VERIFICATION REPORT

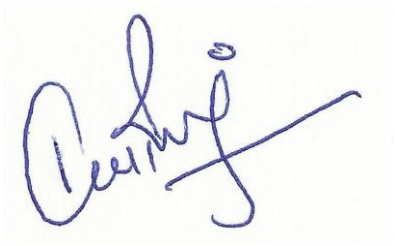
CO2Bio PROYECTO 2

PCR-CO-635-141-002

Conformity Assessment Body | (Earthood)

VERIFICATION REPORT PROJECT ID	
Project Title	CO2Bio Proyecto 2
Project ID	PCR-CO-635-141-002
Project holder	Cataruben Foundation
Project Type	AFOLU (Agriculture, Forestry, and Other Land Use)
Grouped project	Not Grouped project
Version number and date of the Project Document to which this report applies	Version 2.2 (02-07-2025)
Applied methodology (ies)	Methodological Document AFOLU Sector / BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects. Version 3.1. September 15, 2022. Methodological Document AFOLU Sector / BCR0004 Quantification of GHG Emissions Reduction and Removals - Activities that prevent land use change in inland wetlands. Version 2.0 23 June 2022.
Project location	Colombia, Orinoco region: Department of Arauca: Arauca, Cravo Norte. Department of Casanare: Hato Corozal, Maní, Paz de Ariporo, Orocué, Pore, San Luis de Palenque, Tauramena, Trinidad and Yopal.

	Department of Meta: Puerto Gaitan. Department of Vichada: Cumaribo, La Primavera, Puerto Carreño and Santa Rosalía.
Project starting date	06/05/2016
Quantification period of GHG emissions reductions/removals	06/05/2016 to 05/05/2046 Forests: 01/01/2018 to 05/05/2046 Wetlands: 06/05/2016 to 05/05/2046
Monitoring period	Forests: 01/01/2022 to 12/31/2023 Wetlands: 01/01/2023 to 12/31/2023
Total amount of GHG emission reductions/removals claimed during the monitoring period.	507.429 tCO_2e
Contribution to Sustainable Development Goals	SDG 5: Gender Equality SDG 6: Clean Water and Sanitation SDG 13: Climate Action SDG 15: Life of Terrestrial Ecosystems
Special category, related to co-benefits	Orchid
Version and date of issuing	Version1.0
Work carried out by	Team leader – Rahi Sarkar Verifier – Rajesh Monga Technical expert(14.1) - Kuldeep Joshi Technical expert(14.1)- Olto Jimenez Castellanos (On-Site) RS & GIS expert- Parth Kosambi Verifier(trainee)- Yogesh Kumar Meena

Approved by	 Dr. Kaviraj Singh, CEO

Note: The instructions, in this verification report template, just serve as a guide and, do not automatically represent a complete list of the information that the verification team shall provide under each section of the template.

Table of contents

1 Executive summary 8
2 Objective, scope and verification criteria 9
3 Verification process 12
3.1 Level of assurance and materiality 12
3.2 Validation and verification activities 13
3.2.1 Planning 13
3.2.2 Sampling 26
3.2.3 Execution 35
3.2.3.1 Onsite inspection 35
3.2.3.2 Interviews 37
3.2.3.3 Findings 39
3.3 Verification team 39
4 Validation findings 42
4.1.1 Methodology deviations 42
4.1.2 Changes after project registration 42
4.1.3 Other GHG program 43
4.1.4 Grouped projects (if applicable) 46
5 Verification findings 46
5.1 Project and monitoring plan implementation 47
5.1.1 Project activity implementation 47
5.1.2 Monitoring plan implementation and monitoring report 50
5.1.2.1 Data and parameters 54
5.1.2.1.1 Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors 54
▪ 56
5.1.2.1.2 Data and parameters monitored 57
▪ Monitored data and parameters 57
▪ 58
5.1.2.2 Environmental and social effects of the project activities 59
▪ 59

5.1.2.3 Procedures for the management of GHG reductions or removals and related quality control for monitoring activities 59

5.1.2.4 Description of the methods defined for the periodic calculation of GHG reductions or removals and leakage 63

5.1.2.5 Assignment of roles and responsibilities for monitoring and reporting the variables relevant to the calculation of reductions or removals 63

5.1.2.6 Procedures related with the assessment of the project contribution whit the Sustainable Development Goals (SDGs) 65

5.1.2.7 Procedures associated with the monitoring of co-benefits of the special category, as applicable 69

5.2 Quantification of GHG emission reductions and removals 71

5.2.1 Baseline or reference scenario 71

5.2.2 Conservative approach and uncertainty management 73

5.2.3 Leakage and non-permanence 76

5.2.4 Mitigation result 77

5.2.4.1 GHG baseline emissions 78

5.2.4.2 GHG project emissions 83

- Emissions from forest degradation 85
- Emissions from land use change in wetlands 87

5.2.4.3 GHG leakage 89

- 94
- Emissions from wetland transformation in the leakage area 94

o **Net GHG emission reductions/removals** 95

5.2.4.4 Ex-ante vs Ex-post Comparison of GHG emission reductions/removals 98

5.3 Sustainable development safeguards (SDSs) 100

5.4 Project contribution with the Sustainable Development Goals (SDGs) 103

5.5 Climate change adaptation 104

5.6 Co-benefits (if applicable) 108

5.7 REDD+ safeguards (if applicable) 110

5.8 Double counting avoidance 124

5.9 Compliance with Laws, Statutes and Other Regulatory Frameworks 129

5.10 Carbon ownership and rights 141

5.11 Risk management 143

5.12 Stakeholder engagement and consultation 145

5.12.1 Public Consultation 146

6 Internal quality control 147

7 Verification opinion 148

8 Verification statement 149

9 Facts discovered after verification 151

- *Annex 1. Competence of team members and technical reviewers 151*
- *Annex 2. Clarification requests, corrective action requests and forward action requests 163*

9.1.1 Definition of "Request" in the PQRS: 195

9.1.2 ***During the years 2022 and 2023, the term request was used interchangeably to refer to petitions. That is, in our internal classification, petitions were considered requests, which explains the initially reported number of requests for those years.*** *195*

9.1.3 Data Correction and Consolidation: 195

- *Annex 3. Documentation review 246*
- *Annex 4. Abbreviations 250*
- *Annex 5. Site visit documentation 251*

1 Executive summary

The CO2Bio Project 2, led by the Cataruben Foundation, supports climate change mitigation by reducing CO_2 emissions through efforts to curb deforestation. The project focuses on conserving natural forests across 124 privately owned properties located in the Colombian departments of Arauca, Casanare, Meta, and Vichada.

This project supports forest conservation and promotes the sustainable use of forests and wetlands to help alleviate pressure on these vital ecosystems. In addition to its environmental impact, the project delivers social and environmental co-benefits, qualifying it for certification under the Orchid category of the BCR Standard/5/.

The project contributes to several Sustainable Development Goals (SDGs), including Goal 5 (Gender Equality), Goal 6 (Clean Water and Sanitation), Goal 13 (Climate Action), and Goal 15 (Life on Land).

Between 2022 and 2023, the project successfully reduced greenhouse gas emissions by 507.429 tCO2e. To ensure accurate accounting and effective management of these emission reductions, the project follows the methodological guidelines outlined in Version 3.4 of the BCR Standard/5/, which defines the relevant principles and requirements.

The verification of CO2Bio project 2 is carried out under the BCR standard/5/ in *Version 3.4* of June 28, 2024, in addition to the following methodologies and tools:

ISO 14064-3:2019 - Specification with guidance for validation and verification of greenhouse gas (GHG) declarations/6/

ISO 14064-2:2019 - Specification with project-level guidance for quantification, monitoring and reporting of greenhouse gas (GHG) emission reduction and GHG removal enhancement activities/7/

Methodology Document for the AFOLU Sector: Methodological Document AFOLU Sector / BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects. Version 3.1, September 15, 2022./2/

Methodology Document for the AFOLU Sector: Methodological Document AFOLU Sector / BCR0004 Quantification of GHG Emissions Reduction and Removals - Activities that prevent land use change in inland wetlands. Version 2.0 23 June 2022. /3/

Tool to demonstrate compliance with REDD+ safeguards, version 1.1, January 26, 2023.

- Additionality and Baseline Tool, version 1.3, March 1, 2024.
- Sustainable Development Safeguards (SDG Tool), version 1.1, July 1, 2024. /8/
- BCR Tool. sustainable development goals (SDGs). Version 1.0. June 27, 2023.
- Avoidance of Double Counting (ADC) Tool, Version 2.0 by February 7, 2024.
- Monitoring, Reporting and Verification (MRV) Tool, Version 1.0, February 13, 2023.
- Permanence and Risk Management Tool Version 1.1 dated March 19, 2024.
- Greenhouse Gas Project Validation and Verification *Manual, Version 2.4 dated March 23, 2024.*

The audit team confirms that the verification of the project's 3rd monitoring period was carried out with accuracy, transparency, and a conservative approach. During the verification period for forests: 01/01/2022 to 12/31/2023 and for wetlands: 01/01/2023 to 12/31/2023, the project was credited with a total reduction of 507.429 of CO_2 equivalent (tCO_2e). This assessment considered the full extent of the total project area is 70,990.6 hectares, comprising 18,437.1 hectares of forest and 52,553.5 hectares of wetlands located in the Orinoquia region, across the departments of Arauca, Casanare, Meta, and Vichada in Colombia.

