystems due to the aforementioned human activities. In this sense, the project underway since 2017, promotes sustainable land management practices, strengthens governance, uses satellite monitoring of changes in coverage, and monitors ecosystems at risk, seeking not only to reduce emissions, but also to generate a positive impact on biodiversity and water in the project area. This translates into a notable decrease in land use changes in the Paramo during the first years of project implementation, with a reduction of about 95% of the transformation rate recorded in the baseline.*

*These standards and their regulatory complements are grouped in a legal [matrix](#) that is periodically reviewed and updated for effective compliance management. This regulatory framework is aligned with project activities, thus contributing to the joint effort to preserve the environment and combat climate change.*

5. Adaptation to climate change

Table 8. Compliance with Climate Change Adaptation Items.

Component	Approach and Compliance
<p>a) considers one or more of the strategic lines proposed in the National Climate Change Policies and/or addresses aspects framed in the regulations of the country where the project is to be implemented;</p>	<p>Paramuno Project 1 of The Cataruben Foundation enrolled mitigation and adaptation to climate change, with the objective of reducing GHG emissions and increasing resilience to current and future impacts associated with climate change and climate variability. To this end, the project considers the National Climate Change Policies, under the following strategic lines:</p> <p><b>a) Territorial Strategies</b></p> <p>Action Line 3: Paramuno Project 1 implements measures to prevent and mitigate land use change in high mountain ecosystems and forest deforestation. Through the management of land planning and the implementation of sustainable practices, comprehensive actions are promoted on the properties helping the efficient use of soil, and where the conservation of high mountain ecosystems and forests, the restoration of degraded areas, family agriculture, the reduction of deforestation and the restoration of degraded areas, and agricultural technological assistance that increases competitiveness and reduces vulnerability to climate change are privileged. See <a href="#">support for HME and REDD+ land planning management</a>.</p> <p><b>b) Management and Conservation Strategies of ecosystems and their ecosystem services for low carbon and climate change resilient development.</b></p> <p>Line of action 3: The project will provide requirements for the quantification of GHG emission reductions or removals from activities that prevent land use change and improve management practices of peatlands, other wetlands and forests in high mountain ecosystems. Specifically in the project area, activities will be carried out within the framework of alignment E of the National Climate Change Policies: "MANAGEMENT AND CONSERVATION OF ECOSYSTEMS AND THEIR ECOSYSTEM SERVICES FOR LOW CARBON AND CLIMATE RESILIENT DEVELOPMENT".</p>
<p>(b) improves the conditions for the conservation of biodiversity and its</p>	<p>The project guarantees the conservation of flora and fauna by implementing activities to monitor threatened ecosystems not only in the project areas, but also in the</p>

<p><i>ecosystem services in the areas of influence, outside the project boundaries (e.g., natural coverage in areas of special environmental interest, biological corridors, water management in watersheds, among others);</i></p>	<p><i>reference area. At the same time, <u>participatory monitoring</u> is carried out and <u>areas with threatened species</u> are <u>zoned</u>, resulting in the conservation of biodiversity; at the same time, the development and implementation of conservation plans for important water resource areas in the project area is planned.</i></p>
<p><i>(c) implements activities that contribute to sustainable, low-carbon production landscapes;</i></p>	<p><i>The implementation of sustainable low-carbon production systems in the AFOLU sector (agriculture, forestry and land use) will be promoted. This will be done through training and technical assistance aimed at interested beneficiaries, through which knowledge transfer will be developed and competencies will be developed according to the productive activity they wish to implement. Two types of scenarios will be considered according to the beneficiary's interest:</i></p> <ul style="list-style-type: none"> <li><i>• Beneficiaries interested in implementing sustainable low-carbon productive activities.</i></li> <li><i>• Beneficiaries interested in transforming their current production systems to more sustainable and low-carbon ones.</i></li> </ul>
<p><i>(e) designs and implements adaptation strategies based on an ecosystem approach;</i></p>	<p><i>A property plan and a conservation plan will be implemented for all properties in areas of importance for water resources, in order to guarantee the implementation of adaptation strategies based on an ecosystemic approach.</i></p>



<p><i>(b) comprehensive actions to promote efficient land use, including, for example: conservation of existing natural land cover, use consistent with the vocation and agro-ecological conditions of the territory, family farming and agricultural technology transfer to increase competitiveness and reduce vulnerability to climate change;</i></p>	<p><i>The owner of the project contributes to ensure comprehensive actions that help the efficient use of the land, and where, for example, the following are contemplated: conservation of existing natural cover, use consistent with the vocation and agro-ecological conditions of the territory, family farming and agricultural technology transfer to increase competitiveness and reduce vulnerability to climate change; This will be achieved through the contractual contract signed by the two interested parties, it is intended that the owners acquire responsibilities aimed at the conservation of the areas enrolled in the project, and The Cataruben Foundation acquires responsibilities that are focused on carrying out follow-up and monitoring activities to ensure the conservation of these areas, but also to provide support for the implementation of good practices in the crops established or to be established, such as training on topics of interest.</i></p>
<p><i>(c) reduction of GHG emissions from agricultural activities, compared to the scenario without the project (e.g. replacement of pastures in livestock feed and use of planting methods that reduce emissions from crop management);</i></p>	<p><i>In relation to the reduction of GHG emissions from agricultural activities, compared to the scenario without the project, it is expected that sustainable production practices will be implemented, water sources will be properly managed, and social and environmental actions will be implemented to avoid deforestation, as well as changes in land use in the project areas.</i></p>
<p><i>(d) actions directly related to climate change adaptation measures, such as: use and management of seeds resistant to temperature change, water management through rainwater harvesting and/or recycling, drainage and irrigation, planting around watercourses to prevent erosion, soil management practices that reduce compaction, and fertilizer reduction techniques.</i></p>	<p><i>The project owner will establish within its activities actions directly related to climate change adaptation measures, such as: sustainable productive practices, water management through rainwater harvesting and/or recycling, drainage and irrigation, planting around watercourses to prevent erosion, soil management with practices that reduce compaction and techniques to reduce the use of fertilizers; The properties will be characterized and sustainable practices will be implemented through the identification of the properties that already have productive systems in place. To this end, the owners will be surveyed to determine the current status of the properties and whether they have other sustainability systems in place, in order to apply training and support processes through training cycles, monitoring and follow-up.</i></p>

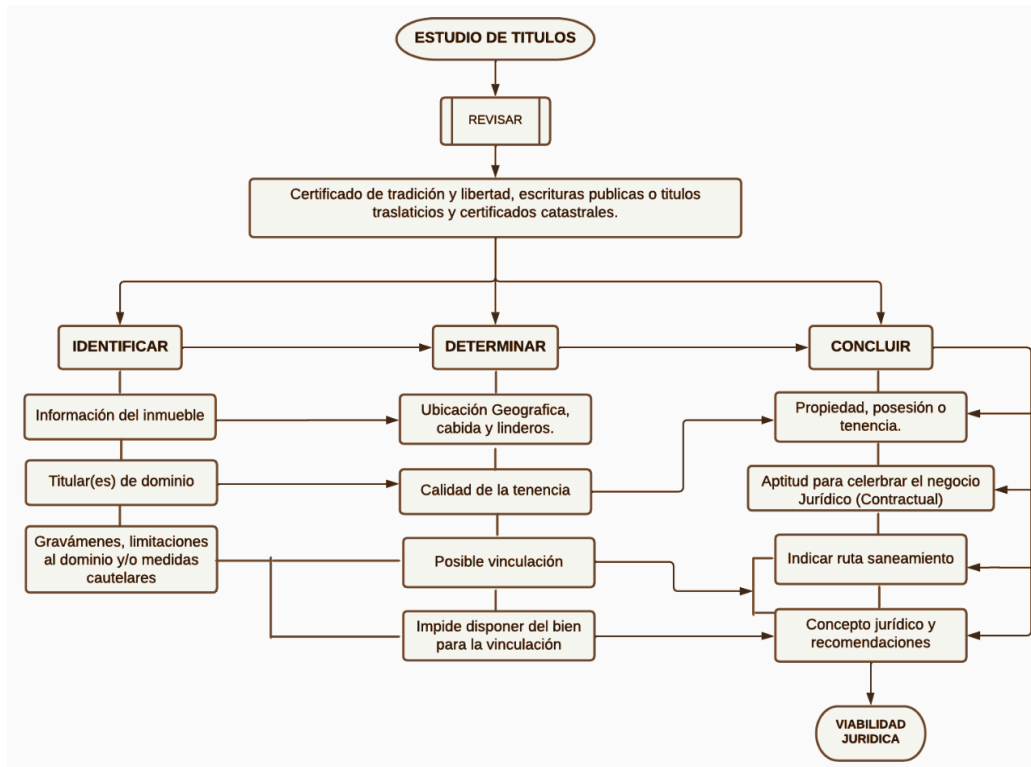
### 6. Carbon ownership and rights

In the context of the carbon project, it is essential to provide a comprehensive description of the current status of the property and carbon rights, this involves identifying who is the holder of the carbon rights and how they relate to the ownership of land and natural resources located in each of the properties, for this a series of documents are analyzed that are provided by stakeholders that allow a glimpse into what capacity they act, some of the documents analyzed are Certificates of Tradition and Freedom, Certificates of Good Possession, Sales, Public Deeds, Property Taxes, among others.

Property regulations are established in the Colombian Civil Code and its complementary norms, where specific rules are grouped together to determine who has the best rights to a property, and thus, the right to carbon credits and all the benefits they entail.

The Cataruben Foundation performs the analysis of documents to determine the ownership of the carbon according to the following table, a process in which documents are received, analyzed in detail and the legal status of the property and ownership is determined.

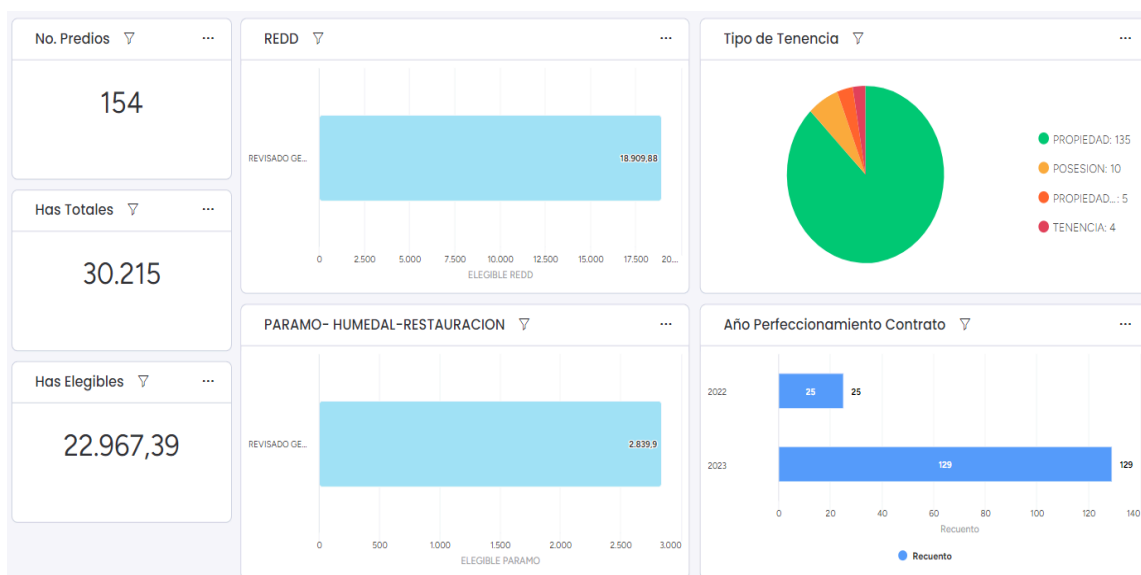
#### Carbon property analysis.



Source: The Cataruben Foundation, 2023.

Once this process is completed, the parties involved in carbon mitigation projects sign contracts and agreements detailing who is entitled to the carbon credits generated by the project, how the income will be distributed and who will be responsible for reporting on emissions reductions, which is why the current legal status and ownership of the property must be verified. This process was carried out and as a result 154 properties were enrolled, which make up Paramuno Project 1 as shown in image 11.

Carbon property results, Monday database.



Source: The Cataruben Foundation, 2023

### 7. Environmental aspects

To carry out the environmental assessment of the components that are part of the ecosystems within the area of influence of the project, it is supported by the application of the BCR tool "No Net Harm". Relevant documents related to the biodiversity present in the area were considered. Specifically, the presence of species that are included in the list of endangered species was taken into account. One of the key documents was the latest edition of the "Biodiversity" report of the prestigious Humboldt Institute, published in 2021.

According to this report, it is estimated that 78% of the total number of birds in Colombia will be highly vulnerable to the impacts of climate change in specific areas, such as the Amazon region (168 species), the Pacific (152 species) and the highlands

*of the Andes (59 species). These areas stand out for having a higher concentration of species.*

*It is essential to recognize that these figures are highly relevant, considering that birds not only contribute to the beauty of the landscape, but also play a fundamental role in the provision of various ecosystem services, such as pollination and seed dispersal, among others.*

*Consequently, a detailed assessment of the biodiversity and conservation status of the species in the project's area of influence is crucial for making informed and responsible decisions to protect these valuable ecosystems and ensure the preservation of the services they provide for the well-being of society and environmental sustainability.*

*The following is the Environmental Assessment Matrix for the project, with the results obtained after an exhaustive verification of the information and weighting of the same on the possible impacts that could be generated by the implementation of project activities on the environment, social and economic in the area of influence. [See Annex 1.3.2. Paramuno Project 1 Environmental Assessment Matrix.](#)*

*According to the evaluation matrix, it can be determined that the project activities do not represent negative impacts within the area of influence of the project, since all activities are aimed at protecting the environment and reducing greenhouse gases (GHG) within the areas established and enrolled in Paramuno Project 1.*

*The following is a list of the four (4) activities with the highest (Positive) Importance of the evaluated impact.*

### **7.1 Environmental Assessment Component 2 - Safeguards.**

*According to the impact assessment conducted for component 2, which focuses on governance activities and specifically on Safeguard 5, it can be concluded that the impact generated in the project's area of influence is positive. Safeguards 5 aims to ensure that the measures implemented are compatible with the conservation of natural forests and biodiversity.*

*The weighting obtained in this component indicates that the activities established for the properties enrolled in Paramuno Project 1 focus on forest conservation and the implementation of actions that promote the conservation of the biological diversity present in these ecosystems. In addition, it is emphasized that the measures established should not be used for the conversion of natural forests, but rather to encourage the protection and conservation of these forests, as well as to enhance additional social and environmental benefits.*

*In summary, the approach to governance activities in the project is positive, as it seeks to protect natural forests and associated biodiversity, which is beneficial for the project's area of influence and for environmental sustainability in general. It is important to continue with the responsible implementation of the measures and constantly monitor their effectiveness to ensure that the objectives of conservation and ecosystem protection are met.*

*This is intended to be achieved through the monitoring of sustainable practices implemented in the properties enrolled in the project, also with the implementation of prevention and mitigation measures to reduce deforestation of natural forests, conducting training cycles to project beneficiaries to strengthen knowledge in conservation of strategic ecosystems and promote governance in the project areas, also carry out the delimitation of the conservation areas enrolled, and promote the implementation of good sustainable production practices, as well as satellite monitoring of deforestation changes that may occur in these areas enrolled in the project, in order to follow up and implement conservation measures to reduce or prevent the spread of deforestation and generate impacts such as the loss of natural forest and existing biodiversity.*

#### **7.2 Environmental Assessment Component 4 - SDGs.**

*According to the evaluation of component 4, related to compliance with SDG 13: "Climate Action - Take urgent action to combat climate change and its impacts", it is concluded that the impact generated on the environment is positive. The project implements activities that seek to mitigate the negative impacts caused by current activities on the enrolled properties and, at the same time, contribute to combating climate change.*

*One of the ways in which the project seeks to achieve this is by quantifying reduced CO<sub>2</sub>e (carbon dioxide equivalent) emissions on an annual basis. By measuring and reducing these emissions, it seeks to incorporate effective climate change-related measures into national policies, strategies and plans. This is essential to address the problem of climate change at a broader level and contribute to the global effort to limit global warming.*

*In addition, the implementation of conservation activities in the enrolled properties is mentioned, which includes an initial evaluation, follow-up and monitoring of these projects. This ensures that the proposed activities really contribute to combating climate change and are effective in their purpose.*

### 7.3 Environmental Assessment Component 4 - Project Activities

*The evaluation of component 4, regarding implementation activities, on the execution of project measures, concludes with a positive impact on environmental elements. Project implementation will promote the registration and recognition of conservation and environmental management areas and figures. This ensures the protection and preservation of the biodiversity present in the properties enrolled in the project.*

*By registering and declaring properties as Civil Society Nature Reserves or located in Paramo complex zones, we seek to maintain the biological richness and benefits that these ecosystems provide. Civil Society Nature Reserves and Paramo complex zones are vital for biodiversity conservation, providing critical habitats for diverse flora and fauna species, including those at risk.*

*For Colombia, the Civil Society Nature Reserves allow the recognition of citizens determined to conserve their properties, culture and heritage, in addition, the properties registered under this category make a direct contribution to the SINAP, in terms of conservation and strengthening. In the country there are more than 800 reserves, some with great regional and national recognition such as: La Aurora in the Orinoquía, El Hatoco in Valle del Cauca, and La Planada in Nariño, among other outstanding referents.(WWF, 2019).*

*Satellite monitoring will also be carried out to track land-use change, in order to follow up on biodiversity loss, changes in the territory's water dynamics, and the release of CO<sub>2</sub> into the atmosphere, in order to implement prevention and conservation measures that allow timely action to be taken, In the same way, monitoring of terrestrial hot spots will be carried out, which help detect forest fires and biodiversity loss, with this monitoring it is intended to act in a timely manner to prevent or control such natural or anthropogenic events that may occur and generate a negative impact on the environment.*

*Among the activities established to comply with the project activities is the implementation of a training cycle to strengthen knowledge on high mountain ecosystem conservation and thus also promote the implementation of sustainable production practices that help reduce the negative environmental impact derived from poor production practices and even from human beings' bad habits.*

## 8. Socioeconomic aspects

### 8.1 Results of the evaluation of socioeconomic issues

The following is the [Socioeconomic Evaluation Matrix](#) for the Project, with the results obtained after an exhaustive verification of the input information of this project, as well as the documents investigated, through a weighting of figures on the possible impacts that could be generated by the implementation of the project activities, once considered by technical expertise its social and economic components.