Earthood Services Ltd. (hereinafter referred to as Earthood Services Private Ltd., hereafter referred to as Earthood) carried out the verification of the project activity CO2Bio PROYECTO 2 (BCR ID: PCR-CO-635-141-002). This project falls under Sectoral Scope 14: Agriculture, Forestry, and Other Land Use (AFOLU).

The primary objective of the verification was to evaluate the extent to which the project activities contributed to the reduction of greenhouse gas (GHG) emissions resulting from the degradation and loss of natural ecosystems. The audit also assessed the project's alignment with sustainable development goals and its compliance with established implementation criteria and applicable legal frameworks. Furthermore, the verification included a thorough review of the methodologies used for estimating emission reductions, as well as an evaluation of the effectiveness of the project owner's management systems and procedures to ensure conformity with the principles governing the verification process. *This verification report was first issued on **20 June 2025**.*

2 *Objective, scope and verification criteria*

Verification objective

The main objective of the audit performed by Earthood was to verify the compliance of the CO2Bio PROYECTO 2 with the procedures and criteria of the Biocarbon Standard Greenhouse Gas (GHG) program/9/. Specifically, the verification was oriented to the following objectives:

Confirm that all project activities, methods, procedures, and monitoring systems have been implemented in accordance with the approved Project Document (PDD)/40/.

Verify that any material discrepancies between the baseline scenario and the estimated greenhouse gas (GHG) removals reported for the monitoring period have been addressed and justified.

Verify the following elements of the project:

- Implementation of activities outlined in the PDD/40/
- Monitoring plan and its execution
- Identification and assessment of GHG sources, sinks, and reservoirs
- Period of GHG emissions reductions quantification
- Baseline scenario and its continued relevance
- Legal and management frameworks
- Operational processes and information management

Adherence to applicable guidelines and methodological documents under the BCR standardv3.4 /5/

Audit criteria

The criteria used and the detailed aspects considered within the scope were based on the following elements:

- The verification process involved a comprehensive assessment of the information provided by the project proponent, focusing on its accuracy, conservativeness, relevance, completeness, consistency, and transparency.
- The criteria applied and the details of all aspects considered in the scope were based on the following.
- Review of the documented project information, including the registered Project Document (PDD)/40/
- Assessment of the sampling and audit plans/39/ specifically developed for this verification
- Evaluation of the data and supporting information submitted by the project proponent, in accordance with the relevant BCR rules and guidelines/41/, to ensure completeness and consistency
- Site visits, interviews/42/, and engagement with project representatives, employees, and local stakeholders to gather contextual and corroborative evidence

To ensure the effectiveness and efficiency of the audit and minimize the risk of error to an acceptable level, a project-specific sampling plan was developed. Field sampling/39/ and other verification techniques were implemented using the professional judgment of the assessment team, ensuring that the samples were representative of the entire project area.

The sampling methodology adhered to the ISO 14064-3:2019 standard/6/. Any adjustments to the plan were made based on monitoring conditions observed in the field, with a focus on identifying areas with a higher risk of material discrepancies.

In addition to direct observations, the audit team considered objective evidence, generated and recorded data, and stakeholder input obtained through interviews when forming their *assessment findings* and verification conclusions.

The process also included:

- Reporting and resolution of findings, including Corrective Action Requests (CARs), Clarification Requests (CLs), and Forward Action Requests (FARs), and the preparation of the verification report.

- Independent technical review of the project documentation by an internal reviewer, who assessed whether the GHG program requirements and internal procedures were met objectively. The technical reviewer held the authority to accept or reject the draft report, providing reasons for their decision. During this stage, previously resolved findings could be reopened, or new findings could be raised, requiring further action by the assessment team or Project holder

- Final approval of the verification report by Earthood, following acceptance by the technical reviewer

- Issuance of the final verification report to the Project holder

Scope of Verifications

The scope of the verification was to determine compliance with the applicable principles and criteria associated with the BCR0002: Quantification of GHG Emission Reductions from REDD+ Projects standard. Version 3.1. September 15, 2022., /2/ and Methodological Document AFOLU Sector / BCR0004 Quantification of GHG Emissions Reduction and Removals - Activities that prevent land use change in inland wetlands. Version 2.0 23 June 2022. /3/ The verification of greenhouse gas (GHG) emission reductions for the monitoring period were conducted as follows: Forests component: January 1, 2022, to December 31, 2023, and Wetlands component: January 1, 2023, to December 31, 2023

This verification included an assessment of:

- Project boundaries and applicable GHG types
- Reported co-benefits
- Compliance with the Biocarbon (BCR) Standard/5/ and relevant methodological requirements
- Eligibility criteria, error assessment, and data accuracy
- Demonstration of project additionality

- Post registration changes

The post-registration changes have been assessed by the audit Team, with a detailed evaluation provided in Section 4.1.2 of this report. The audit Team confirms that the Projects is in compliance with Clause 16.5 of the BCR Standard Operating Procedures.

The verification of the CO2Bio Proyecto 2 were conducted by Earthood in accordance with the procedures and criteria defined under the Biocarbon Standard GHG Program, as well as applicable legal and regulatory standards relevant to the project.

Audit Strategy and Verification Framework

The verification process for CO2Bio Proyecto 2, conducted by Earthood, was performed independently and thoroughly documented. It followed the criteria and objectives defined by the audit team, in alignment with the requirements of the Biocarbon Standard/5/.

The audit was carried out using a systematic, evidence-based approach, grounded in both documented information and direct observations from the project implementation area. The primary objective of the verification was to identify, assess, and manage potential risks related to the project's greenhouse gas (GHG) emission reduction claims.

This approach ensured the delivery of a clear, accurate, and substantiated verification opinion, reflecting the project's conformity with the applicable standards and requirements.

3 *Verification process*

3.1 Level of assurance and materiality

Earthood has confirmed that the CO2Bio Proyecto 2 has been developed and assessed in full accordance with the methodological framework established by the Biocarbon (BCR) Standard. The project's objectives, scope, verification criteria have been consistently applied throughout the assessment process. Furthermore, the verification activities were conducted in alignment with the international best practices and requirements outlined

in ISO 14064-3:2019/6/ – the standard governing greenhouse gas validation and verification processes.

As part of the comprehensive audit procedure, Earthood conducted four iterative rounds of findings resolution. These rounds allowed for the progressive identification, documentation, and closure of issues, including Corrective Action Requests (CARs), Clarification Requests (CLs), and Forward Action Requests (FARs). This multi-stage review process ensured that all non-conformities and data inconsistencies were addressed in a systematic and transparent manner, with documented evidence provided for each resolution.

Through this process, Earthood determined that the level of assurance associated with the verification is reasonable, which reflects a high degree of confidence in the accuracy and reliability of the reported greenhouse gas (GHG) emission reductions. Additionally, in agreement with the project holder, a materiality threshold of 5% was formally established. This threshold defines the acceptable margin of error for the verification and serves as a benchmark for evaluating the significance of discrepancies or uncertainties identified during the audit.

This structured and evidence-based approach ensures that the conclusions drawn from the verification process are robust, transparent, and in full compliance with both the BCR Standard and relevant international verification guidelines.

3.2 Validation and verification activities

3.2.1 Planning

The verification audit for CO2Bio Proyecto 2 commenced with the formalization of process, through a signed agreement between the parties involved on 22-10-2024 .

Following this, the Earthood was formally appointed. The team was composed of professionals with the requisite technical qualifications to conduct the verification in accordance with international standards.

The project proponent, Cataruben Foundation, was formally notified of the appointed audit team. A virtual kickoff meeting was subsequently held to introduce the verification team, outline the project objectives, review the verification timeline, and discuss the agenda for the site visits.

Audit Stages in Detail

1. Preliminary Activities and Risk Assessment

In October 2024, the audit team carried out a risk assessment aimed at identifying potential sources of error or misstatements in the GHG claims. Inputs for this assessment

included the Monitoring Report (MR), baseline data spreadsheets, and annexed monitoring records.

2. Document Review and Field Verification

Based on risk analysis, on-site verification was deemed necessary to validate project boundaries, land ownership, carbon rights, safeguards, and implementation status. This involved:

- Review of project documentation
- Cross-verification of secondary sources
- Field visits by the auditors and stakeholder interviews

3. Audit Plan Development

A detailed audit plan, aligned with the verification criteria and sampling strategy, was developed. Field activities were conducted from 09-Feb-2025 to 15-Feb-2025, allowing a structured assessment of both quantitative and qualitative evidence.

4. Independent Verification Opinion

Throughout the document review and field audit, the likelihood of the project achieving the reported GHG reductions was critically assessed. Based on this evaluation, an independent verification opinion was issued regarding the project's emission reduction performance.

Strategic Analysis

a) Sector Classification

The CO2Bio Proyecto 2 falls under the AFOLU (Agriculture, Forestry, and Other Land Use) sector, specifically focusing on REDD+ activities. The project promotes ecosystem restoration, sustainable forest management, and conservation efforts that align with national and international climate change mitigation goals.

b) Project nature

*CO2Bio is a collective initiative involving 124 private farms aimed at reducing deforestation in high-value ecosystems, particularly wetlands. The project integrates climate action and landscape preservation across savannas, grasslands, and native forests.*c) Regulatory Compliance

The audit evaluated the project's compliance with applicable regulatory, methodological, and legal standards for GHG emission reduction projects. Key elements included:

- Methodologies for GHG calculation
- Verification of implementation strategies
- Assessment of contributions to the Sustainable Development Goals (SDGs) and project co-benefits
- Key Verification Components

d) Materiality and Assurance

Following four rounds of findings resolution, Earthood and the Cataruben Foundation confirmed a materiality threshold of 5% and an assurance level is reasonable.

e) Accuracy and Completeness

The audit confirmed that the Project Document (PD) and monitoring report were accurate, complete and aligned with the registered project documents. The BCR methodology BCR0002 /2/and BCR0004 /3/ was found to be properly applied and suitable for the AFOLU sector under the BCR program.

f) GHG Boundary and Scope

Project boundary data were validated against the Kml files/4/ provided by the project holder.