Taking into account that, although the impacts can be positive or negative, in the case of the assessment of this project it is evident that the impacts are positive, so the main effects with the greatest positive impact are described in detail below, since all activities are aimed at generating social and economic benefits in accordance with climate change mitigation actions, in order to reduce the emission of greenhouse gases (GHG).

#### 8.1.1 Project activities

The actions that were evaluated within the "Project Activities" component of the project and that are an intrinsic part of it, were the following:

- *Implement prevention and mitigation measures to reduce deforestation of natural forests.*
- *Implement measures to prevent and mitigate land use change in high mountain ecosystems.*
- *Implement measures for the conservation and protection of water resources.*
- *Implement flora and fauna monitoring and conservation measures.*

After conducting the socioeconomic evaluation, it has been identified that the two actions with the greatest positive impact are characterized by having a predominant economic focus over the social aspect. These actions are presented below along with the sub-activities proposed by the Project to monitor their compliance:

*Implement prevention and mitigation measures to reduce deforestation of natural forests (27 pts). This is achieved through:*

- *Satellite monitoring of changes due to deforestation.*
- *Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.*
- *Conduct ground-based hot spot monitoring.*
- *Manage land planning and promote the implementation of sustainable production practices.*

- *Implement land use change prevention and mitigation measures in high mountain ecosystems (27 pts). This is achieved through:*
- *Satellite monitoring of land use change.*
- *Manage land planning and promote the implementation of sustainable production practices.*
- *Conduct a training cycle to strengthen knowledge on high mountain ecosystem conservation and governance structures.*
- *Conduct ground-based hot spot monitoring.*

*The activities mentioned in the project have obtained a positive rating thanks to a detailed social analysis covering several key components, such as gender equity, education and training, communication with stakeholders and forest governance in the territories.*

*Training on topics such as biodiversity conservation, sustainable ecosystem management, gender equity, tax treatment of benefits and project holder procedures, as well as the strengthening of ancestral and local knowledge, are fundamental for the empowerment of beneficiaries.*

*In addition, the implementation of forest governance principles allows communities in the reference area to adequately manage their lands, which influences the development of organizational and decision-making skills, as well as sustainable productivity. All of this contributes to improving the living conditions of local communities.*

*In addition, positive impacts have been observed in the economic sphere, with a more prominent focus on the social. The analysis has revealed that the key components related to valorization are: the formalization of environmental services as an economic activity, the generation of both direct and indirect employment and the obtaining of economic benefits. These aspects have obtained ratings of up to four (4), which indicates a greater probability that they can influence the actions evaluated, since they have a significant relative weight.*

*In fact, the development of these activities is directly enrolled with the additionality of the Project, which allows demonstrating a registered impact that derives in the reduction of greenhouse gases, reflected in verified carbon certificates. These certificates are then traded to generate economic benefits for the beneficiaries involved. This will be the only way in which the project will generate economic returns, thus ensuring the financing of the project's sub-activities during its lifetime and creating new employment opportunities.*



*Finally, the implementation of an Integrated Management System (IMS) by the project owner, allowed to identify as an economic aspect the formalization of environmental services in economic activity, that is, the registration of beneficiaries as providers of environmental services, thus giving them productive and fiscal quality in relation to their enrolled in Paramuno Project 1 and the actions carried out since the start date of the project.*

*The applicability of ISIC code 0210 "Forestry and other agroforestry activities" according to the National Tax and Customs Directorate (DIAN) and the internal goods and services procurement procedure, evidencing compliance with quality and environmental parameters such as those framed in ISO 9001 and 14001 of 2015 and affirming the positive impact of project activities.*

#### *8.1.2 Co-benefits: Benefits to communities*

*The social impact of the project focuses especially on two key aspects: forest governance in the territories and communication with stakeholders. According to the Center for International Forestry Research (CIFOR), Forest Governance encompasses decision-making related to forests and the communities that depend on them, those responsible for these decisions, the exercise of power and accountability. This includes both decision-making processes and institutions at local, national, regional and global levels.*

*The project ensures that it provides assurance on this issue by complying with Safeguard 2 of the project, entitled "Transparency and effectiveness of national forest governance structures, taking into account national legislation and sovereignty". To achieve this, various instruments are used, such as understanding, organization, participation and assurance, which allow for the recognition of forest governance structures.*

*In addition, the project implements mechanisms for socialization, dissemination and transparency of information, aligned with specific communication objectives. Various tools are used, such as radio, video calls, brochures, billboards, illustrative documents, guides, face-to-face workshops, e-mails and a website, in order to achieve the proposed objectives.*

*On the other hand, the economic benefits of the project stand out for their high impact. I understand that they are economic resources provided in the short and long term to the beneficiaries for the commercialization of carbon certificates for the development of conservation actions in their properties and whose destination is the reinvestment in the maintenance of these activities for environmental sustainability, improving their quality of life and producing an average net increase in their income.*

## 9. Stakeholder consultation

*The Cataruben Foundation, in compliance with paragraph 16 of BRC standard version 3.2, carried out a consultation process with representatives of local governmental and non-governmental entities. The purpose of this consultation was to inform about the activities and design of the project, as well as to provide access to all information related to the environmental and social effects of the project.*

*In total, 281 entities located in the territories where Paramuno Project 1 was implemented were involved. These entities had the opportunity to communicate with The Cataruben Foundation using the various means of communication, such as phone calls, emails, whatsapp messages and physical correspondence.*

*The main communication mechanism used for socialization was virtual meetings with personalized attention, adapted to the specific needs of each entity. This process of socialization of the project allowed The Cataruben Foundation to present detailed and complete information on the aspects of the project and its scope.*

*It is important to note that no complaints or claims were received from stakeholders, as shown in table 9, through any of the available means of communication. In addition, during the meetings held, ways of working together were discussed in case it was necessary to transfer information.*

Table 9. Stakeholder communication results.

Entities	Approach and/or Compliance	Comments and answers.	Communication mechanisms
Governorships: Valle del Cauca, Tolima, Santander, Risaralda, Quindío, Norte de Santander, Huila, Cundinamarca, Cauca, Casanare, Caldas, Boyacá, Arauca.	The Cataruben Foundation notified and invited 13 governorships for the purpose of socializing the Paramuno Project 1 climate change mitigation project, as evidenced in the folder <u>Governorships</u> .	No complaints or claims were received from the governorates. A personalized mode of communication was established for each stakeholder who responded to the consultation. See in the folder of <u>comments from the governorates</u> .	<ul style="list-style-type: none"> <li>- E-mails.</li> <li>- Face-to-face meetings</li> <li>- Virtual meetings</li> <li>- Telephone calls</li> <li>- Physical correspondence</li> <li>- Whatsapp</li> </ul>
Mayors' offices	The Cataruben Foundation notified and invited <u>246 municipalities</u> to participate in the Paramuno Project 1 climate change mitigation project.	No complaints or claims were received from the municipalities. A personalized mode of communication was established for each stakeholder who responded to the consultation. See in the folder of <u>comments from mayors' offices</u> .	<ul style="list-style-type: none"> <li>- E-mails.</li> <li>- Face-to-face meetings</li> <li>- Virtual meetings</li> <li>- Telephone calls</li> <li>- Physical correspondence</li> <li>- Whatsapp</li> </ul>
Regional Autonomous Corporations: CORPONOR, CORPORINOQUIA, CORPOGUAVIO, CORPOCALDAS, CORPOCHIVOR, CAC, CRQ, CVC, CORTOLIMA, CAS, CAR,	The Cataruben Foundation notified and invited 12 <u>Regional Autonomous Corporations</u> and their administrative entities with the objective of socializing the Paramuno Project 1 climate change mitigation project.	No complaints or claims were received from Regional Autonomous Corporations. A personalized mode of communication was established for each interested party that responded to the consultation. See in	<ul style="list-style-type: none"> <li>- E-mails.</li> <li>- Face-to-face meetings</li> <li>- Virtual meetings</li> <li>- Telephone calls</li> <li>- Physical correspondence</li> <li>- Whatsapp</li> </ul>

Entities	Approach and/or Compliance	Comments and answers.	Communication mechanisms
CORPOBOYACA.		<u>Regional Autonomous Corporations Comments folder.</u>	
Non-Governmental Entity	The Cataruben Foundation sent the notification and invitation to <u>RESNATUR</u> (Asociación De Red Colombiana De Reservas Naturales De La Sociedad Civil) with the objective of socializing the Paramuno Project 1 climate change mitigation project.	No complaints or claims were received from <u>RENASTUR</u> (Asociación De Red Colombiana De Reservas Naturales De La Sociedad Civil). A personalized mode of communication was established for each stakeholder who responded to the consultation. See in <u>RENASTUR's Comments folder.</u>	<ul style="list-style-type: none"> <li>- E-mails.</li> <li>- Face-to-face meetings</li> <li>- Virtual meetings</li> <li>- Telephone calls</li> <li>- Physical correspondence</li> <li>- Whatsapp</li> </ul>

Source: The Cataruben Foundation, 2023.

### 10. REDD+ Safeguards

Cancun's social and environmental Safeguards cover issues related to current legal regulations, transparency and access to information, respect for the knowledge of communities and stakeholders, full and effective participation, forest conservation and biodiversity, among others. With the purpose of materializing compliance with these Safeguards, the [Safeguards Monitoring Report](#) has been prepared, a document that illustrates how these issues were addressed in the 2017-2021 period following the guidelines established by the BCR tool. In addition, the provisions of the "No Net Harm Tool" document were applied, which makes clarifying references to the Safeguards, thus ensuring that REDD+ activities involve action without harm. In addition to the above, project management monitors compliance with section 3 "Do no harm to the environment or society".

In addition, due attention and reading was given to the document analyzing, approaching and respecting (from Colombia) these seven REDD+ social and environmental Safeguards. This document provides an interpretation that yields fifteen elements that are operational for the national territory through the activities proposed in the framework of the Project. Furthermore, these 15 elements are divided among each of the 7 Safeguards that, for practical purposes, are organized into three themes: **(1) Institutional, (2) social and cultural, and (3) environmental and territorial**

(Camacho A, Lara I & Guerreo, 2017). Now, each thematic is organized as follows:

- **Institutional:** Safeguards REDD+ 1: Its elements are: (A1) correspondence with national legislation. Safeguards 2, its elements are: (B2) Transparency and access to information, (B3) accountability, (B4) recognition of forest governance structures and (B5) capacity building.
- **Social and cultural:** Safeguards REDD+ 3: Its elements are: (C6) free, prior and informed consent, (C7) respect for traditional knowledge, (C8) benefit sharing, (C9) territorial rights. Safeguards 4: Its elements are: (D10) participation.
- **Environmental and territorial:** Safeguards REDD+ 5, Its elements are: (E11) conservation of forests and their diversity (E12) provision of environmental goods and services. Safeguards 6, its elements are: (F13) environmental and territorial management, (F14) sectoral planning. Finally Safeguards 7, its elements are: (G15) forest control and surveillance to avoid displacement of emissions.

The following is a report on compliance with each of the Safeguards, following both the national reading of the Safeguards and the guidance represented by the BCR Standard:

### 10.1 Safeguards 1

*"The complementarity or compatibility of the measures with the objectives of national forestry programs and international conventions and agreements on the subject."*

#### *A1 Correspondence with National Legislation.*

*Since the beginning of the project, we have worked to ensure that the activities implemented are in harmony with the international commitments signed by the country and with national policies, programs and plans that promote the sustainable management of biodiversity, forests and climate change mitigation and adaptation. To achieve this, a thorough analysis has been made of the international agreements and conventions signed by Colombia in environmental matters. Likewise, the validity and relevance of the national regulatory frameworks related to the conservation and management of natural resources has been evaluated. The main objective is to ensure that all actions proposed from Paramuno Project 1 are in line with these regulations.*

*Furthermore, it is a responsibility that the conservation and restoration activities proposed within the framework of the project are based on these agreements, since they legitimize these activities as effective tools for their adaptation in the national territory. Likewise, this shows that the commitment is not only for the care of forests, but also for their biodiversity and water sources in general. This Safeguards, is integrated in the **Institutional** thematic that, according to the national interpretation, any projected REDD+ activity must be adapted to the National Forestry Development*

Plan, and clearly know and adjust in detail not only to the regulations linked to this, but also to local practices (Camacho A, Lara I & Guerreo, 2017).

Table 10. Addressing and/or complying with Safeguard 1.

SAFEGUARDS 1 THEMATIC NATIONAL INTERPRETATION: INSTITUTIONAL						
Item	Requirement "BCR Tool to demonstrate compliance with REDD+ Safeguards".	Component	ELEMENTS NATIONAL INTERPRETATION	ID	PROJECT ACTIVITY	Compliance
1.1	<p><b>Compatibility analysis:</b> Documentary analysis in which all actions implemented under the project are listed and relate each action to national forest policies and programs as appropriate.</p>	Normative	A1. Correspondence with the National legislation	C-1	Satellite monitoring of changes due to deforestation and degradation	<p>A <a href="#">Legal Compatibility Matrix</a> was prepared, showing how each of the project activities is aligned with international agreements, national policies, strategies, plans and programs.</p>
				C-2	Conduct a training cycle to strengthen knowledge in conservation of strategic ecosystems.	
				C-3	Perform ground-based hot spot monitoring	
				C-4	Manage land planning and promote the implementation of sustainable production practices.	
				B-1	Monitoring threatened ecosystems	
				B-2	Conduct participatory wildlife monitoring	
				B-3	Zoning areas with presence of endangered species	
				A-1	Characterize the use and management of water on the Property.	
				A-2	Develop a conservation plan for areas of importance for water resources.	

Source: The Cataruben Foundation, 2023.

Table 11. Progress of Safeguard 1 compliance with respect to the overall goal of the Safeguards monitoring plan.

Safeguards	Item	Indicator(s)	Progress (%) Period 2017-2021	Compliance (%) Global Target
<b>1</b>	1.1	# of compatibility reports performed	6%	<b>6%</b>

Source: The Cataruben Foundation, 2023.

## 10.2 Safeguards 2

*"The transparency and effectiveness of national forest governance structures, taking into account national legislation and sovereignty. Provide transparent and consistent information that is accessible to all stakeholders and regularly updated. Be transparent and flexible to allow for improvements over time. Build on existing systems, if any".*

### *B2. Transparency and Access to Information*

*In accordance with this principle, Paramuno Project 1 has implemented relationship strategies that are rigorously aligned with the BCR Standard (BioCarbon Registry V3.1) and Law 1712 of 2014, which establishes the regulations around transparency and the right of access to public information at the national level.*

*A variety of communication mechanisms have been devised and implemented in order to make this Safeguards commitment a reality, including radio spots, video calls, and digital documents, as well as workshops and training, among others. These actions are not only intended to disseminate information effectively, but also to establish robust channels of interaction with the various enrolled stakeholders.*

*Through radio spots and other tools, we seek to increase awareness of the existence of the Project, providing clear and accessible information on its objectives, scope, stages, enrollment process and contractual commitments. Video calls, on the other hand, are a direct and personalized means of communication, allowing a closer interaction with the participants and facilitating the resolution of doubts and concerns.*

*Digital documents are a fundamental pillar to organize and disseminate relevant information in an efficient manner, ensuring that it is easily accessible to any interested party. In addition, workshops and trainings provide an interactive platform where dialogue is fostered, knowledge is shared and mutual understanding between the project and its stakeholders is strengthened.*

*It is also important to note that the initial phase of the project (feasibility) is currently being reported in the National Registry of Greenhouse Gas Emissions Reduction (RENARE), a platform of the Ministry of Environment and Sustainable Development*

used to record greenhouse gas reductions in Colombia (See [Support RENARE Paramuno Project 1](#)). The Project owner intends to continue reporting on the Formulation phase through the Renare platform. Unfortunately, it is currently disabled and it has not been possible to make progress in this regard. However, there have been requests for information as to when the platform will be accessible again. Initially, the request was made to [IDEAM](#), the entity that previously managed the platform. According to the [response received](#), "as of the order issued on September 23, 2022, the administration of the platform passed to the Ministry of Environment and Sustainable Development".

In line with this response, a [request](#) was made [to the](#) corresponding [ministry](#). The [response received by the ministry](#) on June 1, 2023 indicated that the platform has been temporarily closed since August 2022 and that a date for reestablishing its access and usability has not yet been determined. Due to this situation, invited users, project holders and the Ministry itself cannot access the platform to review, complete or register information on previously registered GHG mitigation projects, nor to extract specific information on these projects.

In short, these strategies not only respond to regulatory standards, but also constitute a conscious effort to build a solid and participatory relationship with the community and other key stakeholders, thus promoting transparent and collaborative management in the development of the Project.

### *B3. Accountability*

The national interpretation of Safeguards tool, in this element, considers that those in charge of implementing REDD+ activities must convene accountability spaces where project management reports are presented. This measure is essential to strengthen transparency, accountability and the effectiveness of the project in terms of climate change mitigation.

Transparency in communicating financial viability fosters a relationship of trust between The Cataruben Foundation and Ecosystem Managers. Providing a clear perspective on the financial sustainability of the project strengthens the long-term commitment of the participants.

At the documentary level, key instruments have been created to help ensure transparency and access to information. The [Economic Benefits](#) Statement presents in a transparent and accessible manner the status of the economic benefits derived from the trading of verified carbon certificates. This report is presented once the verifications for each monitoring are finalized and goes together with the [Carbon Certificate Issuance Report](#), which informs the Ecosystem Managers about the initial stock of certificates issued during a specific verification. These documents, together with the meeting minutes, attendance lists and photographic record of the informative spaces, will serve as fundamental supports to comply with the accountability process.



*In addition, strategies have been developed to help ensure transparency and access to information. The [Informative Bulletin](#), a report that allows communicating annually or when necessary to the Ecosystem Managers, on the operability and current stage of the project. A tool called [Financial Simulator](#) is also used in the initial stage of project socialization, which provides a detailed and projected view of the expected economic benefits throughout the project, derived from the quantification of greenhouse gas (GHG) reductions and/or removals and monitoring of eligible areas.*

*These documents not only comply with transparency requirements, but also strengthen the active participation of Ecosystem Managers by providing them with detailed and updated information on Project management. Together, these initiatives promote forest governance based on openness, consistency and flexibility, complying with the fundamental principles of transparency and access to information.*

#### *B4. Recognition of Forest Governance Structures*

*This principle highlights the importance of transparency and effectiveness in forest governance structures at the national level. It focuses on the need to recognize and respect those responsible for making decisions regarding forests, underlining the relevance of guaranteeing free access to information. This open and clear access is an essential component to strengthen the active participation and trust of all stakeholders in forest management.*

*Therefore, within the scope of Paramuno Project 1, a series of strategic mechanisms have been implemented to encourage meaningful participation of both the Ecosystem Managers and the community. Social networks and the internet have become effective channels to disseminate information and encourage interaction among stakeholders. In addition, a PQRS system has been implemented, which allows a space for feedback and expression by those interested in the Project.*

*Through face-to-face and virtual meetings, where workshops and training sessions are held, specific spaces are created to facilitate interaction among the various stakeholders, with a particular focus on forest conservation. These events not only offer specialized knowledge, but also foster constructive discussions, the exchange of experiences and the creation of synergies among participants.*

*The implementation of these mechanisms not only responds to the need to comply with the principles of transparency and participation, but also positions itself as a proactive strategy to nurture collective commitment to forest conservation.*

#### *B5. Capacity Building*

*This element of Safeguards 2 highlights the importance of strengthening technical, legal and governance capacities, as appropriate, so that stakeholders can make informed and informed decisions.*

The Cataruben Foundation, within the framework of the Project, has created opportunities to strengthen the technical capacities of the Ecosystem Managers through training on climate change, forest conservation and biodiversity;

Finally, Safeguard 2 is framed within the **Institutional** theme within the national interpretation of the Safeguards, as it represents the means of access not only to information, but also to the links that are strengthened between Cataruben and ecosystem managers. **Table 12** below shows its approach through its linked evidence.

**Table 12. Addressing and/or complying with Safeguards 2 in the framework of Paramuno Project 1.**

SAFEGUARDS 2 THEMATIC NATIONAL INTERPRETATION: INSTITUTIONAL						
Item	Requirement "BCR tool to demonstrate compliance with the Safeguards REDD+".	Component	ELEMENTS INTERPRETATION NATIONAL	ID	PROJECT ACTIVITY	Compliance
2.1	# of radio spots and/or audios produced and broadcasted within the framework of the project.	Informative	B2. Transparency and Access to Information	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Compilation of the different jingles that were broadcast through the radio, which are intended to communicate and invite the community to participate in the Forum on Biodiversity, Carbon and Forests, this forum aimed to interact with experts to strengthen knowledge on climate change, forest conservation and biodiversity, in addition to publicizing the Project. These radio spots were also produced to invite the population to apply for their properties. <a href="#">Evidence of jingles.</a>
2.2	# of digital documents produced and disseminated as part of the initiative (brochures, posters, illustrative documents, guides, etc.).	Informative	B2. Transparency and Access to Information	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	A set of flyers were prepared and disseminated through social networks such as WhatsApp, Instagram and Facebook; these documents are intended to invite the community to be part of the change, enrolled to contribute to the conservation of forests and high mountain ecosystems; in these documents it is indicated which are the different channels available to perform the application process of the properties to the Project. They are also invited to participate in the

						different face-to-face meetings, previously scheduled to carry out the socialization of the Project and the enrolled contract. <a href="#">Evidence of flyers.</a>
2.3	<b># of communications sent</b> via e-mail for the dissemination of information within the framework of the project.	Information	B2. Transparency and Access to Information	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Compilation of the different e-mails, which show the communication with the Ecosystem Managers, the receipt of documents for the application of the Properties to the Project, the requests, doubts and concerns presented, as well as the answers given to them. <a href="#">Evidence of the traceability of emails.</a>
2.4	<b># of virtual and/or face-to-face socializations</b> for property acquisition	Information	B2. Transparency and Access to Information	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Evidence of photographs and attendance records of the community to the different previously scheduled face-to-face meetings. The purpose of these meetings was to socialize the Project, showing its scope, objectives, enrolled requirements, and the commitments acquired with the enrollment. <a href="#">Evidence of socializations carried out.</a>
2.5	<b># of activities or documents</b> produced for organizations, associations, community action boards or interest groups.	Information	B2. Transparency and Access to Information	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Documents that were designed to make the project known to associations, community action boards and the community in general. These were previously delivered and socialized through virtual and face-to-face meetings. <a href="#">Evidence of Documents and Activities Developed.</a>
2.6	<b># of registrations of the initiative in RENARE</b>	Information	B2. Transparency and Access to Information	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Attached is proof that the project is currently part of the National Registry for the Reduction of Greenhouse Gas Emissions - RENARE, for which in the link you can see the traceability of the management carried out. <a href="#">RENARE Registry Support.</a>

2.7	# of project management reports	Normative	B3. Accountability	C-4	Manage land planning and promote the implementation of sustainable production practices.	<p><a href="#">The Financial Simulator</a> was developed and is socialized to each Ecosystem Manager; this is a tool that allows them to know a possible projection of the economic benefits to be received during the contractual enrolled.</p> <p>At the same time, the <a href="#">Economic Benefits Statement</a> and the <a href="#">Carbon Certificates Emission Report</a> have been prepared, which will be shared with the Ecosystem Managers once the carbon certificate commercialization process has been carried out.</p> <p>An <a href="#">Informative Bulletin</a> was prepared highlighting the progress and stage of the Project; this bulletin will be issued annually, and its purpose is to keep Ecosystem Managers informed about the management carried out and the results achieved during this period of time.</p>
2.8	# of reports on recognition of Forest Governance structures	Informative	B4. Recognition of Forest Governance Structures	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Document showing how forest governance structures are recognized from the Project, through instruments such as organization, participation, assurance and understanding. <a href="#">Compliance Report Safeguards 2</a>
2.9	# of workshops and/or trainings developed within the framework of the initiative (attendance records, photographic record, supporting documents, video recordings).		B5. Capacity building	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	Folder containing the support of the different workshops and trainings carried out within the framework of the Project, which are aimed at strengthening capacities and knowledge regarding climate change, land planning, sustainable agricultural practices, agroecology and carbon. <a href="#">Evidence of Training and Workshops Conducted.</a>

Source: The Cataruben Foundation, 2023

Table 13. Progress of Safeguard 2 compliance with respect to the overall goal of the Safeguards monitoring plan.

Safeguards	Item	Indicator(s)	Progress (%)	Compliance
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			Period 2017-2021 with respect to the overall goal.	(%) Global Target
<b>2</b>	2.1	# of radio spots and/or audios produced and broadcast within the framework of the project.	11%	<b>40%</b>
	2.2	# of digital documents produced and disseminated within the framework of the Project (brochures, posters, illustrative documents, guides, etc.).	41%	
	2.3	# of communications sent via e-mail to disseminate information within the framework of the project.	23%	
	2.4	# of virtual and/or face-to-face socializations for property acquisition	92%	
	2.5	# of activities or documents produced for organizations, associations, community action boards, or interest groups	25%	
	2.6	# of registrations of the initiative in RENARE	100%	
	2.7	# of project management reports	6%	
	2.8	# of reports on the recognition of forest governance structures	25%	
	2.9	# of workshops and/or trainings developed within the framework of the Project (attendance records, photographic registry, supporting documents, video recordings).	40%	

Source: The Cataruben Foundation, 2023.

### 10.3 Safeguards 3

"Respect for the knowledge and rights of indigenous peoples and members of local communities, taking into consideration relevant international obligations and national circumstances and legislation, and bearing in mind the United Nations Declaration on the Rights of Indigenous Peoples."

#### C6. Free, Prior, and Informed Consent (FPIC)

This element raises the need to carry out working groups that actively include the local communities, which in this case refers exclusively to the farmer communities and private

landowners of their properties. In other words, they are spaces for decision making articulated among the participants, and in the different phases of the Project, i.e.: pre-feasibility, structuring and implementation of conservation and restoration activities. At this point, it is fair and necessary to clarify: **Paramuno Project 1 is designed exclusively for rural communities that have or can demonstrate ownership or private possession of the land**, in addition, that are self-recognized as farmers and that develop economic activities enrolled in agroforestry or livestock practices, making it clear that there will be no intervention in collective property, indigenous reserves, ancestral or ethnic territories.

#### *C7. Respect for Traditional Knowledge.*

*It highlights the recognition of and respect for traditional knowledge systems and the local and ethnic peoples' and communities' own visions of the territory. It is important to highlight that the project respects and recognizes the local knowledge and practices of land use (rural farmer community), which are materialized in a constant dialogue and exchange of knowledge throughout the life of the project. This is where articulated strategies for the conservation and restoration of strategic ecosystems are configured and reconfigured.*

#### *C8. Benefit Sharing.*

*The guarantee of participation and the fair and equitable distribution of the economic benefits derived from conservation activities are fundamental elements for the success and sustainability of the Project. These principles are concretized through the enrolled Ecosystem Managers' contracts, which represent the basis for the consent obtained from each enrolled Ecosystem Manager, as well as the respect for local knowledge on land use.*

*In these enrolled contracts, the distribution of the economic benefits after the commercialization of the carbon certificates, expressed in percentage terms, is precisely established.*

#### *C9. Land Rights.*

*The Project owner must recognize and respect the rights and knowledge of the communities present in the territory under the minimum applicable standard of law and international declarations on the rights of indigenous peoples. However, Paramuno Project 1 is aimed exclusively at rural communities or self-identified farmers who can demonstrate private ownership of the land. For this reason, the request for the [Determination of Propriety and Timeliness of Prior Consultation](#) is initiated before the Ministry of the Interior, in order to ensure that conservation and restoration activities will not intervene in collective property.*

*Therefore, it is important to note that the Ministry of the Interior issued [Resolution No. ST-1501 DE 17 OCT 2023](#), which indicates that prior consultation with indigenous communities for the Project is not appropriate.*

**Table 14.** Addressing and/or complying with Safeguards 3 in the framework of Paramuno Project 1.

SAFEGUARDS 3 THEMATIC NATIONAL INTERPRETATION: SOCIAL AND CULTURAL						
Item	Requirement "BCR Tool to demonstrate compliance with REDD+ Safeguards".	Component	ELEMENTS NATIONAL INTERPRETATION	ID	PROJECT ACTIVITY	Compliance
3.1	<b>Working groups:</b> the Project owner must implement working groups with the communities and other mechanisms that allow the enrollment of these communities in the Project from its pre-feasibility and structuring phase, in relation to the enrollment of traditional ancestral knowledge in the Project.	Participatory	C6. Free, Prior and Informed Consent (FPIC).	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	The document Plan Mesas de Trabajo was prepared, which is accompanied by a training plan to be developed with the project communities. The objective of these trainings is to generate spaces for work, participation and dialogue on different topics such as climate change, forests and biodiversity. <a href="#">Working Group Plan</a> .
			C7. Respect for Knowledge Traditional	C-2	Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.	
3.2	<b>Conservation agreements:</b> The Project holder may propose new forms of sustainable use of the territory. In addition, it may limit certain activities carried out by the communities, as long as they accept it through an agreement signed by their representatives.	Participatory	C8. Distribution of profits	C-4	Manage land planning and promote the implementation of sustainable production practices.	Evidence of the contracts enrolled in Paramuno Project 1, signed with the Ecosystem Managers. <a href="#">Evidence of Contractual Contracts</a> .
3.2	<b>Mapping of communities in the territory and prior consultation:</b> the Project owner must recognize and respect the rights of the	Investigative	C9. Land Rights	C-4	Manage land planning and promote the implementation of sustainable production practices.	Map showing the reference region of the Project and the identification of the ancestral territories present in it. The analysis is contained in the document called <a href="#">Mapping with communities</a> .  Also attached is the evidence of the <a href="#">Resolution</a> issued by the

<p>communities present in the territory. This must be complied with under the minimum applicable standard of law and international declarations on the rights of indigenous peoples.</p>				<p>Ministry of the Interior, on the non-approval of prior consultation with indigenous communities for the Project.</p>
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Source: The Cataruben Foundation, 2023

**Table 15.** Progress of compliance with Safeguards 3 with respect to the overall goal of the Safeguards monitoring plan.

Safeguards	Item	Indicator(s)	Progress (%) Period 2017-2021 with respect to the overall goal.	Compliance (%) Global Target
<b>3</b>	3.1	# of work tables held with the communities	25%	<b>47%</b>
	3.2	# of contracts and/or conservation agreements signed	91%	
	3.3	# of community mapping analyses developed	25%	

Source: The Cataruben Foundation, 2023

### 10.4 Safeguards 4

*"The full and effective participation of stakeholders, in particular indigenous peoples and local communities."*

#### *D10. Participation.*

*This establishes that it must be demonstrated, through concrete evidence, that the Project has been disclosed, socialized, and that the general and specific information that structures the Project has been shared with the local community in a clear, complete, inclusive and effective manner through the appropriate channels. Likewise, evidence that the community had the opportunity to participate, really and effectively, from the pre-feasibility and configuration phase of the Project.*

*In this sense, the Project has divided these channels according to established stages:*



- **In stage 1**, a social, economic and environmental characterization survey is conducted to identify needs, opinions, knowledge and local practices that will help strengthen conservation and restoration activities in strategic ecosystems.
- **In stage 2**, the active dissemination of Project information is carried out depending on the sub-stage of the project (stakeholder consultation, socialization, definition of ownership and delimitation of the Property, enrolled owners, implementation and monitoring, and delivery of economic benefits).
- **In stage 3**, actions are carried out to promote, raise awareness and strengthen capacities, practices and knowledge for the configuration of joint strategies through the development of workshops, training or feedback spaces.
- **In stage 4**, mechanisms are made available to ensure that suggestions, questions or complaints are dealt with in a timely manner by the project owner through e-mails, institutional telephone numbers and a PQRS system.