G) Project Area and Geographic Scope

The CO2Bio Proyecto 2 encompasses 124 private properties /43/distributed across the defined project area. During the audit process, these properties were physically verified by the audit team through on-site inspections and review of supporting documentation. The verification confirmed that all properties are located within the project's officially declared boundaries.

DEPARTMENT	MUNICIPALITY	PROPERTY	LATITUDE	LENGTH
ARAUCA	ARAUCA	ALTAMIRA	06° 52' 33.71" N	070° 59' 44.85" W
		LAS MERCEDES	06° 57' 59.24" N	070° 42' 29.64" W

		PASTORA VIEJA	06° 46' 51.9" N	070° 54' 5.3" W
		PATEVACO	06° 48' 11.62" N	070° 54' 54.31" W
	NORTHERN CRAVO	POTOSI	06° 13' 10.9" N	069° 54' 59.32" W
Casanare	HATO COROZAL	CANTACLARO	06° 04' 6.92" N	071° 23' 3.21" W
		CUATRO VIENTOS	06° 08' 8.29" N	070° 55' 8.89" W
		EL CRISTAL	06° 11' 11.9" N	071° 23' 34.45" W
		LLANO LINDO	06° 07' 40.19" N	070° 56' 18.77" W
		NOME NOME	06° 10' 39.13" N	071° 26' 4.39" W
		PALMA RALAS	06° 07' 39.44" N	071° 24' 27.29" W
		SANTA TRINIDAD	06° 06' 24.82" N	071° 18' 12.87" W
		FLOR AMARILLO	06° 05' 9.74" N	070° 55' 25.36" W
	MANI	BRAMADEROS	04° 27' 30.41" N	072° 11' 36.49" W
		MIRALINDO	04° 31' 49.13" N	072° 16' 21.74" W
	OROCUE	GUADALUPE	04° 59' 33.86" N	071° 44' 41.9" W
		GUADALUPE2	04° 59' 47.84" N	071° 42' 55.09" W
		GUAFITAS 1	05° 02' 17.68" N	071° 55' 49.39" W
		LOTE 5 HATO LA PALMITA	04° 51' 34.21" N	071° 12' 37.62" W

		SAN FELIPE 1	05° 04' 0.52" N	071° 53' 25.19" W
	ARIPORO PEACE	AGUALUNA	05° 56' 18.05" N	070° 13' 35.3" W
		BARAKI	06° 00' 51.06" N	070° 45' 0.26" W
		CANAGUAY	05° 30' 26.6" N	071° 01' 34.11" W
		CANARIAS	05° 43' 34.78" N	071° 15' 15.32" W
		LOS CAÑOFISTOL	05° 45' 24.34" N	070° 38' 19.1" W
		COROCORA LOTE 3	05° 48' 31.29" N	071° 39' 51.64" W
		COROCORO	05° 47' 44.02" N	070° 45' 36.48" W
		EL ALCORNOCO	05° 57' 9.92" N	070° 12' 33.6" W
		EL CANARIO	05° 44' 20.91" N	070° 28' 45.64" W
		EL EDEN	05° 54' 49.61" N	070° 13' 19.85" W
		EL SALVADOR	05° 50' 29.23" N	070° 41' 52.03" W
		LA GAITANA UNO	05° 45' 35.87" N	070° 33' 22.38" W
		LA GAITANA DOS	05° 46' 8.28" N	070° 35' 7.72" W
		LA GAITANA TRES	05° 46' 30.35" N	070° 36' 39.65" W
		HATO SINAI	05° 47' 38.68" N	071° 14' 1.36" W
		LA ILUSION	05° 38' 11.85" N	071° 23' 13.82" W
		LA VICTORIA	05° 48' 36.05" N	070° 49' 21.67" W

		LA VIGIA	05° 54' 20.7" N	070° 14' 3.79" W
		LAS BRISAS	05° 45' 31.59" N	070° 31' 33.41" W
		PENJAMO I	05° 58' 25.39" N	070° 12' 0.15" W
		PLAYA BLANCA	05° 57' 34.86" N	070° 10' 39.63" W
		SAN ANDRES	05° 39' 50.21" N	071° 28' 33.05" W
		SAN PABLO	05° 34' 44.2" N	070° 18' 59.55" W
		SINALOA	05° 48' 56.07" N	070° 49' 53.52" W
		TORAIBA	05° 37' 7.85" N	070° 08' 29.2" W
		VILLA ESPERANZA	05° 30' 19.48" N	071° 02' 25.92" W
		CHAVIRIPA	05° 33' 8.85" N	070° 42' 4.49" W
		EL RUBI	05° 34' 22.84" N	070° 43' 0.09" W
		ENMANUEL	05° 48' 17.34" N	070° 43' 54.57" W
		CURIMAGUA	05° 52' 14.02" N	070° 45' 13.19" W
		LA ESPERANZA	05° 56' 54.34" N	070° 48' 26.91" W
		LA ESTACION	06° 00' 5.24" N	070° 56' 30.89" W
		GUAYANAS	05° 50' 5.65" N	070° 50' 45.78" W
		PLANETA RICA	05° 49' 26.9" N	070° 49' 23.27" W
		LEJANIAS	05° 51' 57.65" N	070° 49' 32.43" W

		ISRAEL	05° 49' 1.24" N	070° 49' 27.19" W
	SAN LUIS DE PALENQUE	ALBANIA	05° 11' 26.98" N	072° 01' 15.2" W
		EL DIAMANTE	05° 05' 1.41" N	071° 12' 28.21" W
		PALMITAS	05° 10' 43.22" N	072° 01' 10.49" W
		RNSC RANCHO NUEVO	05° 14' 15.17" N	071° 32' 5.26" W
		RNSC MATURI	05° 02' 12.12" N	071° 13' 30.85" W
		EL TAUTACO	05° 18' 32.41" N	071° 39' 2.77" W
		VILLA HERMOSA	05° 04' 1.91" N	071° 16' 2.57" W
	TAURAMENA	LA PERLA	04° 19' 40.76" N	072° 28' 45.63" W
		SAN FELIX	04° 20' 43.97" N	072° 27' 31.27" W
		VILLANUEVA	04° 21' 17.99" N	072° 32' 53.47" W
		BARLEY 2	04° 48' 20.27" N	072° 34' 46.99" W
		BARLEY 1	04° 45' 54.49" N	072° 32' 47.89" W
	TRINIDAD	EL BORAL	05° 18' 24.98" N	070° 43' 18.23" W
		BUENAVENTURA	05° 18' 41.09" N	070° 46' 23.43" W
		EL CAMPIN 2	05° 24' 0.36" N	070° 37' 27.64" W
		EL PELIGRO	05° 16' 30.55" N	070° 51' 22.24" W
		EL RETIRO	05° 11' 41.44" N	070° 52' 34.01" W

		LA CAMPECHANA	05° 18' 31.09" N	070° 48' 20.79" W
		LA CIEGA, LOS CARACOLES	05° 09' 54.25" N	070° 51' 8.18" W
		LA PALMITA	05° 24' 31.8" N	071° 36' 22.9" W
		MACARENA	05° 24' 35.03" N	070° 46' 4.42" W
		PADROTE 4	05° 10' 40.43" N	070° 49' 39.07" W
		RNSC QUINTO PATIO	05° 20' 2.54" N	070° 44' 55.06" W
		RNSC ALGARROBO	05° 21' 13.69" N	070° 44' 36.52" W
		RNSC BETANIA	05° 22' 46.59" N	070° 45' 8.57" W
		RNSC LAGUNAZO	05° 20' 19.37" N	070° 47' 10.96" W
		RNSC LOS MATAPALO	05° 21' 33.02" N	070° 46' 6.23" W
		RNSC VALLEDUPAR 1 Y 2	05° 17' 52.61" N	070° 50' 20.42" W
		VILLA RICA LOTE 13	05° 14' 54.11" N	070° 49' 24.65" W
		VILLA RICA LOTE 8	05° 14' 22.83" N	070° 48' 41.6" W
		LA MONTAÑA	05° 11' 56.11" N	070° 48' 50.61" W
	YOPAL	RNSC EL MADROÑO	05° 09' 58.11" N	072° 06' 34.72" W
		PARATEBUENO	05° 24' 16.86" N	072° 25' 43.85" W
META	PORT GAITAN	AIPE	03° 58' 3.27" N	071° 50' 26.18" W