Thus, in a global sense, a guarantee of full and effective participation is provided from the Project to all the actors involved, creating the conditions to strengthen the agency in decision making, which directly benefits them materially and symbolically. That is, strengthening those capacities that involve the management of the territory, conservation and an ethic of care, emphasizing the environmental and territorial thematic mentioned in the national interpretation of these Safeguards (Camacho A, Lara I & Guerreo, 2017) by recognizing the territory and adjusting the activities to it. The following illustrates the approach, compliance and respect for this Safeguards:

Table 16. Addressing and/or complying with Safeguards 4 under Paramuno Project 1.

SAFEGUARDS 4 THEMATIC NATIONAL INTERPRETATION: SOCIAL AND CULTURAL						
Item	Requirement "BCR tool to demonstrate compliance with the Safeguards REDD+".	Component	ELEMENTS INTERPRETATION NATIONAL	ID	PROJECT ACTIVITY	Compliance
4.1	Mechanisms for socialization and dissemination of information: the project owner must demonstrate with evidence that it has disclosed, socialized and shared the information with the communities in a transparent, clear, complete, inclusive	Informativ e	D10. Participation	C-4	Manage land and promote the implementation of sustainable production practices.	Folder containing evidence of the implementation of communication and disclosure mechanisms to ensure full and effective stakeholder participation. <a href="#">Evidence of socialization and dissemination mechanisms.</a>
				C-2	Conduct a training cycle to strengthen	A compliance report on this safeguard has also

	and effective manner through the corresponding means.				knowledge in the conservation of strategic ecosystems.	been prepared, which provides further context on full and effective partition. <a href="#">Compliance report.</a>
4.2	<b>Participation mechanisms used:</b> the project owner shall demonstrate with evidence that the community had the opportunity to participate, really and effectively, from the feasibility and structuring phase of the project.	Participatory	D10. Participation	C-4	Manage land and promote the implementation of sustainable production practices.	Folder showing the Petitions, Complaints, Claims and Suggestions - PQRS form and its management system. In addition, evidence of the PQRS presented within the framework of the Project is attached, showing how they were dealt with. <a href="#">Evidence of Participation Mechanisms.</a>

Source: The Cataruben Foundation, 2023

Table 17. Progress of Safeguard 4 compliance with respect to the overall goal of the Safeguards monitoring plan.

Safeguards	Item	Indicator(s)	Progress (%) Period 2017-2021 with respect to the overall goal.	Compliance (%) Global Target
<b>4</b>	4.1	# of reports of communication and outreach mechanisms used to ensure full and effective stakeholder participation	25%	<b>25%</b>
	4.2	# of PQRS reports that show how the comments made by the communities were addressed and how they were dealt with.	25%	

Source: The Cataruben Foundation, 2023

### 10.5 Safeguards 5

"The compatibility of the measures with the conservation of natural forests and biological diversity, ensuring that they are not used for the conversion of natural forests, but to encourage their protection and conservation, as well as the promotion of other social and environmental benefits."

#### E11. Conservation of Forests and their Biodiversity.

Paramuno Project 1 coordinates conservation work with communities, verifies the alignment of REDD+ activities with national and local conservation objectives, and recognizes the unique characteristics of each territory. It also focuses on ensuring

*compatibility with conservation targets and ecosystem services, as well as complying with environmental regulations.*

*Several measures have been taken to ensure compliance with environmental regulations, including conducting environmental impact assessments and following all relevant national and international laws. Also, the landowners since 2017 have participated in regular monitoring and reporting to ensure that the project continues to comply with all regulatory requirements.*

*Through conservation actions, we seek to bring greater well-being to the communities; that is why through talks and workshops, we provide measures that can be implemented in the properties and that contribute to improve conservation practices. These actions have been designed in such a way that they do not affect the services provided by natural ecosystems to the community in general.*

*Training and accompaniment processes have also been important components of the project. This has involved training local communities and stakeholders on conservation principles and practices, as well as providing ongoing support to ensure effective implementation of conservation actions.*

*In terms of biodiversity conservation, the project is designed to protect threatened habitats and species, as well as promote the sustainable use of natural resources by local communities.*

#### *E12. Provisions of Environmental Goods and Services.*

*Considering this requirement to support the provision of ecosystem services and their enjoyment, the Project not only complies with conservation actions, but also actively promotes the protection and preservation of forests and the various services that emanate from their ecosystems.*

*The implementation of conservation measures not only contributes to climate change mitigation and biodiversity preservation, but also highlights the importance of ecosystem services for local communities. By protecting and conserving forests, the Project directly promotes the continued provision of services such as water purification, climate regulation, pollination and other benefits fundamental to human well-being.*

*In this sense, the Project not only demonstrates its commitment to forest conservation, but also highlights how these actions directly benefit communities by ensuring the availability and sustainable enjoyment of ecosystem services essential to their quality of life.*

**Table 18.** Addressing and/or complying with Safeguards 5 in the framework of Paramuno Project 1.

SAFEGUARDS 5 THEMATIC NATIONAL INTERPRETATION: ENVIRONMENTAL AND TERRITORIAL						
Item	Requirement "BCR Tool for demonstrating compliance with the Safeguards REDD+".	Component	ELEMENTS INTERPRETATION NATIONAL	ID	PROJECT ACTIVITY	Compliance
5.1 5.2 5.3	Project owners must work in coordination with communities to conserve, protect, restore and sustainably use ecosystems.	Environmental	E11. Conservation of Forests and their Biodiversity	B-1	Monitoring threatened ecosystems	Folder containing a report on each of the trainings that were directed to the Ecosystem Managers, to encourage the conservation of ecosystems and their biodiversity. These trainings dealt with climate change, forest ecosystems, ecosystem services, environmental commitment and natural resource management. <a href="#">Evidence of Training</a> .  Additionally, 3 reports have been prepared containing an analysis of endangered, vulnerable and critical species by Property. <a href="#">Evidence of Reports</a> .  Finally, a <a href="#">Hot Spot Monitoring Report</a> was prepared for the purpose of identifying and addressing hot spots in the Project area.
				B-2	Conduct participatory wildlife monitoring	
				C-3	Perform ground-based hot spot monitoring	
5.4	The activities implemented in the Project must comply with applicable environmental regulations on the use and exploitation of natural resources.	Normative	E11. Conservation of Forests and their Biodiversity	B-1	Monitoring threatened ecosystems	Attached is a folder of technical documents, which contains maps showing the non-conversion of forest in each of the properties of the Project. <a href="#">Evidence of Maps</a> . Additionally, the <a href="#">Safeguards 5 Compliance Document</a> has been prepared.
				B-2	Conduct participatory wildlife monitoring	
				C-3	Perform ground-based hot spot monitoring	
5.5	The project holder shall demonstrate that the project has not incurred in activities involving the	Normative	E12. Provision of Environmental Goods and Services	A-1	Characterize the use and management of water on the Property.	Folder containing certifications of no environmental infractions and/or investigations, issued by the Regional Autonomous Corporations in the area of influence of

	conversion of natural forests to other types of land use.			A-2	Develop a conservation plan for areas of importance for water resources.	the Project. <a href="#">Evidence Certifications of no environmental infractions.</a>
				B-3	Zoning areas with presence of endangered species	

Source: The Cataruben Foundation, 2023

**Table 19.** Progress of compliance with Safeguard 5 with respect to the overall goal of the Safeguards monitoring plan.

Safeguards	Item	Indicator(s)	Progress (%) Period 2017-2021 with respect to the overall goal.	Compliance (%) Global Target
<b>5</b>	5.1	# of cycles of training given to the community	25%	<b>25%</b>
	5.2	# of vulnerable species of biodiversity in the study area	25%	
	5.3	# of hot spot alerts identified in the project area	25%	
	5.4	# of forest non-conversion analysis	25%	
	5.5	# of certifications from environmental authorities evidencing NO environmental infractions and/or investigations.	25%	

Source: The Cataruben Foundation, 2023.

### 10.6 Safeguard 6

"The adoption of measures to address reversal risk management".

#### F13. Environmental and Territorial Planning.

This crucial component of Safeguards 6 highlights the need to support the consolidation of land and environmental management instruments, in accordance with current legislation, with a focus on conservation and sustainable forest management. In this context, every decision taken in the framework of Paramuno Project 1 activities must be aligned with the objective of minimizing reversal risk management.

Active collaboration with Ecosystem Managers, through knowledge sharing, training and workshops, is essential to ensure meaningful participation of the local community in conservation initiatives, generating greater commitment from all stakeholders.

The inclusion of specific contractual clauses related to reversal risk management is presented as an effective measure. In line with the BioCarbon Registry standard, enrolled contracts incorporate a provision called "Reversal Risk Management", thus ensuring the continuity of conservation activities over time.

The implementation of these actions not only demonstrates a firm commitment to the conservation of natural ecosystems, but also underscores the importance of complying with current legal regulations and working closely with the local community. These elements are key to minimizing reversal risk management and ensuring that conservation efforts are effective and sustainable over time.

*F14. Sectorial Planning.*

This element highlights the importance of the project's actions being coordinated with national legislation that safeguards forests and biodiversity. It also highlights the recognition of, respect for, and alignment with existing environmental and territorial planning instruments.

Project activities have been designed to ensure compliance with national and international regulations on crucial issues such as forest conservation, biodiversity and climate change, as reflected in the legal competitiveness matrix.

In order to respect pre-existing land-use planning instruments, The Cataruben Foundation conducts a thorough review of the land-use plans (POT) of the municipalities that make up the project's reference area. This process ensures that project activities are aligned with existing land use planning and distribution, which not only prevents possible future conflicts, but also ensures that conservation actions are consistent with local land use and territorial distribution.

**Table 20.** Addressing and/or complying with Safeguards 6 under Paramuno Project 1.

SAFEGUARDS 6 THEMATIC NATIONAL INTERPRETATION: ENVIRONMENTAL AND TERRITORIAL						
Item	Requirement "BCR tool to demonstrate compliance with the Safeguards REDD+".	Component	ELEMENTS INTERPRETATION NATIONAL	ID	PROJECT ACTIVITY	Compliance
6.1	The Project owner shall take	Legal	F13. Environmental and Territorial Planning	C-4	Manage land planning and promote the implementation of sustainable production practices.	Document that analyzes the permanence risk of the Ecosystem Managers throughout the project, as well as an analysis of the reversal risk management that the project faces, or may face. <a href="#">Permanence Risk Analysis</a> . One of the actions implemented to ensure the permanence of the Ecosystem Managers in 7Qhe
6.2	measures to reduce the reversal risk management.					

SAFEGUARDS 6 THEMATIC NATIONAL INTERPRETATION: ENVIRONMENTAL AND TERRITORIAL						
Item	Requirement "BCR tool to demonstrate compliance with the Safeguards REDD+".	Component	ELEMENTS INTERPRETATION NATIONAL	ID	PROJECT ACTIVITY	Compliance
			F14. Sector Planning	C-4	Manage land planning and promote the implementation of sustainable production practices.	Project are the contractual clauses (clause Fourteenth). <a href="#">Contract of Enrollment</a> .  <a href="#">Likewise, Safeguards Compliance Document 6</a> has been prepared.

Source: The Cataruben Foundation, 2023

**Table 21.** Progress of Safeguard 6 compliance with respect to the overall goal of the Safeguards monitoring plan.

Safeguards	Item	Indicator(s)	Progress (%) Period 2017-2021 with respect to the overall goal.	Compliance (%) Global Target
<b>6</b>	6.1	# of reversal risk management analysis performed	25%	<b>25%</b>
	6.2	# of reports on actions implemented to guarantee the permanence in time of the Ecosystem Managers within the framework of the Project.	25%	

Source: The Cataruben Foundation, 2023

### 10.7 Safeguards 7

"The adoption of measures to reduce emissions displacement".

G15. Forestry Control and Monitoring to Avoid Displacement of Emissions.

This Safeguards, underlines the responsibility of the project holder (The Cataruben Foundation) to identify causes and agents of deforestation, i.e., displacement of emissions or leakage. Likewise, the duty to design actions to ensure the monitoring and control of the same, describing the implementation of timely response protocols in

the face of the identification and inspection of these. This implies, consequently, an evaluation supported by the BCR Version 3.1 methodology. This methodology highlights the importance of placing them (the Leakage) in a spatio-temporal context, recognizing actors and socio-economic aspects that may be the trigger.

Accordingly, The Cataruben Foundation is conducting a preliminary analysis based on data from the Forest and Carbon Monitoring System<sup>1</sup>, in order to identify the main causes and agents of deforestation and land use change in strategic ecosystems. According to this, it was possible to define that the expansion of the agricultural frontier is one of the main causes and, paradoxically, the agent is the owners of private properties. Nevertheless, and in order to comply with the methodological criteria, it was proposed to establish a buffer<sup>2</sup> of 1 km distance from the limits of the eligible areas (strategic ecosystems). This area will be monitored in order to quantify the increase in greenhouse gas (GHG) emissions that could occur outside the project area.

However, these emissions will be subtracted from the results of the project, as a mechanism not only to identify, but also to strategically minimize these potential leakages. Likewise, work will be carried out with the local community to raise awareness (socialization, workshops, knowledge sharing, working groups, etc.) about the importance and benefits of conservation, restoration and sustainable use of the natural areas on the properties. This, with the aim of articulating efforts in the field to monitor first hand that such degradation (or leakage) does not spread to other areas. Consequently, it is intended to strengthen the articulation with SINAP<sup>3</sup> and SIDAP<sup>4</sup> meaning this, a complementary effort that would legitimize before the collective the activities proposed by the project. Thus creating the conditions that would produce the effort to conserve and consolidate the ideal of collective protection of the territory, and the material and symbolic benefits that this implies, thus achieving the enrollment of more and more properties in the Project.

**Table 22.** Addressing and/or complying with Safeguards 7 in the framework of Paramuno Project 1.

SAFEGUARDS 7 THEMATIC NATIONAL INTERPRETATION: ENVIRONMENTAL AND TERRITORIAL						
Item	Requirement "BCR Tool to demonstrate compliance with REDD+	Component	ELEMENTS INTERPRETATION NATIONAL	ID	PROJECT ACTIVITY	Compliance

<sup>1</sup><http://www.ideam.gov.co/web/sia-cifras/sistema-de-monitoreo-de-bosques-y-carbono#:~:text=The%20SMByC%20is%20a%20set%20of%20the%20forests%20of%20the%20country%C3%ADs>.

<sup>2</sup> It is an area surrounding the project reference region (properties).

<sup>3</sup> National System of Protected Areas.

<sup>4</sup> Departmental System of Natural Protected Areas.



	Safeguards".					
7.1	The Project holder must identify the Leakage and its causes and design strategies to: (i) guarantee the monitoring and control of the same, and (ii) minimize them.	Environmental	G15. Forestry Control and Surveillance to avoid displacement of emissions.	C-1	Satellite monitoring of changes due to deforestation and degradation	Document showing the identification of Leakage and its causes, monitoring and actions to minimize them <a href="#">Safeguards Compliance Report 7.</a>
7.2	The Project owner must implement response protocols for identifying leaks and how to control them.	Environmental	G15. Forestry Control and Surveillance to avoid displacement of emissions.	C-1	Satellite monitoring of changes due to deforestation and degradation	A Safeguards Compliance Report was prepared, outlining the protocol for responding to leakage under the Project. <a href="#">Safeguards Compliance Report 7.</a>

Source: The Cataruben Foundation, 2023

**Table 23.** Progress of compliance with Safeguard 7 with respect to the overall goal of the Safeguards monitoring plan.

Safeguards	Item	Indicator(s)	Progress (%) Period 2017-2021 with respect to the overall goal.	Compliance (%) Global Target
<b>7</b>	7.1	# of reports with identification of leaks and their causes	25%	<b>25%</b>
	7.2	# of response protocols in place to minimize leakage	25%	

Source: The Cataruben Foundation, 2023

### 11. Special categories, related to co-benefits

Strictly following the guidelines of the BCR standard in its latest version (3.0), as well as those of the "No Net Harm" tool to address and demonstrate additional social and environmental benefits (or Co-benefits). The following is the analysis of the results of the [Co-benefits Category Paramuno Orchid Project 1](#) (See sheet: "Report M. COBENEFITS")

11.1 Biodiversity conservation

For the development of Criterion 1, 7 trainings were given (see annex [Report Co-benefits Orchid - Paramuno Project 1.docx](#)) "Co-benefits Orchid Trainings", corresponding to 11.67% of the total planned during the total execution of the project, as part of the effective actions and measures to stop the loss of biological diversity, favoring that the ecosystems continue to provide essential services.

In relation to criterion 2, there is no evidence of a high incidence of the appearance or use of an invasive species as a result of the implementation of climate change prevention and mitigation measures in land use, conservation of fauna and flora, and protection of water resources, as evidenced in support 2 "Probability of introduction of invasive species" ([Co-benefits Report Orchid - Paramuno Project 1.docx](#)). In the same sense, within the sub-activities, satellite monitoring of land use change, land use planning management, training to strengthen knowledge regarding the conservation of high mountain ecosystems, monitoring of both terrestrial hot spots and threatened ecosystems, and participatory monitoring of fauna, the zoning of areas with the presence of species included in the Red List of Species, the characterization of the use and management of water resources, and the execution of the conservation plan for areas of importance for biological conservation are not activities that pose any risk with respect to the introduction of invasive species.