		EL MIRADOR	03° 57' 1.04" N	071° 51' 0.58" W
		GALICIA	03° 57' 58.9" N	071° 51' 57.87" W
		DEVA	03° 54' 53.54" N	071° 49' 6.35" W
		EL SIARE 2	04° 06' 14.09" N	072° 08' 31.76" W
VICHADA	CUMARIBO	BERLIN	04° 30' 56.57" N	070° 00' 18.2" W
		LA CHIGUAGUA	04° 33' 46.07" N	069° 53' 49.5" W
		LA AMISTAD	04° 32' 2.72" N	069° 58' 29.33" W
		LA ESPERANZA LFAB	04° 33' 48.88" N	069° 56' 32.4" W
		LAS PALMERAS	04° 30' 31.96" N	070° 07' 20.83" W
		LA REFORMA	04° 32' 17.14" N	069° 56' 10.45" W
		VILLA CASTIN	04° 30' 35.12" N	070° 07' 52.89" W
		YARITAGUA	04° 37' 30.79" N	069° 50' 30.95" W
	SPRING	EL SILENCIO	05° 11' 32.58" N	070° 29' 30.26" W
		EL TURPIAL	05° 08' 31.8" N	070° 30' 59.53" W
		EL TURPIAL 2	05° 08' 36.91" N	070° 29' 43.46" W
		EL VAIVEN	04° 59' 52.72" N	070° 39' 9.83" W
		LA COMARCA	05° 00' 38.21" N	070° 42' 27.3" W

		LA ESPERANZA VALLEORIENTE	05° 03' 2.72" N	069° 32' 4.21" W
		LA PISCINA	05° 07' 18.91" N	070° 32' 2.14" W
		LAS COROCORAS	05° 03' 28.87" N	069° 34' 8.91" W
		LECHE MIEL	05° 04' 25.1" N	069° 35' 41.0" W
		LOS ALCARABANES	05° 03' 22.93" N	069° 33' 4.18" W
		MANAV KENDRA	04° 49' 24.69" N	070° 34' 39.85" W
	PORT CARREÑO	LAS CARMELITAS	04° 35' 23.52" N	069° 51' 12.21" W
		YOPITOS	04° 56' 15.21" N	070° 26' 42.42" W
	SANTA ROSALIA	EL BORINQUEN	05° 03' 51.31" N	070° 42' 14.9" W
		EL CARIBE	04° 59' 25.65" N	070° 40' 22.4" W
		LA VIRTUD	05° 02' 19.63" N	070° 40' 1.55" W
		LOS AZULEJOS	04° 59' 17.74" N	070° 41' 15.68" W
		EL RUBI	04° 56' 42.71" N	070° 50' 17.38" W
		LA BENDICION	04° 59' 59.08" N	070° 58' 32.22" W
		LA CASCADA	04° 50' 9.32" N	070° 32' 33.5" W
		LOS MERECURES	05° 01' 41.2" N	070° 42' 4.76" W
		TOMO GRANDE	04° 49' 42.96" N	070° 13' 46.72" W

- Geospatial Data Verification

The audit team reviewed and verified geospatial information using maps and KML files/04/ provided by the project proponent. This geospatial data, organized by project component, was cross-checked against project documentation and was found to be accurate and consistent with the declared project boundaries.

- Sources of GHG Information

The verification confirmed that the sources of information related to activity data, emission factors, carbon pools, and emission sources were appropriate and relevant for the development of both the baseline and project scenarios. These elements were aligned with the methodological requirements outlined in the Biocarbon (BCR) Standard/05/.

- Data Management and Stakeholder engagement

The audit team acknowledges the full cooperation and availability of the technical team from the Cataruben Foundation, the proponent of CO2Bio Proyecto 2 . Throughout the verification process, the team provided prompt, clear, and comprehensive support in supplying, explaining, and presenting project-related information.

- Availability and Transparency of GHG Reporting Evidence

The audit team observed that the greenhouse gas (GHG) reporting and declaration processes were conducted with a high level of transparency and accessibility. This was confirmed through field visits/42/ and interactions with property owners participating in CO2Bio Proyecto 2. The project maintained consistent communication protocols, ensuring efficient data exchange and verification of submitted information.

Results of these verifications

Verification	***Year***	***GHG emissions in the baseline scenario*** *(tCO2e)*	***Project GHG Emissions*** *(tCO2e)*	***GHG emissions attributable to leakage*** *(tCO2e)*	***Net GHG reduction*** *(tCO2e)*
THIRD	01/01/2022 - 31/12/2022	274.062	32.333	0,00	241.729
	01/01/2023 - 31/12/2023	316.251	50.551	0,00	265.700

	Total	590.313	82.884	0,00	507.429
	Annual average	295.157	41.442	0,00	253.715

- Uncertainty and Sensitivity Analysis

The audit included an evaluation of accuracy, uncertainty, and potential error associated with geospatial data sources, emission factors, and other parameters used in the quantification process. The verification team confirmed that:

- The data and methods adhered to the criteria set by the BCR Standard/05/.
- No material discrepancies were identified.
- Conservative assumptions were applied where applicable to ensure that emission reductions were not overestimated.
- Emission factors were reviewed against national reference levels.
- For the REDD+ component, forest and non-forest classification maps were validated against reference datasets to verify accuracy.

- Allocation of Roles and Responsibilities

The audit team verified that the Cataruben Foundation, as the project proponent, holds full responsibility for monitoring and reporting the variables relevant to the calculation of GHG emission/44/ reductions or removals. This responsibility is supported by a dedicated technical team and a collaborative structure involving property owners and environmental managers within the project.

Through documentation review, interviews, and field assessments, the audit confirmed that roles and responsibilities are clearly assigned and effectively implemented. The CO2Bio Proyecto 2 has a well-defined organizational structure comprising the following key units:

- Project Director
- Spatial Analysis Unit
- Emissions Quantification Unit

- Project Activities Implementation Unit
- Governance Unit
- SDG Safeguards and Co-benefits Unit
- Biodiversity Area

Each unit is staffed with qualified professionals responsible for specific components of the project. Processes for consolidating and validating information are well-established and reliable, ensuring accurate reporting.

- GHG Type Targeted

The CO2Bio Proyecto 2 specifically targets the reduction of carbon dioxide (CO_2) emissions, primarily through activities that prevent deforestation and forest degradation.

- Monitoring Methodology

The project employs a calculation-based methodology for estimating GHG emissions and reductions, as specified in:

- BCR0004 Methodology /03/
- BCR0002 Methodology /02/

Emission calculations utilize detailed formulas, parameters, and emission factors sourced from official publications and scientifically recognized studies relevant to the project region. Activity data provided by the project proponent was sufficient to verify compliance with the criteria and methodological requirements established in the applicable BCR documentation.

The verification planning process for CO2Bio Proyecto 2 followed the principles of ISO 14065 and Section 10.2.3 of the VVM (v2.4). The key elements included:

- Level of assurance: A reasonable assurance level was adopted.
- Materiality threshold: A 5% materiality threshold was applied to guide the selection of data for verification focus.
- Verification scope: Covered GHG emissions reductions from REDD+ and Wetlands components, stakeholder engagement processes, non-permanence risk mitigation, and safeguard compliance.
- Sampling basis: The audit team used stratified random sampling to verify the population of 124 properties. Sampling strata included administrative zones, ecosystem types, fire risk levels, and ownership types.

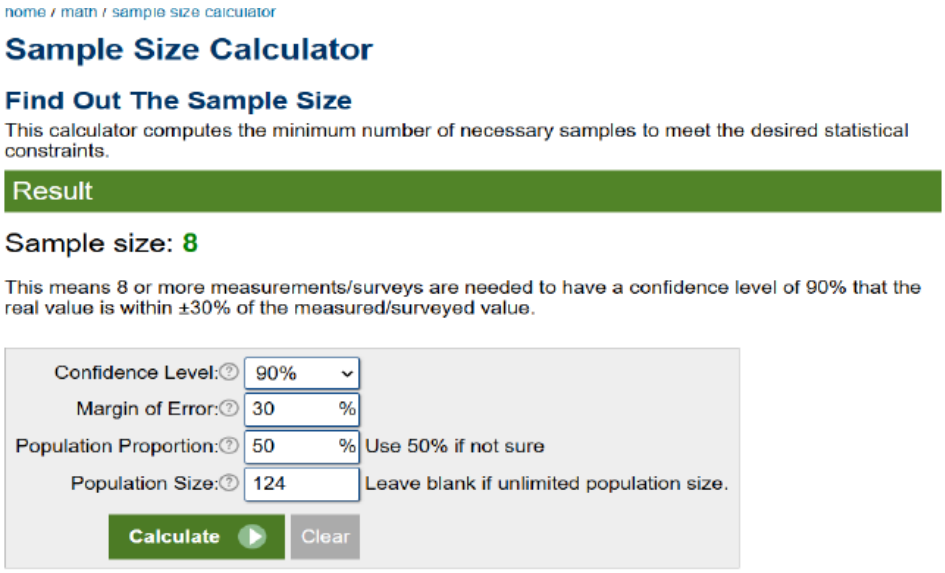
- Statistical parameters: The Raosoft Sample Size Calculator was applied with a 90% confidence level and 30% margin of precision, resulting in 8 properties selected for field verification.
- Spatial tools: GIS layers were used to inform stratification based on land cover, historical fire risk (using IDEAM data), and hydrological features. QGIS was used to overlay sample points on property shapefiles.
- Evidence triangulation: Documentary evidence (e.g., tenure and monitoring records), spatial analysis (e.g., KML boundaries, NDVI), and field-based verification (e.g., photos, interviews) were combined.
- Verification schedule: Desk review was conducted in January–February 2025, and field visits took place from 09 to 15 February 2025.
- Risk mitigation: Sampling bias and omission risks were addressed by stratifying by risk category and geography and validating with multi-source evidence.

3.2.2 Sampling

In the project, a total of 124 properties have been identified for potential inclusion in the interview process during the site visit. While neither the BCR Standard/05/ nor the applied methodology explicitly mandates the use of a specific sampling approach, the Audit Team has adopted a stratified random sampling strategy to ensure robust and representative coverage. *The audit team prepared three independent sample sets using the Raosoft sample size calculator, applying a 90% confidence level and a 30% margin of precision. These samples were drawn from the permanent sample plots located within the forest and wetland areas of the project site. Out of the three proposed sample sets, the project proponent selected one set that was considered both logistically feasible and operationally safe for field verification activities.*

To determine the appropriate number of interviews, the Audit Team utilized the Raosoft sample size calculator, applying a 90% confidence level and a 30% margin of precision. Based on this statistical approach, a sample size was derived from the total population of 124 properties. Consequently, 8 properties were randomly selected, with the selection carefully distributed across various stratifications to ensure diversity and coverage of different project conditions and stakeholder categories.

This approach ensures the sampling process is both conservative and methodologically sound, while aligning with verification best practices in the absence of explicit sampling guidance in the referenced standards.



- A reasonable level of assurance is agreed with the client
- Evidence is gathered during the desk review as well as during the physical Audit.
- Applied Methodologies:
- BCR0002- Quantification of GHG Emission Reduction REDD+ Projects/02/
- BCR0004-Quantification of GHG emission reduction and removal/03/

Level of assurance

As part of the verification process for CO2Bio Proyecto 2, Earthood established the following criteria to determine a reasonable level of assurance and apply a materiality threshold of 5%:

- Comprehensive review (100%) of all documentary evidence and supporting documentation submitted by the project proponent.
- On-site interviews conducted with property owners during the field visit (09-feb-2025 to 15-feb-2025)
- Field inspections at selected locations where activities to prevent deforestation and forest degradation were actively being implemented.

During the verification process, various key parameters and requirements were assessed through a combination of documentary review, field verification, and stakeholder interviews. For the verification of ex-ante and ex-post calculations for the monitoring period, the audit team confirmed and recalculated the GHG inventory, reviewing sources, sinks, carbon reservoirs, emission factors, activity data, and relevant variables. The review included 100% of the documentation provided by the project developer. Similarly, the verification of non-permanence and reversal risks involved a full review of all supporting documentation, along with semi-structured

interviews conducted with landowners during site visits. To assess the implementation of activities aimed at reducing deforestation and forest degradation, field inspections were carried out at active project sites, cross-checked against the documentation. Additionally, capacity-building and training activities were verified during the field visit and validated through interviews with landowners to ensure consistency between reported data and on-the-ground implementation.

A reasonable level of assurance implies that the verification team conducted an extensive and rigorous assessment of all relevant documentation, data, processes, and procedures to reduce the risk of a material error, omission, or misrepresentation to an acceptably low level. This level of assurance provides a high, though not absolute, degree of confidence that the GHG assertions presented in the Monitoring Report are free from material discrepancies.

To achieve this level of assurance, the following actions were undertaken:

- **Comprehensive review** of 100% of the documented evidence provided by the project proponent.
- **Field site visits** to physically verify activities and practices reported in the Monitoring Report.
- **Stakeholder and community interviews** to validate the accuracy of reported social and environmental project impacts, including SDG contributions and safeguard compliance.
- **Analytical checks** on the project's GHG quantification methodologies, emission factors, activity data, and calculation processes, including cross-verification of Excel-based emission reduction calculations.
- **Risk-based sampling** for non-statistical data sets, especially related to qualitative information such as stakeholder engagement and capacity-building records.

The verification team also applied professional judgment and adopted a conservative approach to ensure that the verification conclusions provide a robust and credible assurance to all interested stakeholder

The following table provides an overview of the evidence collection methods applied by the audit team during the verification process of the CO2BIO project. These methods were developed and implemented in accordance with the requirements and principles outlined in ISO 14064-2:2019 and ISO 14065:2013, ensuring a systematic, transparent, and credible verification process

Parameter or requirement	Evidence	Sampling plan

Verification of non-permanence and reversion risks	Confirmation and recalculation	The audit team conducted a comprehensive review of all documented information submitted by the Project Proponent as part of the verification process. This included a thorough assessment of 100% of the documentation provided, ensuring consistency, completeness, and compliance with the applicable standards and methodologies. Furthermore, the audit team conducted semi-structured interviews with property owners at each of the sites visited during the fieldwork phase. These interviews served to cross-validate the documented evidence, allowing the auditors to confirm the accuracy and reliability of the information reported in the Monitoring Report. The combination of desk-based review and on-site stakeholder engagement provided the audit team with a robust basis to assess the project's implementation and performance against the stated monitoring parameters and requirements.

Verification of ex-ante and ex-post calculations of the monitoring period	Confirmation and recalculation	A comprehensive review was conducted of all key elements related to the greenhouse gas (GHG) inventory presented in the Monitoring Report. This included an assessment of the identified sources, sinks, and carbon reservoirs; the emission factors and variables applied in the calculation of activity data; The objective of this review was to ensure methodological consistency, transparency, and the application of a conservative approach in line with the applicable standard requirements. The verification process involved a detailed examination of the Excel calculation sheets submitted by the Project Proponent. All mathematical formulas, data inputs, and assumptions were carefully checked to confirm accuracy and alignment with the methodological framework. The verification team reviewed 100% of the documented information provided by the Project Proponent

Identification of training and strengthening activities.	Verification of field activities and cross-checking with interviews	During the field visit, the verification team cross-checked the capacity-building activities reported in the project documentation with evidence gathered on-site. This included direct verification through interviews/42//53/ with landowners participating in the CO2BIO P2 project. The purpose of these interviews was to validate the implementation and effectiveness of the reported capacity-building activities, ensuring alignment between the documented evidence and stakeholder testimony.
Project communication, meetings, PQR system.	Verification of field activities and cross-checking with interviews	Interviews were conducted with various stakeholders and community groups to assess their knowledge and understanding of the PQR (Petitions, Complaints, and Requests) system. The audit team also verified the transparency and accessibility of information related to the project's progress. It was confirmed that project information is presented in a clear and easily understandable format for community members.

Potential conflicts, overcoming barriers, challenges and benefits reported by the project	Verification of field activities and cross-checking with interviews	Field visits were conducted based on a thorough review of the project's documented information related to the reporting of the Sustainable Development Goals (SDGs) and other relevant activities identified by the field team as important for verification. The objective was to assess the community's awareness and understanding of the processes implemented by the project holder to address identified barriers and mitigate potential conflicts.

Scope of Verification

The objective of the verification was to assess the project's compliance with the relevant principles and criteria outlined in the following standards:

BCR0002: Quantification of GHG Emission Reductions from REDD+ Projects,

Version 3.1. September 15, 2022. /02/

BCR0004: Methodological Document – AFOLU Sector / Quantification of GHG Emission Reductions and Removals – Activities that Prevent Land Use Change in Inland Wetlands, Version 2.0, dated June 23, 2022. /03/

The verification scope specifically included:

- Verification of the reported GHG emission reductions for the applicable monitoring periods:

Forests: January 1, 2022 – December 31, 2023

Wetlands: January 1, 2023 – December 31, 2023

- This assessment considered project boundaries, GHG types, co-benefit verifications, and overall compliance with the BCR Standard/05/.
- Demonstration of project additionality, ensuring that the emission reductions achieved were beyond business-as-usual scenarios.
- Evaluation of project eligibility, along with an assessment of potential errors, uncertainties, and the accuracy of the data used in GHG quantification.
- These components collectively formed the foundation for assessing the credibility, transparency, and robustness of the emission reduction claims made by the CO2Bio Proyecto 2.

Verification criteria

The criteria applied and the scope of the verification were determined based on the following key elements:

Evaluation of Project Documentation: This included a thorough review of all relevant information, with particular focus on the Project Document /40/.

- Sampling and Audit Plan: A project-specific sampling strategy and audit plan were developed to guide the verification process, ensuring comprehensive and risk-based coverage/39/
- Field Visit Execution: Site visits were conducted across selected properties located in the Departments of Casanare, Arauca, Meta, and Vichada, allowing for direct observation and verification of project implementation.
- Findings Resolution and Technical Review: The verification process included a structured findings resolution phase, followed by a technical review by an independent assessment team. Upon completion, a final completeness check was performed by an auditor to ensure that all aspects of the project assessment were thoroughly and accurately addressed.

Methodologies and Tools Applied in the Verification

The verification of CO2Bio Proyecto 2 was conducted by Earthood in accordance with the requirements of the Biocarbon (BCR) Standard, utilizing the following methodologies, tools, and guidance documents:

- BCR0002 – Methodological Document for the AFOLU Sector: Quantification of GHG Emission Reductions from REDD+ Projects, Version 3.1, September 15, 2022.
- BCR0004 – Methodological Document for the AFOLU Sector: Quantification of GHG Emission Reductions and Removals from Activities that Avoid Land Use Change in Inland Wetlands, Version 2.0, dated June 23, 2022.
- Biodiversity Toolbox for Inland Wetlands, Version 1.0, October 27, 2021.