In relation to the monitoring plan for HME and REDD+ activities, the promotion of the implementation of good sustainable practices made it possible to establish that although no species has been introduced, there may be a risk associated with one of the good sustainable production practices such as beekeeping. So far, the presence of this type of species has not been present in these activities.

The following is the approach and fulfillment of the Co-benefits of this component (Biodiversity Conservation) in the Orchid category and within the framework of Paramuno Project 1:

**Table 24.** Progress of compliance with the indicators of the "Biodiversity Conservation" component with respect to the overall goal of the CO-BENEFITS monitoring plan (Paramuno Project 1).

Co-benefits	Indicator	Approach and/or compliance	Progress (%) Period 2017-2021 with respect to the overall goal.
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<p><i>Develops <b>effective actions and measures to halt the loss of biological diversity</b>, favoring that ecosystems continue to provide essential services.</i></p>	<p><i># of trainings delivered / # of trainings planned</i></p>	<p><i>To develop this indicator, 7 training sessions were held as part of the effective actions and measures to halt the loss of biological diversity and ensure that ecosystems continue to provide essential services.</i></p>	<p>11,67%</p>
<p><i>Due to project activities, no invasive species have been introduced.</i></p>	<p><i># of reports with (0) invasive species encountered</i></p>	<p><i>In indicator 2, no invasive species were recorded as a result of the implementation of climate change prevention and mitigation activities in land use. In addition, the conservation of fauna and flora and the protection of water resources reduce the "Probability of introduction of invasive species". The activities to be implemented during the project associated with good sustainable practices must be taken into account.</i></p>	<p>50%</p>

**Source:** The Cataruben Foundation, 2023.

### 11.2 Benefits on communities

*It is essential to recognize that forest and high mountain ecosystems in Colombia are highly vulnerable to the effects of climate change. To address this situation and promote conservation and adaptation, it is crucial to take into account the human populations that inhabit these areas and that have been historically affected by the lack of land, which led them to settle in these areas of colonization.*

*Communities residing in these areas are the most likely to suffer the impacts of climate change and therefore need greater support for their development. This is where co-benefits play an important role in promoting resilience. These same co-benefits encompass a number of positive factors ranging from local and regional participation to fostering productive projects and increasing community incomes.*

*In this context, Paramuno Project 1 comprehensively addresses social and environmental aspects to ensure the sustainability of conservation activities. From 2017 to 2021, trainings focused on REDD+ and HME ecosystems have been implemented, addressing community issues such as land planning, sustainable wetland management, strengthening productivity and competitiveness, conservation agriculture and climate change adaptation processes.*

*The following is a detailed description of the approach and compliance with the Co-benefits in the "Orchid" category under Paramuno Project 1, focusing on the benefits to communities.*

**Table 25.** Progress of compliance with the indicators of the "Benefits on communities" component with respect to the overall goal of the COBENEFITS monitoring plan.

<b>Co-benefits</b>	<b>Indicator</b>	<b>Approach and/or compliance</b>	<b>Progress (%) Period 2017-2021 with respect to the overall goal.</b>
<i>Identifies and strengthens mechanisms for social and community participation at the local and regional levels.</i>	<i># of people trained</i>	<i>According to the project activities planned for the two project ecosystems, 45 people have been trained out of the 100 planned, involving the different groups in strengthening the sustainable management and conservation of the strategic ecosystems enrolled in the project.</i>	<i>45%</i>
<i>The project generates short and long-term benefits to small-scale productive projects with members of the communities in the project area.</i>	<i># of beneficiaries trained / # of beneficiaries enrolled.</i>	<i>In accordance with the conservation and restoration activities of strategic ecosystems promoted within the framework of the project, good practices for agricultural and livestock production and other sustainable alternatives are designed and implemented in the territory.</i>	<i>37%</i>
<i>The activities included in</i>	<i>Increase (%) in</i>	<i>According to the</i>	

<p><i>the GHG mitigation project produce an average net increase in the income of local producers.</i></p>	<p><i>income from the activities included in the Project, with respect to the productive activities already implemented on the Property.</i></p>	<p><i>characterization of the ecosystem managers and the projection of economic benefits from the sale of carbon credits, it is evident that there is a percentage increase in their income.</i></p>	<p>37%</p>
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*Source: The Cataruben Foundation, 2023*

### 11.3 Gender equity

*"Gender equity" is a component that encompasses two co-benefits in particular: (i) it considers determinants set forth in the gender-related normative framework, and (ii) it ensures women's full and effective participation and equal leadership opportunities at all levels of decision-making at the project level.*

*The Orquídea Category set out in BCR Standard V.3, and in accordance with national laws, must adhere to the provisions of the regulatory framework related to gender. This is due to the fact that the 1991 Political Constitution of Colombia established strategic rights for women and their role in society. Thus configuring the framework of the Differential Rights Approach that identifies in Colombia a historical condition of inequity and inequality between men and women. These guarantees are fundamental, and are elevated to constitutional rank, and of course, those derived from them:*

- *Equal conditions between women and men (gender)*
- *Citizen participation*
- *Autonomy and full capacity to decide on their own actions.*
- *Participation in public office*
- *Right to work without discrimination and with dignified and just conditions*
- *Exercising a profession*
- *Right to form a family*
- *Protection of women and maternity*
- *Protection against violence and discrimination of any kind*
- *Right to health*

#### **Legal framework on gender equity**

*The aforementioned rights give rise to legal norms related to the gender component in Colombia.*

- *L. 82/93 -L.1238/08: Law on Women Head of Household. Criteria for prioritization of women.*
- *L.387/97: Measures for the prevention of forced displacement and socioeconomic stabilization of internally displaced persons.*
- *L. 823/03 -L.1496/11: Equal opportunities for women.*
- *L.1009/06: Creation of the Permanent Observatory on Gender Issues.*
- *L.1232/08: Modification of the Law on Female Head of Household.*
- *L.1257/08: Economic and patrimonial violence includes "...the loss, transformation, subtraction, destruction, retention or distraction of objects, work instruments, personal documents, goods, values, rights or economic resources destined to satisfy the woman's needs".*
- *L. 1413/10: Inclusion of the care economy in the national accounts.*
- *"The care economy seeks to give value to care activities and unpaid domestic work, given that these activities are considered economic goods or services because in addition to generating value, they also demand costs represented in time and energy needed to produce them." (DANE, 2016).*
- *L.1496/11: Equal Pay Act.*
- *L. 1561/12: Titling of real estate holders. It is ordered to issue judgments in favor of both spouses or permanent partners.*
- *L. 1537/12: Preferential access to rural priority housing programs for women heads of household and victims of the internal conflict.*
- *L. 1532/12: Regulation of the Families in Action Program (art.10 p2) Payment of subsidies to women in the household.*
- *CONPES 3726/12: Rights of women victims. National Plan of Attention and Integral Reparation.*
- *L.1776/16: Creation of ZIDRES, Zones of Rural, Economic and Social Development Interest. Regulated by Decree 2106/19.*
- *L. 1876/17: National Agricultural Innovation System. Propose alternatives that guarantee the real participation of rural women.*
- *L.1822/17: Extension of maternity leave to 18 weeks.*
- *L.1900/18: Gender equity criteria in the allocation of vacant land and rural housing.*
- *L.2039/20: Rules to promote the labor insertion of young people.*
- *L.2046/20: Mechanisms to promote the participation of small local agricultural producers in public food procurement markets.*
- *L.2056/20: General Royalties System (art.30, p.6) Priority planning for women's equity.*
- *L.2114/21: Shared parental leave.*
- *L.2115/21: Guarantee of women and men heads of household access to financial services. Incentives for the creation and strengthening of micro and small businesses led by women. Law, I believe in you.*

- L.2117/21: Measures to strengthen and promote equality for women in access to employment and education in sectors where they have had low participation.
- L.2141/21: Modification of the Substantive Labor Code (CST) to protect non-working pregnant women.
- L.2155/21: Social Investment. Benefits to women. Art.20 Prioritizes some women to receive solidarity income. Art.34 Women in areas affected by the conflict.
- L.2156/21: Exemption from payment of ICFES exam for women victims of violence.
- L.2159/21: Budgetary tracer for women's equity.
- L.2186/22: Strengthens the financing of small and medium-sized agricultural producers, giving priority to rural women.

In recognition of this condition, Paramuno Project 1 promotes the effective participation of women by closing gaps through access to information, equal opportunities and strengthening regional leadership. Of 296 landowners, 83 are women who have enrolled in the project by participating in forest governance activities, women's empowerment, access to resources and informed decision making.

**Table 26.** Progress of compliance with the indicators of the "Gender Equity" component with respect to the overall goal of the COBENEFITS monitoring plan.

Co-benefits	Indicator	Approach and/or compliance	Progress (%) Period 2017-2021 with respect to the overall goal.
<p>It considers determinants set forth in the normative framework related to gender: (a) Law 731/02 on Rural Women (b) Women's equity policy guidelines</p>	<p># of women participating and implementing leadership and entrepreneurship competencies with a gender approach.</p>	<p>The management of Paramuno Project 1 conducted an analysis of determining points in the regulatory framework related to gender. Thus, this Project is aligned with the following normative points: <b>(j) Law 731 of 2022, Chapter 4: Norms related to the education, training and recreation of rural women, Art. 16. Likewise, Chapter 5: Participation of rural women in decision-making bodies, Art 19. Equitable participation of rural women</b></p>	<p>20%</p>

		<p><i>in different decision-making, planning and monitoring bodies at the territorial level.</i></p> <p><b>(ii) Law 2117 of 2021, Chapter 2: Implementation of gender policies, Art. 5: Promote and strengthen women's access to urban and rural work and income generation under equal conditions.</b></p>	
		<p><i>On the other hand, in attention to the co-benefits indicator, it was possible to determine that for the period 2017-2021, workshops and/or trainings focused on strengthening and developing the capacities of women in REDD+ and HME activities were carried out. Showing a 20% progress against the proposed target.</i></p>	

Source: The Cataruben Foundation, 2023

## 12 Grouped projects

Paramuno Project 1 does not consider the inclusion of new areas after validation.

## 13 Project implementation

*13.1. The start date of the project operation and the operation of the project activities.*

Paramuno Project 1 began its operation on August 1, 2017, at which time it began to constitute, direct and coordinate the implementation of conservation activities with the purpose of preventing forest deforestation and land use change in high mountain ecosystems including Paramo.

### 13.2. Report on the execution of activities in high mountain ecosystems

Prevention and mitigation measures to reduce land use change in high mountain ecosystems, monitoring, conservation of flora and fauna, and protection of water



resources are aimed at describing methodologies, frequencies and those responsible for monitoring project activities (defined).

For each activity that makes up the proposed conservation measures, the results of the indicator in the reporting period, the supporting documents of the information and observations are presented below. The [HME monitoring plan](#) matrix is also listed.

#### 13.2.1. Implement measures to prevent and mitigate land use change.

##### C-1. Satellite monitoring of land use change.

The objective of this activity is to maintain at least 90% of the eligible areas for high mountain ecosystems over time. The Cataruben Foundation will monitor the eligible areas every four years.

This activity has been under implementation since 2017. Compliance with the target for the monitoring period is 100%. Overall compliance with the project activity is 20%.

Satellite monitoring of land use change starts in 2017, the conservation of eligible project areas is checked in 2017 and it was determined that there were no significant changes in land use until 2021, as described in the land [cover and land use change report](#).

In addition, mining activity in the project areas is monitored ([satellite monitoring as an environmental monitoring activity in mining activities](#), mining title polygon annex), by identifying the polygons of the mining titles granted by the National Mining Agency. This monitoring consists of verifying and reporting if there is an unusual expansion in the polygons previously granted by the ANM. The monitoring (period 2017 - 2021) concludes that there is no mining activity in both the project area and leakage that poses risks to the project.

##### C-2. Manage land planning and promote the implementation of sustainable production practices.

This activity focuses on the conservation of high mountain ecosystem areas and the implementation of sustainable productive practices, which are based on the actions established in the implementation plans for each Property. These plans will be prepared taking into account the environmental, social, economic and productive aspects of each Property.

This activity is carried out in three main phases: the first is the property characterization of all the properties, the second is the generation of the property implementation plans, and finally, there is the stage of monitoring the implementation of the plan.

*The monitoring of this activity will be done through the indicator percentage of progress in the implementation of sustainable productive practices in the properties enrolled in the project, whose goal is 100%. The weight of the two phases activities is 15% each, and the third phase is 70%. The monitoring frequency will be every five years.*

*The operation of this activity starts from August 1, 2017 with the first visit of recognition and social characterization of the beneficiary household, as presented in the [relationship date of start of project activities for each Property](#).*

*Overall compliance with the activity is 13.7%. For the monitoring period, from August 1, 2017 to December 31, 2021, 91.3% compliance with the activity is reported through the implementation of two characterization surveys. In cases where the properties belonged to the same owner, were contiguous and/or shared similar characteristics, they were considered as nuclei and a single property characterization survey was conducted for these groups of properties. Annex: [2.1.1.1.2.1 Property Characterizations - HME](#), contains the supports of the characterizations carried out.*

*C-3. Conduct a training cycle to strengthen knowledge in conservation of high mountain ecosystems and governance structures.*

*This activity consists of carrying out training cycles with the purpose of strengthening knowledge related to the conservation of high mountain ecosystems and governance structures. During these trainings, specific information and training will be provided on the importance of preserving high mountain ecosystems, as well as on the strategies and practices necessary for their conservation.*

*The objective of this activity is to train landowners so that they can play a more active and effective role in the preservation of high mountain ecosystems and contribute to the strengthening of related governance structures. A total of 20 trainings are targeted for the total duration of the project.*

*The first training was held on August 6, 2017. However, the operation of the same begins earlier with the organization and preparation of the logistics of the same. The overall compliance of the activity is 30%.*

*During the monitoring period, a total of 6 training cycles were carried out. In 2017, 2018, 2019 and 2022, meetings for cross-cutting training on High Mountain Ecosystems (HME) and forest areas (REDD+) are encouraged. The topics covered are:*

- *Socialization of Greenhouse Gas Projects*
- *Property planning in the Eastern Cordillera and Central Cordillera*
- *Sustainable management of Wetlands and Peatlands*
- *Strengthening the productivity and competitiveness of the agricultural sector*

- Conservation agriculture and climate change adaptation

The supports of the activities carried out can be found in the following Annex [2.1.1.3 Training cycle](#).

#### *C-4. Conduct ground-based hot spot monitoring*

*This activity involves the execution of a monitoring process focused on the detection and tracking of terrestrial hot spots. These hot spots may refer to areas or locations on the land surface within the eligible areas where abnormal temperature elevation or the presence of heat-generating activities, such as forest fires, are identified.*

*The Cataruben Foundation will permanently monitor the hot spots in order to follow up on them and, if necessary, generate early warnings to reduce possible impacts. The goal is to carry out seven hot spot monitoring reports every three years. The indicator for this activity is the percentage of hot spot monitoring carried out.*

*The operation of the activity begins in 2017. For the monitoring period from August 1, 2017 to December 31, 2021, no hot spots were evidenced in properties with eligible areas of High Mountain Ecosystems from January 2017 to December 2021, as presented in Annex: [2.1.1.4. Hot Spots](#).*

*The percentage of compliance with the goal for the monitoring period is 100%, and the overall progress of the project is 25%.*

#### *13.2.2. Implement flora and fauna monitoring and conservation measures.*

##### *B-1. Monitor threatened ecosystems*

*This activity consists of carrying out constant and systematic monitoring of ecosystems that are at risk due to environmental and climatic pressures. This activity will evaluate the stability of the ecosystems, focusing on the identification of threats such as changes in land use in high mountain ecosystems.*

*In order to monitor the threatened high mountain ecosystems (HME), these were identified using the location of the properties and the map of ecosystems in some state of threat (Ether et al, 2017). Within the total number of properties for this project, 15 properties were identified with a threatened ecosystem, including 1 with endangered ecosystems (EN) and 14 with ecosystems in Vulnerable (VU) status (Annex [Threatened Ecosystems in High Mountain Properties](#)).*

*The ecosystems present within some state of threat in high mountains are associated with the Paramos, which have the capacity to provide services to society through water catchment, and the presence of fauna and flora species that may become endemic due to their distribution and altitudinal restrictions.*

### *B-2. Conduct participatory wildlife monitoring*

*This activity consists of carrying out participatory monitoring of the fauna. This approach involves the active collaboration of the local community and other stakeholders in the identification, monitoring and documentation of the fauna species present in the project's area of influence.*

*In order to carry out wildlife monitoring supported by the landowners, a methodology is structured that contains a series of activities with their respective indicators, which describe six phases for the efficient execution of participatory sampling, which is supported in the [participatory monitoring annex](#). In the first instance, it is proposed to carry out a logistical modeling, on which the entire process is based; in this, a diagnosis and collection of information from the Properties is carried out, followed by a cartographic analysis and the delimitation of conservation objectives. Subsequently, a prioritization of areas for the execution of the sampling is carried out, supported by the information of the IUCN Red Lists, in order to proceed with the training of the owners on the sampling method so that it can be efficiently managed.*

*Once the bioacoustic samples are received from the beneficiaries, the respective analysis of the information and the report of the results obtained, as well as the evaluation of the impact of the Project, is carried out in order to disseminate the findings to the interested parties.*

*This activity is under implementation as of 2017. Compliance with the target for the monitoring period is 8.3%.*

### *B-3. Zoning areas with presence of threatened or strategic species.*

*The activity consists of zoning areas that harbor threatened or strategically important flora and fauna species. This zoning process involves the delimitation and classification of these areas according to specific criteria, taking into account the presence and distribution of threatened or strategic species.*

*Based on the processing of data obtained from the IUCN Red List of Species and Ecosystems, the database of information on SiB species found in areas affected by the Project and the faunal list from the Paramo and Forests Program of the United States Agency for International Development (USAID), a zoning of the areas with the presence of species included in some category of threat and, therefore, priority for conservation is carried out.*

*According to the information from the SiB, whose objects of study correspond to amphibians, flying mammals and birds, the latter are precisely the most reported within the Project areas, with 191 findings of this class. Amphibians and bats follow, with 106 and 6 reports, respectively. In this sense, it is found that in relation to birds, the families*

*Accipitridae, Columbidae, Cracidae, Emberizidae, Parulidae, Thraupidae, Trochilidae and Tyrannidae are the most representative; equivalent case to the Amphibia class with the families Craugastoridae, Hylidae and Bufonidae. On the other hand, for the class Mammalia, only two families are reported: Phyllostomidae and Vespertilionidae, with 3 reports each.*

*An overlap analysis was performed between the areas of the properties and the potential distribution of species in some degree of threat (Vulnerable (VU), Endangered (EN) and Critically Endangered (CR)). Given that groups such as birds and mammals have a high rate of movement (Welbergen et al, 2020) and groups such as plants have a considerable area of distribution, this analysis was measured in a range of 1 to 3 according to the presence of the potential distribution of species in some degree of threat within the properties, being 1: the presence of VU species, 2: species in VU and EN categories, and 3: presence of species in CR, EN and VU. As a result, out of 52 properties analyzed, we found only one property in category 1, 33 in category 2 and 17 properties in category 3 (Annex. [Presence of threatened species in properties](#)).*

*This activity is being implemented as of 2017. Compliance with the goal for the monitoring period is 100%.*

#### *13.2.3. Implement measures to reduce water consumption for water conservation*

##### *A-1. Develop a conservation plan for areas of water resource importance.*

*To carry out this conservation plan, the execution is divided into 4 phases: Diagnostic phase, in order to identify the strategic water bodies within the property; Design phase, where the management sheets to be implemented per property are established; Implementation phase, where the execution of the plan's activities are carried out; and finally the follow-up phase, where the activities implemented on the property and their impact are reported.*

*This activity is under implementation as of 2017. The overall progress of the goal is 25%.*

##### *A-2. Characterization of areas of importance for water resources.*

*This activity will be divided into 4 phases: 4 reports will be made every 5 years where the characterization of productive activities, characterization of water bodies, follow-up on the impact of the conservation plan and water body signaling will be reviewed.*

*This activity is under implementation as of 2017. The overall progress of the goal is 23%.*

According to the Activity Monitoring Report ([HME Report](#)), for the activity related to the conservation of areas of importance for the resource, 2 activities were carried out, with which the compliance report is made. These activities are: 1) Conservation plan for areas of importance for water resources ([Planes de conservación de zonas de importancia para el recurso hídrico](#).) and 2) A report focused on properties with High Mountain Ecosystems (HME). This is developed based on the characterization of the Properties, focused on the use and management of the zones of importance for water conservation ([Characterization of the use and management of the zones of importance for water conservation](#)).

According to the above, to date, of the **21** properties that have HMEs, **19** have been characterized and **19** Conservation Plans for Zones of Importance for Water Resources (PCZIRH) have been developed. In order to show the percentage of compliance with the activity, the following equation is used: **% compliance = ((N°D\*0.10)+ (N°DI\*0.15)+ (N°I\*0.55)+ (N°S\*0.20)) / Total number of landowners with High Mountain Ecosystems (HME)**. Where, N°D = Number of Diagnosed Properties; N°DI = Number of Properties with Design; N°I = Number of Implemented Properties; and N°S = Number of Properties with Monitoring.

Currently, Paramuno Project 1 has executed **9.0%** of the 10% equivalent of the **diagnostic stage** (19 properties characterized). On the other hand, **13.6%** of the 15% equivalent of the **design stage** (19 properties with PCZIRH) has been achieved. With these advances, a progress of **22.62%** of the proposed activity has been achieved, as can be calculated in the distribution of stages, in the above mentioned equation.

According to the subsequent analysis, training will be carried out focused on three (3) fundamental topics:

1. Training on the protection and conservation of water sources on the properties.
2. Training on good agricultural practices.
3. Training on water harvesting in the Property.

### [13.3. Reporting on the implementation of REDD+ activities](#)

The results obtained from the implementation of REDD+ activities for the 2017-2021 monitoring period are listed below. Review the following path: 1.1 Annexes/ 3. Chap. REDD+/ 3.4 Monitoring Plan/ [3.4.1 REDD+ ACTIVITIES](#)

*13.3.1 Implement prevention and mitigation measures to reduce deforestation of natural forests*

*C-1. Satellite monitoring of changes due to deforestation.*

*The objective of this activity is to maintain, during project implementation, at least 90% of the REDD+ areas. The Cataruben Foundation will be responsible for monitoring and reports will be submitted every four years.*

*Overall compliance with the activity is 20%. For the 2017-2021 monitoring period, compliance with the goal is 100%.*

*The start of this activity is in the year 2017. A multi-temporal analysis of the eligible forest areas is carried out in order to identify the deforestation occurring in these areas during the 2017 - 2021 time period. Forest loss in the project areas is mainly present in the central mountain range, this due to illegal extraction and deterioration of the forest's carbon sequestration capacity. The supports are found in Annex: [3.1.1.1. Change in deforestation](#).*

*C-2. Conduct a training cycle to strengthen knowledge in the conservation of strategic ecosystems.*

*The activity consists of conducting training cycles designed to strengthen and enrich knowledge related to the conservation of strategic ecosystems. The main objective of this project is to increase understanding and awareness of the importance of conserving these vital ecosystems, while at the same time providing participants with the tools and knowledge necessary to carry out effective conservation practices. Over the course of the project, the goal is to conduct a total of 20 trainings.*

*The first training was held on August 6, 2017. The start date of the operations of this activity begins one month before with the organization and preparation of the logistics of this activity.*

*Regarding the monitoring period, which runs from August 1, 2017 to December 31, 2021, 100% compliance with the established goal is reported. Regarding the overall progress of the project, 25% progress is reported.*

*Six training cycles were held on the following topics:*

- *Socialization of Greenhouse Gas Projects*
- *Property planning in the Eastern Cordillera and Central Cordillera*
- *Sustainable management of Wetlands and Peatlands*
- *Strengthening the productivity and competitiveness of the agricultural sector*
- *Conservation agriculture and climate change adaptation*

The supports of the activities carried out can be found in the following Annex:  
[3.1.1.2.](#)

#### *C-3. Conduct monitoring of terrestrial hot spots*

*The activity consists of conducting continuous monitoring of hot spots in REDD+ eligible areas. These hot spots represent areas where there is an abnormal increase in temperature, including the detection of events such as forest fires. The established target is to carry out monitoring of 100% of the identified hot spots.*

*The activity has been under implementation since 2017. Overall compliance with the activity is 25%. For the 2017-2021 monitoring period, compliance with the goal is 100%.*

*During the monitoring period, it is reported that 100% compliance with the activity has been achieved and an overall project progress of 25% has been achieved. From January 2017 to December 2022, a total of 18 hot spots have been recorded in properties with eligible forest areas. The hot spots are present in 9 properties, where the owner of the Property San Ignacio de Aguazul Casanare, indicates a fire without affecting eligible areas of the project. The supports can be found in the following Annex [3.1.1.3.](#)*

#### *C-4. Manage land planning and promote the implementation of sustainable production practices.*

*Land-use planning management involves working in collaboration with landowners to develop plans for the sustainable use of natural resources and the conservation of forest ecosystems. This involves identifying critical conservation areas, planning sustainable agricultural and livestock activities, and promoting practices that reduce deforestation.*

*This activity is mainly composed of three phases: first, the land parcels involved are characterized; second, the land parcel implementation plans are prepared; and finally, the execution of these plans is monitored.*

*This activity will be monitored by means of an indicator based on the percentage of progress in the implementation of sustainable productive practices on the land enrolled in the project, with a target of 100%. The weight assigned to the first two phases is 15% each, while the third phase has a weight of 70%. Monitoring will be carried out every five years.*

*The implementation of this activity begins on August 1, 2017 with the first visit aimed at the recognition and social characterization of the beneficiary household. as presented in the [list of project activities start date for each Property.](#)*



Overall compliance with the activity is 14.5%. For the monitoring period, from August 1, 2017 to December 31, 2021, 96.7% compliance with the activity is reported through the implementation of two characterization surveys. Nuclei of properties with the same owner were organized, which although they are seen as one property for the owner, legally they are organized in different certificates of tradition and different freedom, a single property characterization survey is conducted for these properties grouped in nuclei. There are 20 nuclei of properties belonging to the project.

The following Annex [3.1.1.4. Property planning management](#) contains the supports of the characterizations carried out.

#### 13.3.2. Implement flora and fauna monitoring and conservation measures.

##### B-1. Monitor threatened ecosystems

Monitoring these ecosystems involves the systematic collection of data and information to assess their condition and the pressures affecting them. This includes the detection and analysis of factors that pose risks to forests, such as deforestation, expansion of the unsustainable agricultural frontier, and other activities.

For the monitoring of threatened REDD ecosystems, these were identified using the location of the properties and the map of ecosystems in some state of threat (Ether et al, 2017). Within the total number of properties for this project, 137 properties were identified with some ecosystem under threat, of which 2 are in Critical (CR), 4 with ecosystems shared between Critical and Vulnerable (CR-VU), 2 in danger (EN), 129 in Vulnerable (VU) status (Annex [Threatened ecosystems in REDD+ properties](#)). The ecosystems present in any REDD+ threat status are associated with cloud forests and high Andean forests that have the capacity to provide services to society through water catchment, and the presence of fauna and flora species that may become endemic due to their distribution and altitudinal restrictions.

##### B-2. Conduct participatory wildlife monitoring

In order to adequately monitor the activities of the Project, it is necessary to carry out effective sampling every five years, which will allow for follow-up and verification of compliance with the status of the conservation targets proposed. For this reason, it is intended to carry out bioacoustic samplings, which will have a direct participation of the owners in the whole process of data collection, after a training by the professional staff of the Foundation.

This activity is under implementation as of 2017. The overall progress of the goal is 8.3%.

*Bioacoustic sampling is an efficient, simple and short sampling method that allows monitoring wildlife such as birds, amphibians and some mammals; it is also a system that can be used extensively, which is a great advantage in the development of the Project.*

*On the other hand, the collection of secondary information from the IUCN Red List updates will provide a basis for monitoring ecosystems and species included in a threat category, since it provides information on their distribution, habitat, population size and conservation threats, and the categories and criteria are updated or reevaluated regularly every 5 years. Subsequently, with the spatial information provided by the IUCN and the maps of each Property developed by the Foundation's geospatial team, and with geographic information processing software such as QGIS, the zoning of areas with threatened or strategic species for conservation is generated.*

#### *B-3. Zoning areas with presence of threatened or strategic species.*

*This activity focuses on the zoning of areas that harbor threatened or strategically important species. Zoning involves the delimitation and classification of these areas based on specific criteria that consider the presence and distribution of threatened or strategic species.*

*This activity is under implementation as of 2017. The overall progress of the goal is 25%.*

*An overlap analysis was performed between the areas of the properties and the potential distribution of species in some degree of threat (Vulnerable (VU), Endangered (EN) and Critically Endangered (CR)). Given that groups such as birds and mammals have a high rate of movement (Welbergen et al, 2020) and groups such as plants have a considerable area of distribution, this analysis was measured in a range of 1 to 3 according to the presence of the potential distribution of species in some degree of threat within the properties, being 1: the presence of VU species, 2: species in VU and EN categories, and 3: presence of species in CR, EN and VU. As a result, out of 52 properties analyzed, we found only one property in category 1, 33 in category 2 and 17 properties in category 3 (Annex. [Presence of threatened species in properties](#)).*

#### *13.3.3. Report on compliance with project activities related to the protection of areas of importance for the conservation of water resources.*

##### *A-1. Characterize the use and management of water resources in areas of importance for the conservation of water bodies.*

*This activity is carried out in order to diagnose the use of water resources and detect negative impacts, as well as to obtain a general context of the protection of water*

bodies. This activity is under implementation as of 2017. The overall progress of the goal is 25%.

*A-2. Develop a conservation plan for areas of water resource importance.*

This activity responds to the need to create a plan for the conservation of high mountain ecosystems such as Paramos, which need protection measures, environmental education and protection from agents of deforestation and land use transformation. This activity is under implementation as of 2017. The overall progress of the goal is 23%.

Taking into account the activity monitoring report ([REDD+ Report](#)), for the activity related to the conservation of areas of water importance, 2 activities were carried out, with which the compliance report is made. These activities are: 1) Conservation plan for areas of importance for water resources ([Planes de conservación de zonas de importancia para el recurso hídrico.](#)) and 2) A report focused on the properties that have REDD+ zones. This is developed from the characterization of the properties, focused on the use and management of areas of importance for water conservation ([Report of characterization of use and management of areas of importance for the conservation of water resources](#)).

Based on the above, today, of the **139** properties that have REDD+ zones, **130** have been characterized and **130** Conservation Plans for Zones of Importance for Water Resources (PCZIRH) have been developed. In order to show the percentage of compliance with the activity, the following equation is used: **% compliance = ((N°D\*0.10)+ (N°DI\*0.15)+ (N°I\*0.55)+ (N°S\*0.20)) / Total number of landowners with High Mountain Ecosystems (REDD+)**. Where, N°D = Number of Diagnosed properties; N°DI = Number of properties with Design; N°I = Number of Implemented properties; and N°S = Number of properties with Monitoring.

Currently, Paramuno Project 1 has executed **9.4%** of the 10% equivalent of the **diagnostic stage** (130 properties characterized). On the other hand, **14.0%** of the 15% equivalent of the **design stage** (130 properties with PCZIRH) has been achieved. With this progress, a progress of **23.38%** of the proposed activity has been achieved, as can be calculated in the distribution of stages, in the aforementioned equation.

According to the subsequent analysis, training will be carried out focused on three (3) fundamental topics:

1. Training on the protection and conservation of water sources on the properties.
2. Training on good agricultural practices.
3. Training on water harvesting on the Property.

### 13.4. Non-permanence Risk Monitoring Report

*Permanence risk monitoring for the two components of the project: High Mountain Ecosystem and REDD+. Within the framework of the project, 8 indicators were established to evaluate the risks from the environmental, financial and social dimensions and standardizing a risk classification as mentioned in paragraph 13 of the BCR standard. Compliance with the mitigation measures is presented below (see [Permanence Risk](#)).*

#### 13.4.1 Environmental risks

**Risk 1 - Fire.** *Fire monitoring is carried out with the help of IDEAM's national platform called "Monitoring of hot spots in Colombia", which allows loading data from the project areas and creating alerts for fire detection through the use of VIIRS technology (Visible Infrared Imaging Radiometer Suite). Perform monitoring of hot spots in daily accompaniment during the dry season, together with the risk attention authorities, promoting mitigation activities (guardrails or firebreaks). This monitoring report shows that there were no fires in the project areas; there were hot spots "monitored from the IDEAM platform"<sup>5</sup>, defined as thermal anomalies, but with an analysis of satellite images where it was determined that [there were no fires](#). In this sense, the fires are categorized as **Medium** risk due to the magnitude of hot spots.*

**Risk 2 - Flooding.** *Constant communication is maintained with the owners; in the event of flooding with major impacts, a report will be made by filling out the form, in order to proceed with the measures to be taken. During the monitoring period, there were no flooding events, nor were there periods of returns over the eligible areas of the project, nor were there any households affected by this climatic event. In conclusion, the enrolled areas of the project are located outside the water round - marginal strips of the double drainage (rivers), so the risk of flooding is characterized as **low**.*

*In relation to the environmental aspect, it can be seen that for the risks of fire and flooding, 25% compliance has been achieved for each one, complying with the mitigation actions for each risk.*

#### 13.4.2 Financial risks

**Risk 3 - Profitability.** *It is categorized as **Medium** risk. In addition, the financial model is attached and highlights the tab, income statement and cash flow. Where it is evident that the project has financial profitability, economically sustaining the operation of the project in the implementation of conservation actions in the High Mountain ecosystem.*

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<sup>5</sup> <http://puntosdecalor.ideam.gov.co>

**Risk 4 -Market.** It is categorized as **Medium** risk. The financial model is attached and the sales tab is highlighted. It is evident that the project reflects a variation in sales that does not affect the financial sustainability of the project's operations in the implementation of conservation actions in High Mountain ecosystems.