- Tool for Demonstrating Compliance with REDD+ Safeguards, Version 1.1, January 26, 2023.
- Monitoring, Reporting and Verification (MRV) Tool, Version 1.0, February 13, 2023.
- Sustainable Development Goals (SDGs) Tool, Version 1.0, June 27, 2023.
- Avoiding Double Counting (ADC) Tool, Version 2.0, February 7, 2024.
- Baseline and Additionality Guidelines, Version 1.3, March 1, 2024.
- Permanence Risk Management Tool, Version 1.1, March 19, 2024.
- Sustainable Development Safeguards Tool (SDGs), Version 1.1, July 4, 2024.

These methodologies and tools provided the foundation for a comprehensive, consistent, and transparent verification process, ensuring compliance with all applicable BCR program requirements

The risks of possible errors, omissions or misinterpretations

The risk assessment was conducted in accordance with ISO 14064-3:2019 guidelines (sections 5.1.3 to 5.1.7), considering potential errors, omissions, or misinterpretations as follows:

a) **Document Accessibility and Organization**: The requested information was located within the folder titled "Annexes." While the information was generally accessible, the ease of retrieval could be improved by including a brief navigation guide to assist users in quickly locating relevant documents.

b) **Compliance with Related Regulations**: Evidence was found confirming compliance with regulations indirectly associated with greenhouse gas (GHG) emissions, removals, or storage, contributing to the overall confidence in the project's adherence to applicable requirements.

c) **Control and Consistency of Reported Data**: The audit found some discrepancies between the information reported by the project proponent and the sources, sinks, carbon reservoirs, and emission factors used which were raise as the findings and resolved by the project holder at multiple stages. The consistency in variables applied for GHG calculations supports the audit team's confidence in the accuracy of the monitoring report data.

d) **Quality Management of Documented Information**: Some inconsistencies were noted regarding data quality control, for instance, discrepancies in the reported number of project properties. This issue was raised as a finding during the audit and subsequently corrected by the project owner

3.2.3 Execution

3.2.3.1 Onsite inspection

The CO2Bio PROYECTO 2 is located in the Colombian Orinoquía region, covering areas within the departments of Arauca, Casanare, Meta, and Vichada. The verification of the CO2BIO Project was conducted in accordance with the following approved methodologies under the BCR Standard:

- BCR0002 – Quantification of GHG Emission Reductions from REDD+ Projects, 3.1, September 15, 2022.
- BCR0004 – Methodological Document for the AFOLU Sector: Quantification of GHG Emission Reductions and Removals from Activities that Prevent Land Use Change in Inland Wetlands, Version 2.0, dated June 23, 2022.

The field visit was conducted from 09-02-20205 to 15-02-2025 across selected sites within the departments of Arauca, Casanare, Meta, and Vichada. The primary objective of the visit was to verify the on-the-ground implementation of project activities and assess their alignment with the commitments outlined in the Project Document *and* the corresponding Monitoring Report for the verification period.

In Annex 1 in this report, Audit team members Competence statement and background information have been provided which demonstrate how the team meets the compliance requirements for verification. It should also list the documentation that supports the competencies of the verification team, as outlined in the BCR Validation and Verification Manual (VVM)v3.0

The site visit for this project was conducted by the audit team members, Mr. Max Almeida (Interpreter) and Mr. Olto Jimenez Castellanos (Technical Area Expert*), during the period from February 9, 2025, to February 15, 2025. During the site visit, Mr. Max Almeida was primarily responsible for facilitating communication and conducting interviews with property owners, field staff, and relevant stakeholders to assess their understanding and implementation of project activities, as well as to evaluate social and environmental safeguard practices.

Mr. Olto Jimenez Castellanos focused on the technical aspects of the verification process, performing detailed field assessments to validate the consistency and accuracy of the information reported in the Monitoring Report. His tasks included the inspection of multiple properties within the project area to confirm land-use practices aligned with REDD+ and inland wetland conservation activities, as well as the verification of geospatial boundaries, land titles, and the application of monitoring protocols and data collection procedures. Special attention was also given to evaluating the effectiveness of forest conservation and wetland protection measures

and ensuring compliance with the safeguards outlined in the Project Document (PD). The audit team collected both visual and documentary evidence, including photographs, GPS data, land-use maps, and field activity logs, which were used to support the verification findings and conclusions.

Rahi Sarkar is a Team leader in this project. She has been doing carbon projects under CDM/VCS/GS/GCC programs in Earthood. She Attained her Masters in Ecology and Environmental Science. She has relevant competence and work experience and has been qualified as per the evaluation process of Earthood for competency for programs CDM/VCS/GS/GCC.

Dr Rajesh Monga is a Verifier in the project. He is a seasoned forestry and climate change expert with over eight years of experience in nature-based solutions, forest carbon offset projects, and sustainable land management. He has served as a validator/verifier and Technical Expert across more than 25 AFOLU projects under VCS, CCB, GS4GG, and Plan Vivo standards, with hands-on involvement in REDD+, ARR, peatlands, and agroforestry interventions. Dr. Monga holds a Ph.D. in Forestry and is a certified ISO 14064 auditor, demonstrating robust technical acumen in GHG quantification, uncertainty assessments, safeguard evaluations, and field data analysis. His work has extended across India, Southeast Asia, Africa, and the Middle East, reflecting a global impact in advancing high-integrity carbon and biodiversity outcomes.

Yogesh Kumar Meena is working as a Verifier Trainee for this project. He holds a bachelor's degree in Botany and a Master's degree in Environmental Management. In this project, Yogesh is responsible for identifying findings during the verification process and preparing the draft version of the Verification Report, ensuring that all observations and assessments are clearly and accurately documented in line with the verification objectives and requirements.

Parth Kosambi holds a BSc and MSc in Geology, along with a Graduate Certificate in GIS and an MSc in Geodesy and Geoinformation Science. For this project, Parth primarily contributed as a GIS and RS expert focusing on Remote Sensing and GIS aspects. His main responsibilities included GIS-based analysis, verification of geospatial boundaries, LULC classification accuracy checks, and ensuring consistency of geospatial data reported in the Monitoring Report with project documentation and field realities.

During the visit, the audit team:

- Inspected multiple properties included in the project area to confirm that the reported land-use practices were consistent with REDD+ and inland wetland conservation activities.

- Verified the accuracy of geospatial boundaries and land titles.
- conducted interviews with property owners and field staff to evaluate the effectiveness and actual implementation of the project's forest conservation and wetland protection measures.
- Assessed the application of monitoring protocols, data collection procedures, and safeguards compliance as described in the PDD.
- Collected visual and documentary evidence to support verification findings, including photographs, GPS data, land-use maps, and activity logs.

This field assessment served as a critical component of the verification process, providing direct evidence of project performance, stakeholder engagement, and adherence to the methodologies and criteria outlined under the BCR Standard/05/.

Comprehensive documentation related to the site visit is provided in Appendix 5. This includes the Audit Plan, Site Visit Checklist, Attendance Sheet of participants, and photographic evidence from the site visit, capturing key activities and locations relevant to the audit. All audit team members assigned to this verification were selected based on their qualifications, professional background, and documented experience in the AFOLU sector. Their competence aligns with the requirements outlined in Sections 8.2.1, 8.2.3, and 8.2.4 of the BCR Validation and Verification Manual (v3.0. Earthood Services limited maintains an Organizational Eligibility Criteria system through which each verifier's sectoral competence, GHG quantification knowledge, and verification training are formally assessed and documented. Team members involved in this project hold qualifications in forestry, ecology, environmental management, geology, and geoinformation science, and have undergone specific training in ISO 14064-3, BCR methodology application, and safeguard verification.

Furthermore, all participating personnel signed conflict-of-interest declarations and complied with Earthood's internal Code of Conduct, which aligns with the BioCarbon Cert Anti-Bribery and Ethical Conduct Policy. These measures ensure the objectivity, independence, and professional conduct of the verification process.

3.2.3.2 Interviews

Based on the information provided by the project proponent, a comprehensive audit plan/39/ was developed and formally approved by the audit team. This plan was agreed upon in advance with the owner of CO2Bio Proyecto 2, ensuring alignment on objectives, scope, and logistics.

The field verification phase was conducted from 09 February 2025 to February 15, 2025. During this period, the audit team visited selected properties within the project area and conducted on-site inspections. Interviews/42/ were held with the property owners, who are also direct beneficiaries of the CO2Bio Proyecto 2, to validate the

implementation of project activities and confirm consistency with the monitoring report and Project Document (PD)/40/.

S.No	First name	Surname	Date	Subject	Team members
1	Julio	Fernandes	12/02/2025	Objective of the project, Details of the stakeholder meeting, co-benefits, Risk and benefits of the project & project cost, benefits sharing mechanism Concerns and Grievance mechanism establishment, conservation activities, Land ownership discussion Monitoring and management activities.	Max almieda and Olto Jimenez Castellanos
2	William	Ardilla Neves			Max almieda and Olto Jimenez Castellanos
3	Juan	Carlos Sogamoso			Max almieda and Olto Jimenez Castellanos
4	Alexis	Tocaria			Max almieda and Olto Jimenez Castellanos
5	Yarisma	Tocaria			Max almieda and Olto Jimenez Castellanos
6	Angela	Tocaria			Max almieda and Olto Jimenez Castellanos
7	Karina	Tocaria			Max almieda and Olto Jimenez Castellanos
8	Beatriz	Ortega			Max almieda and Olto Jimenez Castellanos

9	Julio	Fernandes			Max almieda and Olto Jimenez Castellanos

3.2.3.3 Findings

In the Assessment and Verification Report completed on 12/06/2025, it is stated that:

"All findings of the audit team during the verification process have been closed."

During the course of this verification, the audit team initially identified a total of ten 28 findings, which were addressed through appropriate responses and corrective actions provided by the Project holder. These findings were categorized into three types: Clarification Requests (CL), Corrective Action Requests (CAR), and Forward Action Requests (FAR).

As part of the assessment process, the audit team raised:

Clarification Requests (CL) --26

Corrective Action Requests (CAR) - 01

Forward Action Requests (FAR) - 0

All findings were satisfactorily resolved prior to the completion of the verification process.

3.3 Verification team

In Annex 1 in this report, Audit team members Completence statement and background information has been provided which demonstrate how the team meets the compliance requirements for verification. It should also list the documentation that supports the competencies of the verification team, as outlined in the BCR Validation and Verification Manual (VVM)v3.0.

Furthermore, describe the extent to which the verification team complied with the requirements of the BCR Antibribery policy, as detailed in section 8.2.4 of the BCR Validation and Verification Manual.

The following table presents Audit Team for the verification audit process for this project.

S. No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of Audit Team or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader	IR	Sarkar	Rahi	Central Office	Y	N	N	Y
2.	TA Expert (14.1)	IR	Joshi	Kuldeep	Central Office	Y	N	N	Y
3.	Interpreter	IR	Almeida	Max	Central Office	N	Y	Y	N
4.	Remote Sensing & GIS Expert & Verifier	IR	Kosambi	Parth	Central Office	Y	N	N	Y
5.	Validator & Verifier	IR	Monga	Rajesh	Central Office	Y	N	N	Y
6.	Verifier (Trainee)	IR	Meena	Yogesh Kumar	Central Office	Y	N	N	Y

7.	TA Expert (14.1)	IR	Jimenez Castellanos**	Olto	Central Office	Y	Y	N	N

Technical reviewer and approver of the verification report

S.no	Role	Type of resources	Last name	First name	**Affiliation** (e.g. name of central or other office of VVB or outsourced entity)
01	Technical Reviewer	IR	Gautam	Ashok Kumar	Central Office
02	TA Expert (14.1) to TR	IR	Nazneen	Sadaf	Central Office
03	Approver	IR	Singh	Kaviraj	Central Office

** The team members were present only during the on-site period.

Earthood hereby affirms its strict compliance with Clause 8.2.4 of the BCR Standard/05/, as outlined in the "GHG Project Verification Manual", specifically regarding adherence to the BCR Anti-Corruption Policy.

During the onboarding process of Earthood employees, each team member was required to sign the Employment Contract for GHG Audit Personnel (Internal Source). As per Section 9, Clause (e) of the contract, all members commit to not accepting any inducement, commission, gift, or any other benefit from audited organizations, their employees, or any interested parties, nor knowingly allowing colleagues to do so.

Furthermore, the audit team has complied with the BCR Anti-Bribery Policy requirements as detailed in Section 8.2.4 of the BCR Validation and Verification Manual.

In accordance with this requirement, Earthood certifies that there exists no conflict of interest that would impair or limit the impartial provision of verification services. Furthermore, Earthood explicitly commits to maintaining the confidentiality of all proprietary and sensitive information accessed in the course of performing its verification duties. This obligation remains in force both during the term of the contract and following its termination.

Earthood undertakes not to disclose, transmit, or share any confidential information obtained through its engagement with the client, nor to use such information for personal or third-party benefit.

Additionally, Earthood commits to full compliance with the BCR Code of Ethics, which governs auditor conduct in both decision-making and verification procedures. This commitment extends to all applicable anti-corruption regulations, antitrust laws, anti-money laundering and counter-terrorism financing measures, and any other relevant legal, regulatory, or ethical frameworks.

4 Validation findings

4.1.1 Methodology deviations

It was confirmed that the CO2BIO PROYECTO 2 project has not presented any methodological deviations

4.1.2 Changes after project registration

During this monitoring period, a change in the project area occurred due to the voluntary withdrawal of 19 properties, resulting in a revised total project area. These excluded properties no longer participate in conservation actions and do not contribute to emission reduction benefits under the project framework. Consequently, the number of participating properties decreased from 143 to 124. This change led to a reduction in the forest area from 19,823.74 ha to 18,437.1 ha, and the wetland area from 62,383 ha to 52,553.5 ha. The Audit Team reviewed the updated KML files and supporting contracts provided by the project holder and confirmed that the 19 properties were accurately removed from the project area.

The modifications introduced during this monitoring period result from adjustments to the Activity Monitoring Plan, specifically related to the consolidation of activities with similar characteristics. Consequently, the activity names, indicators, and targets for the 40-year project accreditation period were revised. In parallel, updates were

made to the Safeguards Monitoring Plan to reflect the latest versions of the Tool to Demonstrate Compliance with REDD+ Safeguards.

The Audit Team has assessed the reported deviations, including the correction of the project completion date from December 31, 2045, to May 5, 2046, to align with the 30-year accreditation period, as well as the update to the project area following the formal withdrawal of 19 properties. These changes have been reflected in the relevant sections and supporting documentation, including updates to baseline emissions calculations, leakage estimates, and ex-ante emission tables. Additionally, the project document and associated tools were updated to improve operational efficiency and consistency, including the consolidation of forest and wetland monitoring plans into a unified framework. The Audit team confirms that these deviations have been appropriately documented in the Project Description and the Monitoring Report, are justified, and are in line with the applicable BCR standard and as per the clause of 16.5 Changes after the GHG project registration of BCR_Standard Operating Procedures.

As part of this verification exercise, the audit Team reviewed and assessed the reported changes. It was verified that Fundación Cataruben officially informed Biocarbon of the withdrawal of the 19 properties from the project through email communication

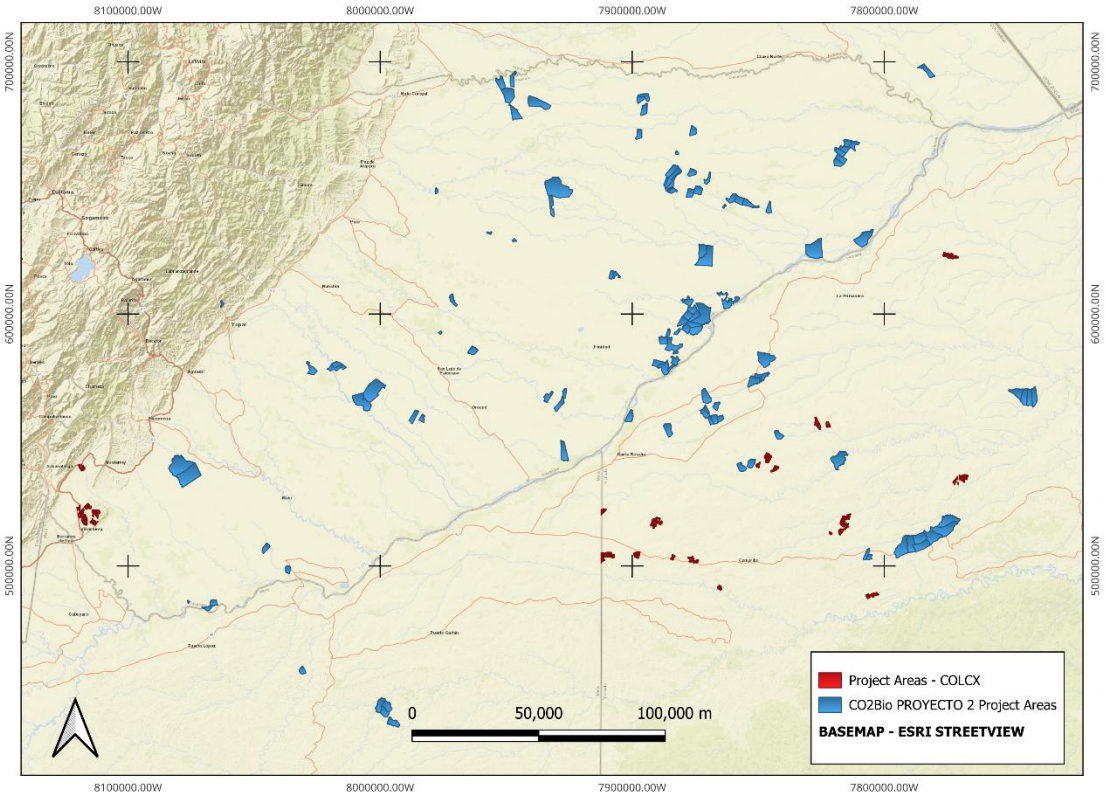
4.1.3 Other GHG program

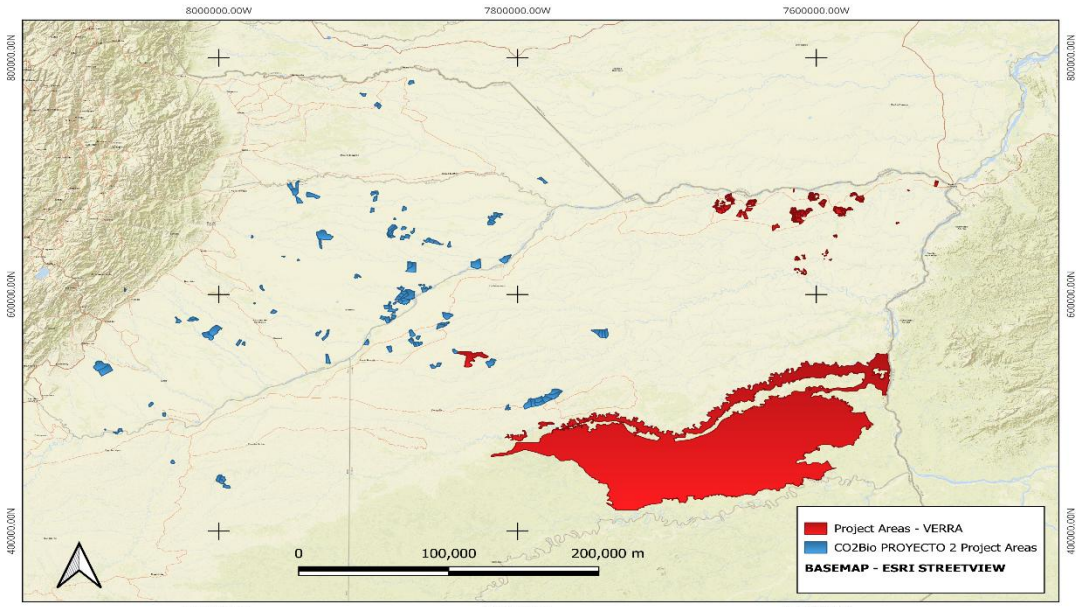
The project has not been registered under any other GHG program or registry. To verify this, the audit team conducted a thorough review of various standard platforms, including a detailed cartographic analysis and examination of registry documentation to identify any nearby or overlapping projects.