**Risk 5 - Supply:** It is categorized as **Medium** risk. In addition, the financial model is attached and the inventories tab is highlighted. This shows the number of eligible hectares of the Project, which generates a stock of CCV in the monitoring period and baseline scenario, which does not affect the financial sustainability of the Project's operations in the implementation of conservation actions in the High Mountain ecosystem.

In addition, the proposed supplier evaluation form is attached, which is planned to be implemented one year after the beneficiaries sign the contract, in order to follow up on the beneficiary and to be able to foresee the exit of properties.

**Risk 6 - Country Risk.** It is categorized as **Medium** risk. To foresee country risk affecting the project in any of the operation ecosystems. The financial model is annexed and the evaluation and inflation projection tab is highlighted, which directly affects the increase in the project's cost and expense values; in addition, the minutes of the economic benefits committee are added.

In the financial aspect, there is a progress of 10%, 25%, 50% and 50% respectively in the four components mentioned above, according to the mitigation measures, and in terms of the non-profitability risk of low market demand and breach of contract.

#### 13.4.3 Social Risks

**Risk 7 - Land tenure dispute.** It is categorized as **Medium** risk. Considering that the project integrates (2) natural components, of the 154 properties enrolled in the project there are 23 properties with eligible areas for high mountain ecosystem, ownership studies were conducted to ensure the right to the carbon, as well as its encumbrances, precautionary measures, limitations to the domain or situations that may affect.

**Risk 8 - Poor stakeholder engagement.** It is categorized as a **Low** risk. Zero conflicts are reported, taking into account the participation of stakeholders through the meeting of knowledge and the implementation of the PQRS mechanism, which is evident in the impact of project activities. In the Social aspect, 50% compliance is reported for each one, where the land dispute and strengthening of knowledge exchange are evaluated.

#### 13.5 Uncertainty management

#### 13.5.1 Uncertainty management for high mountain ecosystems

*The uncertainty is determined by the accuracy of the maps used to estimate the emissions calculations and the use of information reported in the field. For the generation of land cover information for the years 2012, 2016 and 2021 at a scale of 1,10,000, images from Rapideye, SPOT2 and Sentinel sensors were used, respectively. The accuracy of the generated information (maps) was validated with field visits and with high resolution images from the SPOT constellation after a data quality control process and under the accuracy analysis in AcAtaMa (Qgis complement for accuracy assessment) where a 95% ratio was obtained.*

*For the case of emission factors, carbon content values come from studies developed by official entities at the national level, which report uncertainty ranges of less than 10% (Instituto Geográfico Agustín Codazzi & Instituto de Investigación de Recursos Biológicos Alexander Von Humboldt, 2018); in addition to local studies conducted by experts in areas with similar environmental and ecosystemic conditions, published in indexed journals (Torres et al., 2012).*

#### 13.5.2 Uncertainty management for forest ecosystems

*For the generation of the non-forest forest maps, models were generated through the Google Earth Engine platform using the Random Forest algorithm for the years 2005, 2016 and 2021, using the Rapideye and Sentinel remote sensors respectively and feeding with national information (national bnb map, smbyc).*

*To determine the control points of the models, field visits were used to verify that the point effectively meets the standards to determine that an area is a forest according to the national definition. As the uncertainty is determined with the precision, to validate the model with 20% of the data taken in the field, the process is replicated and it is determined that the precision for 2005 is (99.47%), 2016 (92.61%) and 2021 (94.68%), the methodology indicates that the precision must be above 90%.*

*Emission factors were estimated according to Aboveground biomass, Belowground biomass and soil organic carbon values proposed in the reference emission levels for Colombia, and therefore represent conservative official data.*

#### 13.6 Deviation request applied to this monitoring period

*The deviations identified in the project are only due to document traceability regarding the application of version 3.1 to version 3.2 of the BCR standard during the validation and verification process of the project in accordance with the signing of the OEC offer (August 8, 2022). This meant the consolidation of the project document and monitoring report, as well as the use of the designated tools and formats for auditable documents. As listed in the following table.*

**Table 27. Deviations in the monitoring plan.**

<b>Document</b>	<b>Version</b>	<b>Nature of the document</b>
Project document	1.0	PDD and Monitoring Report. First version
Project document	2.0	<ul style="list-style-type: none"> <li>-Updated version</li> <li>-Exclusion of properties overlapping with areas of constituted territories.</li> <li>- The information in the Monitoring Report is unlinked.</li> <li>- Adjustment of areas and baseline</li> <li>-Updating of document maps</li> <li>- Double counting section, analysis of other carbon projects</li> </ul>
Monitoring Report	2.0	<ul style="list-style-type: none"> <li>- PDD unbundling</li> <li>-Update of eligible areas</li> <li>-Updating of monitoring areas</li> <li>-Update of REDD+ and HME emissions reporting.</li> </ul>
Project document	2.1	<ul style="list-style-type: none"> <li>-Standard 3.1 update</li> <li>-Updating of eligible areas and number of properties</li> <li>- Update of REDD+ and HME Reference Regions</li> <li>-Updating of document maps</li> </ul>
Monitoring Report	2.1	<ul style="list-style-type: none"> <li>-Updated version</li> <li>-Update of eligible areas</li> <li>-Updating of monitoring areas</li> <li>-Update of REDD+ and HME emissions reporting.</li> </ul>
Project document	2.2	- Form update with Project Document BCR 2.0 template.
Monitoring Report	2.2	-Form update with BCR 1.0 template of the Monitoring Report.
Project document	2.3	<ul style="list-style-type: none"> <li>- Adjustment of the project quantification period to 20 years.</li> <li>- Emissions quantification update for REDD+ Activities, excluding Degradation.</li> <li>- Form update with Project Document template 2.1 BCR.</li> </ul>
Monitoring Report	2.3	- Emissions quantification update for REDD+ Activities, excluding Degradation.

Source: The Cataruben Foundation,2023

## 14 Monitoring system

### 14.1. Description of the monitoring plan

The monitoring plan for estimating GHG emissions and reductions during the quantification period is described in the [Project Design Document](#), section 15. Also, in sections 14 and 15 of this report, the data and methods used for the quantification of

the baseline scenario, GHG emissions in the project scenario and emissions in the leakage area attributable to project activities are specified.

### 14.2 Data and parameters for quantifying emission reductions

#### 14.2.1 Data and parameters determined in the registry and not monitored during the monitoring period, including default values and factors

<i>Data/Parameter</i>	<i>Emission factor Forests (Deforestation)</i>
<i>data unit</i>	tCO2e/ha
<i>Description</i>	Total carbon dioxide equivalent in forest ecosystems
<i>Data source used</i>	NREF Colombia, Andes Biome (IDEAM, 2019)
<i>Values)</i>	348,63
<i>Indicate what the data is used for (Baseline/Project/Leakage Emission Calculation)</i>	Calculation of GHG emissions from deforestation of forests in the baseline, project scenario and emissions attributable to project activities in the leakage area.
<i>Justification for the choice of data or description of the measurement methods and procedures applied.</i>	The values are taken from the NRef in its most recent version (IDEAM, 2019) and represent a conservative value, according to the national context for GHG emissions estimates.
<i>Additional comments</i>	

<i>Data/Parameter</i>	<i>Emission factor Paramo</i>
<i>data unit</i>	tCO2e/ha
<i>Description</i>	Total carbon dioxide equivalent in páramo ecosystems
<i>Data source used</i>	Torres et. al, 2012 IGAC, 2018
<i>Values)</i>	Eastern Cordillera = 103,284 tCO2e/ha Central Cordillera = 103,469 tCO2e/ha
<i>Indicate what the data is used for (Baseline/Project/Leakage Emission Calculation)</i>	Calculation of GHG emissions from deforestation of forests in the baseline, project scenario and emissions attributable to project activities in the leakage area.



age Emission Calculation)	
Justification for the choice of data or description of the measurement methods and procedures applied.	The definition of emission factors was based on local scientific studies conducted in areas with ecosystemic conditions similar to those of the project, which represents a scenario close to what could occur in the project areas.
Additional comments	

14.2.2 Monitored data and parameters

Complete the table with all data and parameters monitored during the project quantification period. Copy this table for each data and parameter.

Data/Parameter	Eligible forest area
data unit	has
Description	Areas within the geographical boundaries of the project that correspond to the forest category, according to national forest definitions.
Measured/Calculated/ Predetermined:	Calculated
Source of data	Map of non-forest forest generated from supervised classification for the years 2005, 2016 and 2021.
Value(s) of the monitored parameter	They are established in section 15.
Indicate what the data is used for (Baseline/Project/Leak age Emission Calculation)	Estimated change in forest cover due to deforestation in the baseline scenario and project scenario, Eligible areas and monitoring.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	ArcGISV3.1 and QGIS V3.28, Google Earth Engine Accuracy defined by AcATaMa
Measuring/reading/rec	Annual

<i>ording frequency</i>	
<i>Calculation method (if applicable)</i>	<i>Cover classification procedure using Google Earth Engine</i>
<i>Quality control procedures applied</i>	<i>Field verification of coverage</i>

<i>Data/Parameter</i>	<i>Paramo Eligible Area (HME)</i>
<i>data unit</i>	<i>has</i>
<i>Description</i>	<i>Areas within the geographical boundaries of the project that correspond to natural vegetation cover belonging to the Paramo stratum.</i>
<i>Measured/Calculated/Predetermined:</i>	<i>Calculated</i>
<i>Source of data</i>	<i>Layers of Corine Land Cover scale 1:25.000</i>
<i>Value(s) of the monitored parameter</i>	<i>They are established in section 15.</i>
<i>Indicate what the data is used for (Baseline/Project/Leak age Emission Calculation)</i>	<i>Estimated land use change in natural páramo land cover in the baseline and project scenarios.</i>
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	<i>ArcGISV3.1 and QGIS V3.28</i>
<i>Measuring/reading/recording frequency</i>	<i>Annual</i>
<i>Calculation method (if applicable)</i>	<i>Procedure for eligible areas Corine Land Cover</i>
<i>Quality control procedures applied</i>	<i>AcATaMa procedure</i>

## 15 Quantifying the reduction/removal of GHG emissions

### 15.1 Reference Emissions

#### 15.1.1 GHG Emissions in High Mountain Ecosystems - Paramo

The quantification of GHG emissions for the reference period in Paramo areas was carried out according to the guidelines defined in the BCR0003 methodology, section 11.4, in which the historical changes in the scenario without project for the eligible natural coverage and the defined emission factors are related, by means of the following equations:

$$CSCN_{\text{año}} = \left( \frac{1}{t_2 - t_1} \ln \frac{A_2}{A_1} \right) \times A_p$$

Where:

$CSCN_{\text{año}}$	Change in area with natural vegetation cover in the without-project scenario; ha yr-1
$t_1$	Initial year of the reporting period; year
$t_2$	Final year of the reporting period; year
$A_1$	Area in natural vegetation cover in the reference area, in t1; ha
$A_2$	Area in natural vegetation cover of the reference area, in t2; ha
$A_p$	Eligible area; ha

y,

$$EA_{lb} = CSCN_{lb} \times (CBF_{eq} + COS_{eq})$$

Where:

$EA_{lb}$	Annual emissions in the without-project scenario; tCO2/ha/year
$CSCN_{lb}$	Historical changes in the without-project scenario; ha/year
$CBF_{eq}$	Carbon dioxide equivalent contained in the total biomass; tCO2e/ha

$CO_{2e}$  Soil carbon content; tC/ha

Emission factors were defined based on local scientific studies in areas with ecosystem conditions similar to those found in the eligible areas. Thus, the soil carbon content for the eastern cordillera corresponds to 29.36 tCO<sub>2e</sub>/ha and 29.18 tCO<sub>2e</sub>/ha for the central cordillera. For total biomass, values of 47.91 tCO<sub>e</sub>/ha and 57.21 tCO<sub>2e</sub>/ha were established for the eastern and central cordillera, respectively.

On the other hand, based on the historical average of changes in páramo cover, a transformation rate of 1.3% was established for the areas located in the eastern cordillera and 0.9% for the central cordillera. Thus, the projection of changes in the without-project scenario and the calculation of reference emissions are presented in **Table 28**.

**Table 28.** Reference emissions in high mountain ecosystems (Paramo) for the monitoring period.

Stratum	Year	CSCN <sub>ib</sub> (ha)	CTeq (tCO <sub>2e</sub> /ha)	GHG emissions in the baseline scenario (tCO <sub>2e</sub> /year)
Paramo_C-Eastern	2017	8,69	77,09	670,00
	2018	8,57		660,93
	2019	8,46		651,98
	2020	8,34		643,16
	2021	8,23		634,46
Paramo_C-Central	2017	20,45	86,58	1.770,82
	2018	20,26		1.754,34
	2019	20,07		1.738,01
	2020	19,89		1.721,84
	2021	19,70		1.705,81

**Source:** The Cataruben Foundation, 2023

The step-by-step calculations can be found in Annex 1.1. / 2. E. HIGH MOUNTAIN / 2.3 Quantification / Calculation of HME PARAMUNO V4 [Emissions](#) / 1.

15.1.2 GHG emissions from forest deforestation

The quantification of GHG emissions due to forest deforestation for the reference period was carried out according to the guidelines defined in the BCR0002 methodology, section 13.4, applying the following equations:

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

Where:

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

$t_1$  Initial year of the reference period; year

$t_2$  Final year of the reporting 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

y,

$$EA_{lb} = DA_{lb} \times CT_{eq}$$

Where:

$EA_{lb}$  Annual emissions in the without project scenario; tCO2/ha

$DA_{lb}$  Annual historical deforestation in the baseline scenario; ha

$CT_{eq}$  Total carbon dioxide equivalent; tCO2e/ha

The emission factor for total carbon was established according to the values listed in the Reference Levels for the Andes biome, with a value of 348.63 tCO2e/ha.

For the estimation of the annual change in forest areas in the reference scenario, based on the historical average, a deforestation rate of 0.8% was estimated for the eastern cordillera and 2% for the central cordillera. To the BSC values estimated for the period 2018-2022, the adjustment for national conditions was applied taking the official values of the NREF in its most recent version. Thus, **Table 29** shows the projected changes in the without-project scenario and the calculation of reference emissions from forest deforestation.

**Table 29.** Reference emissions from forest deforestation for the monitoring period.

Stratum	Year	Adjustment for national circumstances (%)	CSBlb + %CN	CTeq (tCO2e/ha)	GHG emissions in the baseline scenario (tCO2e/year)	
C_Oriental	2017	-	72,09	348,63	<b>25.132,85</b>	
	2018	31,77%	94,99		<b>33.117,55</b>	
	2019	38,58%	99,09		<b>34.543,73</b>	
	2020	44,59%	102,26		<b>35.649,51</b>	
	2021	49,62%	104,60		<b>36.466,22</b>	
C_Central	2017	-	202,84		348,63	<b>70.714,52</b>
	2018	31,77%	267,28			<b>93.180,52</b>
	2019	38,58%	275,45			<b>96.030,27</b>
	2020	44,59%	279,65			<b>97.492,13</b>
	2021	49,62%	281,11			<b>98.001,31</b>

**Source:** The Cataruben Foundation, 2023.

The step-by-step calculations can be found in Annex 1.1 / 3. REDD+ / 3.2. REDD+ QUANTIFICATION / GOF-053. Calculation of REDD+ emissions PARAMUNO V4 / [1. Deforestation](#).

### 15.2 Project emissions/removals

For monitoring BCR0003 páramo land cover (Herbazales and Arbustales) in the project areas, it was necessary to interpret land cover using the Corine Land Cover methodology for the year 2021 ([Corine Land Cover Interpretation Instructions](#)), using images from the Sentinel 2 remote sensor and calibrated and validated with observations in the territory and high-resolution images from Worldview 1 and GeoEyes. To perform the analysis of land cover change, a multi-temporal analysis was performed between the eligible areas and the areas to the year 2021.

For the BCR0002 methodology, the forest coverage for the year 2021 is generated through digital image processing, specifically supervised classification using the Google Earth Engine platform and quality control in Arcgis Pro, additionally the uncertainty of the information is calculated through the qgis AcATaMa add-on which yields a value of (0.98 consistent with the methodology) this analysis allows identifying the forest present in the different project areas for the 2021 temporality. Leakage monitoring consists of reviewing the forest change in the leakage area through a multitemporal between the eligible areas and the year 2021, thus recording the disturbances and/or reduction of the eligible forest area.

15.2.1 Project Emissions in High Mountain Ecosystems - Paramo

The quantification of GHG emissions from the project in Paramo areas was carried out according to the guidelines defined in the BCR0003 methodology, section 13.1.4.

In this sense, for the estimation of emissions, the monitoring of activity data was carried out using the following equations:

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

Where:

$CSCN_{proy,año}$	Change in the area with natural vegetation cover in the project area; ha year-1
$t_1$	Initial year of the monitoring period; year
$t_2$	Final year of the monitoring period; year
$A_1$	Area in natural vegetation cover of the project area at the beginning of the monitoring period; ha
$A_2$	Area in natural vegetation cover of the project area at the end of the monitoring period; ha

y,

$$EA_{proy} = CSCN_{proy} x (CBF_{eq} + COS_{eq})$$

Where:

$EA_{proy,año}$	Annual emission in the project area; tCO2/ha/year
$CSCN_{proy}$	Land use changes in the project area; ha/year
$CBF_{eq}$	Carbon dioxide equivalent contained in the total biomass; tCO2e/ha
$COS_{eq}$	Soil carbon content; tC/ha

The estimate of changes in the eligible Paramo areas of the project occurred in the monitoring period (2017-2021) was made for each of the identified strata. Thus, an annual average of 0.50 ha was recorded in the páramo areas of the eastern cordillera

and 0.54 ha in the central cordillera, corresponding to 38.54 tCO<sub>2</sub>e and 46.75 tCO<sub>2</sub>e per year, respectively (**Table 30**).

*Emissions monitoring of the project in high mountain ecosystems (Paramo) in the period 2017-2021.*

Stratum	Year	CSCNproy (ha)	CTeq (tCO <sub>2</sub> e/ha)	Project emissions (tCO <sub>2</sub> e/year)
Paramo_C-Eastern	2017	0,50	77,09	38,54
	2018	0,50		38,54
	2019	0,50		38,54
	2020	0,50		38,54
	2021	0,50		38,54
Paramo_C-Central	2017	0,54	86,58	46,75
	2018	0,54		46,75
	2019	0,54		46,75
	2020	0,54		46,75
	2021	0,54		46,75

**Source:** The Cataruben Foundation, 2023.

The step-by-step calculations can be found in Annex 1.1. / 2. E. HIGH MOUNTAIN / 2.3 Quantification / Calculation of HME PARAMUNO V4 Emissions / [3](#).

#### 15.2.2 Project emissions from forest deforestation

The quantification of the project's GHG emissions due to forest deforestation was carried out according to the guidelines defined in the BCR0002 methodology, section 14.5.1.

Thus, for the estimation of emissions, the activity data were monitored using the following equations:

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

Where:

*CSB<sub>proy,año</sub>* Annual change in the area covered by forest in the project area; ha

*t<sub>1</sub>* Initial year of the monitoring period; year

*t<sub>2</sub>* Final year of the monitoring period; year



$A_{REED+proy,1}$  Area of forest in the project area at the beginning of the monitoring period; ha

$A_{REED+proy,2}$  Area of forest, in the project area at the end of the monitoring period; ha

y,

$$EA_{REED+proy,año} = DEF_{REED+proy,año} \times CT_{eq}$$

Where:

$EA_{REED+proy,año}$  Annual emission in the project area; tCO2/ha

$DEF_{REED+proy,año}$  Annual deforestation in project area; ha

$CT_{eq}$  Total carbon dioxide equivalent; tCO2e/ha

In this order of ideas, the calculation of annual deforestation in the project area occurred in the monitoring period (2017-2021) was performed for each of the project strata (central and eastern mountain range). In this sense, an average annual deforestation of 19.42 ha was recorded in the areas located on the eastern mountain range and 43.54 ha in the central mountain range, which corresponds to annual emissions of 6,770.33 tCO2e and 15,179.21 tCO2e, respectively (Table 31).

**Table 31.** Monitoring of project emissions from forest deforestation in the period 2017-2021.

Stratum	Year	DEFREED+proy, year (ha/year)	CTeq (tCO2e/ha)	Project GHG emissions (tCO2e/year)
C_Oriental	2017	19,42	348,63	6.770,33
	2018	19,42		6.770,33
	2019	19,42		6.770,33
	2020	19,42		6.770,33
	2021	19,42		6.770,33
C_Central	2017	43,54		15.179,21
	2018	43,54		15.179,21
	2019	43,54		15.179,21
	2020	43,54		15.179,21
	2021	43,54		15.179,21

Source: The Cataruben Foundation, 2023.

The step-by-step calculations can be found in Annex 1.1 / 3. REDD+ / 3.2. REDD+ QUANTIFICATION / GOF-053.REDD+ Emissions Calculation / PARAMUNO V4 / [3. REDD+ Monitoring](#).

### 15.3 Leakage and Non-permanence

The calculation of GHG emissions in the area of leakage due to the development of project activities was performed according to the guidelines defined in the BCR0002 and BCR0003 methodology. Regarding the emission factors, as in the previous section, the values applied correspond to those used for the baseline scenario.

To determine the change in the areas of forest and Paramo surface in the Leakage area, it was determined as follows:

For monitoring BCR0003 Paramo cover (Herbazales and Arbustales) in the project areas, it was necessary to interpret coverages through the Corine Land Cover methodology for the year 2021, using images from the Sentinel 2 remote sensor and calibrated and validated with observations in the territory and high-resolution images from Worldview 1 and GeoEyes. To perform the analysis of land cover change, a multi-temporal analysis was performed between the eligible areas and the areas to the year 2021.

For the BCR0002 methodology, the forest coverage for the year 2021 is generated through digital image processing, specifically supervised classification using the Google Earth Engine platform and quality control in Arcgis Pro, additionally the uncertainty of the information is calculated through the qgis AcATaMa add-on which yields a value of (0.98 consistent with the methodology) this analysis allows identifying the forest present in the different project areas for the 2021 temporality. Leakage monitoring consists of reviewing the forest change in the leakage area through a multitemporal between the eligible areas and the year 2021, thus recording the disturbances and/or reduction of the eligible forest area.

#### 15.3.1 Emissions from Leakage in High Mountain Ecosystems - Paramo

For the estimation of emissions in the area of leakage in high mountain ecosystems, the activity data were monitored using the following equations:

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

Where:

- $CSCN_{proy, año}$  Change in area with natural vegetation cover in the leakage area; ha yr-1
- $t_1$  Initial year of the monitoring period; year
- $t_2$  Final year of the monitoring period; year
- $A_1$  Area in natural vegetation cover of the leakage area at the beginning of the monitoring period; ha
- $A_2$  Natural vegetation cover area of the leakage area at the end of the monitoring period; ha

y,

$$E_{f,año} = [CSCN_{proy,f} \times (CBF_{eq} + COS_{eq})] - EA_{f,lb}$$

Where:

- $E_{f,año}$  Annual emission in the project area; tCO2/ha/year
- $CSCN_{proy,f}$  Land use changes in the project area; ha/year
- $CBF_{eq}$  Carbon dioxide equivalent contained in the total biomass; tCO2e/ha
- $COS_{eq}$  Soil carbon content; tC/ha
- $EA_{f,lb}$  Annual emission in the leakage area in the baseline scenario; tCO2e

The analysis of land use change in Paramo areas conducted on the project's leakage areas, for the monitoring period (2017-2021), records an annual average of 0.24 ha and 0.26 ha per year transformed in the eastern and central mountain range, respectively ([See guide for determining leakage areas](#)). However, compared to the transformation rate identified in the baseline, the record does not represent an increase in GHG emissions due to the implementation of project activities (**Table 32**).

Emission monitoring in the area of leakage in high mountain ecosystems (Paramo) for the period 2017-2021.

Stratum	Year	CSCNpro,f (ha)	CTeq (tCO2e/ha)	EAF,lb (tCO2e)	GHG emissions in Leakage (tCO2e)
Paramo_C-Eastern	2017	0,24	77,09	272,38	-253,88
	2018	0,24		272,38	-253,88

Stratum	Year	CSCNpro,f (ha)	CTeq (tCO2e/ha)	Eaf,lb (tCO2e)	GHG emissions in Leakage (tCO2e)
	2019	0,24		272,38	-253,88
	2020	0,24		272,38	-253,88
	2021	0,24		272,38	-253,88
Paramo_C-Central	2017	0,26	86,58	215,30	-192,79
	2018	0,26		215,30	-192,79
	2019	0,26		215,30	-192,79
	2020	0,26		215,30	-192,79
	2021	0,26		215,30	-192,79

Source: The Cataruben Foundation, 2023.

The step-by-step calculations can be found in Annex 1.1. / 2. E. HIGH MOUNTAIN / 2.3 Quantification / Calculation of emissions HME PARAMUNO V4 / [3. Monitoring HME V4](#).

### 15.3.2 Emissions from deforestation of forests in leakage areas

The estimation of emissions due to deforestation in the leakage area was carried out using the following equations:

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

Where:

- $CSB_{f,año}$  Annual change in the area covered by forest in the leakage area; ha
- $t_1$  Initial year of the monitoring period; year
- $t_2$  Final year of the monitoring period; year
- $A_{REED+proy,1}$  Area of forest, in the leakage area at the beginning of the monitoring period; ha
- $A_{REED+proy,2}$  Area of forest, in the leakage area at the end of the monitoring period; ha

y,

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

Where:

$EA_{f,año}$  Annual emissions in the leakage area; tCO<sub>2</sub>/ha

$DEF_{f,año}$  Annual deforestation in the area of leakage; ha

$CT_{eq}$  Total carbon dioxide equivalent; tCO<sub>2</sub>e/ha

$EA_{lb,f,año}$  Annual emission from deforestation in the leakage area in baseline scenario; tCO<sub>2</sub>e

Thus, the monitoring of forest deforestation in the leakage area showed an annual average of 4.80 ha and 2.60 ha in the eastern and central mountain range, respectively. However, compared to the deforestation identified in the baseline for the Leakage area, the record does not represent an increase in GHG emissions due to the implementation of the project's REDD+ activities (**Table 33**).

**Table 33.** Monitoring of emissions from forest deforestation in the leakage area for the period 2017-2021.

Stratum	Year	CSCNpro, f (ha)	CTeq (tCO <sub>2</sub> e/ha)	EAf,lb (tCO <sub>2</sub> e)	GHG emissions in Leakage (tCO <sub>2</sub> e)
C_Oriental	2017	4,80	348,63	7.574,71	<b>-5.901,30</b>
	2018	4,80		7.574,71	<b>-5.901,30</b>
	2019	4,80		7.574,71	<b>-5.901,30</b>
	2020	4,80		7.574,71	<b>-5.901,30</b>
	2021	4,80		7.574,71	<b>-5.901,30</b>
C_Central	2017	2,60		15.466,35	<b>-14.559,92</b>
	2018	2,60		15.466,35	<b>-14.559,92</b>
	2019	2,60		15.466,35	<b>-14.559,92</b>
	2020	2,60		15.466,35	<b>-14.559,92</b>
	2021	2,60		15.466,35	<b>-14.559,92</b>

**Source:** The Cataruben Foundation, 2023.

The step-by-step calculations can be found in Annex 1.1 / 3. REDD+ / 3.2. REDD+ QUANTIFICATION / GOF-053.REDD+ Emissions Calculation / PARAMUNO V4 / [3. REDD+ Monitoring](#).

#### 15.4 Net reductions/removals of GHG emissions

The calculation of net GHG emissions reduction due to the implementation of project activities is estimated from the ratio of baseline GHG emissions, project GHG emissions and emissions due to leakage, taking into account the following equation.

$$RE = (t_2 - t_1) \times (EA_{lb} - EA_{proyecto} - EA_f)$$

Where:

<i>RE</i>	Net reduction of GHG emissions; tCO2e
<i>t<sub>1</sub></i>	Initial year of the monitoring period; year
<i>t<sub>2</sub></i>	Final year of the monitoring period; year
<i>EA<sub>lb</sub></i>	Annual emission in the baseline scenario; tCO2e
<i>EA<sub>proyecto</sub></i>	Annual emission in the scenario with project; tCO2e
<i>EA<sub>f</sub></i>	Annual emission in the leakage area for the period monitored; tCO2e

Since there was no increase in emissions from leakage during the monitoring period (2017-2021), to avoid overestimations at the time of applying the equation, this value was taken as zero (0). Also, since the start date of the monitoring period was 01/08/2017, the adjustment was made to five (5) months in the calculation of net GHG reductions for the first year of quantification.

Thus, **Tables 34 and 35** summarize the project's emission reductions for the current period of analysis, with a reported **10,151 tCO2e** from avoided transformation of Paramo cover in High Mountain Ecosystems, and **467,474 tCO2e** reduced by avoided forest deforestation. For a total of **477,474 tCO2e** as a result of the implementation of project activities.

**Table 34.** Emission reduction report of the project by avoided transformation in Paramo ecosystems (HME component).

Year	Baseline GHG emissions (tCO2e)	Project GHG emissions (tCO2e)	GHG emissions in Leakage (tCO2e)	Net reduction of GHG (tCO2e)
2017	2.440,82	85,30	0	981
2018	2.415,27	85,30	0	2.330
2019	2.390,00	85,30	0	2.305
2020	2.365,00	85,30	0	2.280
2021	2.340,27	85,30	0	2.255
<b>Total</b>	<b>11.951,35</b>	<b>426,49</b>	<b>0</b>	<b>10.151</b>

Year	Baseline GHG emissions (tCO <sub>2</sub> e)	Project GHG emissions (tCO <sub>2</sub> e)	GHG emissions in Leakage (tCO <sub>2</sub> e)	Net reduction of GHG (tCO <sub>2</sub> e)
<b>Estimated annual average</b>	2.390,27	85,30	0	2.030

Source: The Cataruben Foundation, 2023.

**Table 35.** Emission reduction report for avoided deforestation in forest ecosystems (REDD+ Component).

Year	Baseline GHG emissions (tCO <sub>2</sub> e)	Project GHG emissions (tCO <sub>2</sub> e)	GHG emissions in Leakage (tCO <sub>2</sub> e)	Net reduction of GHG (tCO <sub>2</sub> e)
2017	95.847,36	21.949,53	0	30.791
2018	126.298,07	21.949,53	0	104.349
2019	130.574,00	21.949,53	0	108.624
2020	133.141,64	21.949,53	0	111.192
2021	134.467,53	21.949,53	0	112.518
<b>Total</b>	620.328,61	109.747,67	0	467.474
<b>Estimated annual average</b>	124.065,72	21.949,53	0	93.495

Source: The Cataruben Foundation, 2023.

### 15.5 Comparison of actual emission reductions with project document estimates

In relation to the net GHG emissions reductions reported for the 2017-2021 monitoring period, there were differences compared to the projection of initially estimated reductions.

Thus, the results for avoided transformation of Paramo ecosystems registered an additional 9.63% compared to the initial projection. Similarly, the reduction in emissions from deforestation of forests presented an additional 6.26% compared to the initial scenario (**Table 36**).

These differences are mainly due to the absence of emissions in the leakage area, as well as a higher percentage decrease in land use changes in Paramo ecosystems and forest deforestation as a result of the implementation of project activities, compared to what was initially projected for this monitoring period.

**Table 36.** Comparison of estimated GHG reductions vs reported reductions over the monitoring period (2017-2021).

Year	Paramo Transformation (HME)			Forest Deforestation (REDD+)		
	Estimated net GHG reduction (tCO2e)	Reported net GHG reduction (tCO2e)	Difference (%)	Estimated net GHG reduction (tCO2e)	Reported net GHG reduction (tCO2e)	Difference (%)
2017	895,00	981	+9,61%	30.324	30.791	+1,54%
2018	2.125,00	2.330	+9,65%	98.467	104.349	+5,97%
2019	2.102,00	2.305	+9,66%	101.934	108.624	+6,56%
2020	2.080,00	2.280	+9,62%	104.046	111.192	+6,87%
2021	2.057,00	2.255	+9,63%	105.168	112.518	+6,99%
<b>TOTAL</b>	<b>9.259,00</b>	<b>10.151,00</b>	<b>+9,63%</b>	<b>439.939</b>	<b>467.474</b>	<b>+6,26%</b>

Source: The Cataruben Foundation, 2023.

### 15.6 Comments on the difference with the estimated value in the recorded project document

During the monitoring period, there was an increase in the reduction of GHG emissions compared to the project scenario; this behavior was mainly influenced by several factors.

First, based on the project activities proposed, a 90% reduction in land use changes in Paramo was projected for the Project's quantification period, as well as an 80% reduction in forest deforestation. However, once the mitigation results were monitored, there was an actual reduction of approximately 95% in land use changes that had been projected for this period in Paramo areas. In the case of REDD+ activities, the deforestation avoided (81%) was greater than the value initially projected for the period.

On the other hand, for the leakage area, a 10% increase in GHG emissions was projected due to the implementation of project activities; however, during the monitoring period there was no negative impact on the forest and Paramo ecosystems present in the leakage areas, with zero GHG emissions in this component.