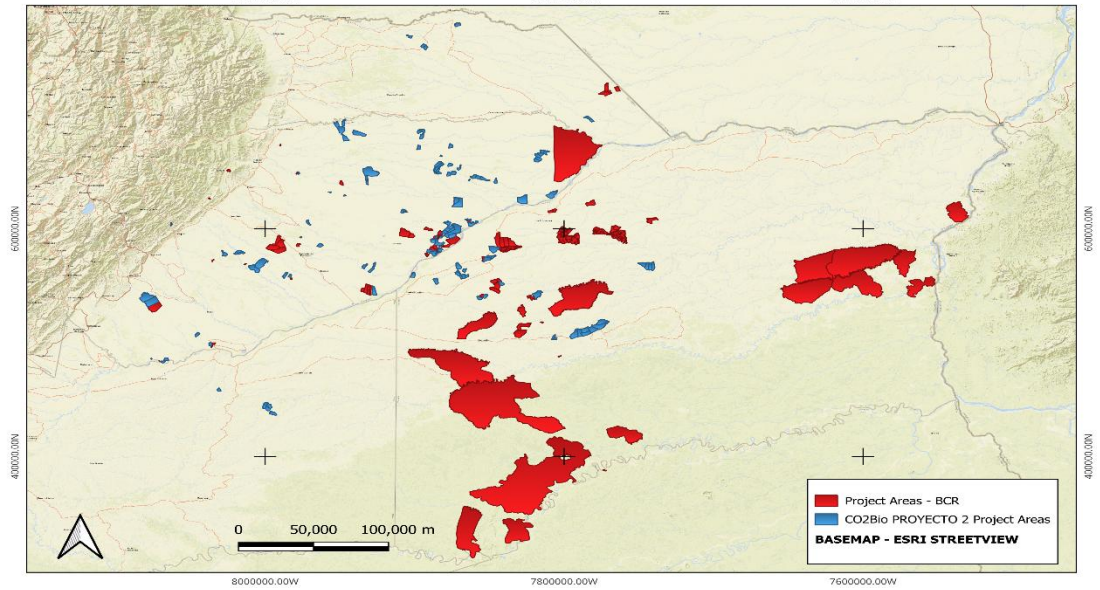
According to the conditions under which the project was validated and by making an updated review of the main registries BCR, VERRA and CERCARBONO it was confirmed that the project does not present overlaps with other projects.

A geospatial analysis was performed to confirm the absence of overlapping areas between the CO2Bio Proyecto 2 project and other carbon projects registered under various standards/45/ in the region, as required by the BCR methodologies. The analysis is maps below, which clearly delineate the CO2Bio P2 project areas (marked in red) as separate from other carbon project boundaries. Additionally, the vector data provided in 2. Annexes / 8. Carbon Projects / 8.3.3. Projects Database were examined using GIS tools, validating that none of the 13,397 carbon projects—comprising 1,677 (COLCX), 942 (BIOCARBON REGISTRY), 3,524 (CERCARBONO), and 7,254 (VERRA)—overlap with the CO2Bio P2 project area, ensuring compliance with the requirement to avoid double counting of carbon credits. /45/

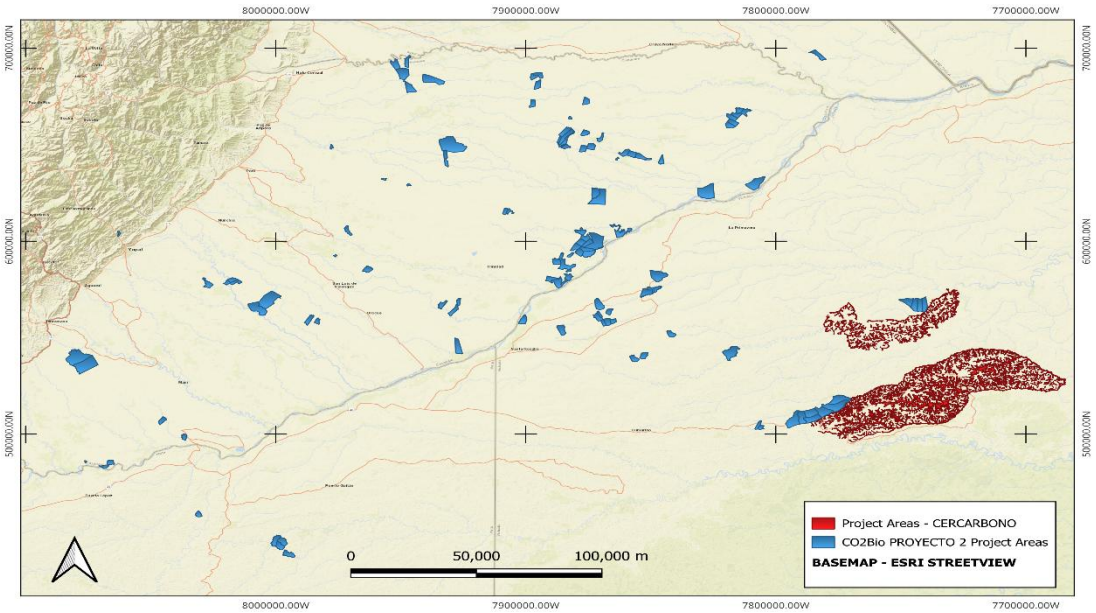
Following maps images of Location of the CO2BIO PROYECTO 2 project areas compared to other standards


8100000.00W
8000000.00W
7900000.00W
7800000.00W
700000.00N
600000.00N
500000.00N
0
50,000
100,000 m
Project Areas - COLCX
CO2Bio PROYECTO 2 Project Areas
BASEMAP - ESRI STREETVIEW


8000000.00W
7800000.00W
7600000.00W
800000.00N
650000.00N
490000.00N
0
100,000
200,000 m
Project Areas - VERRA
CO2Bio PROYECTO 2 Project Areas
BASEMAP - ESRI STREETVIEW


8000000.00W
7800000.00W
7600000.00W
650000.00N
400000.00N
0
50,000
100,000 m
Project Areas - BCR
CO2Bio PROYECTO 2 Project Areas
BASEMAP - ESRI STREETVIEW

SS



Based on the findings of this audit, the following conclusions can be drawn:

- (a) The project is exclusively registered under the Biocarbon Standard registry. (b) The emissions reductions or removals generated are solely associated with the Biocarbon Standard/05/. (c) The project complies with both the national legal framework and the rules and procedures established by the Biocarbon Standard. (d) The project is actively participating within the framework of the Biocarbon Standard (BCR) Program.

4.1.4 Grouped projects (if applicable)

- As stated in Section 14 of the Monitoring Report/01/, the project is not designated as a grouped project and does not identify any potential areas for future inclusion or expansion post-verification. Accordingly, the CO2Bio PROYECTO 2 does not meet the requirements outlined in Numeral 20.1 of the BCR Standard/05/, "Activities in the AFOLU Sector for Grouped Projects," Version 3.4

5 *Verification findings*

The audit team assessed compliance with the planned methodologies through a comprehensive cross-documentary review and evaluated adherence to the applicable requirements of the BCR Standard. This included the review of the Project Description (PD)/40/, records from previous verifications, and the procedures and criteria established under the Biocarbon Standard GHG Program, as well as relevant legal and regulatory frameworks applicable to the project.

Additionally, the audit covered evaluations of baseline conditions, quality control and assurance measures, risk management strategies, and monitoring and reporting procedures.

To verify the above, the audit team conducted field visits, held semi-structured interviews, participated in meetings with the project proponent's team, and visited specific implementation sites referenced in Section 5.1.1 of this Verification Report, where project activities are being carried out.

It is therefore concluded that:

1. Project activities are under execution, as reported in the monitoring report/01/ for the period years 2021 - 2023. The project establishes a start date of May 06, 2016.
2. The methodology document AFOLU sector Methodological document AFOLU sector BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects. Version 3.1 and Methodological Document Sector AFOLU /2/BCR0004 Quantification of GHG Emission Reductions and Removals - Activities that avoid land use change in inland wetlands. Version 2.0 23 June 2022. /04/
3. During the site visit, audit item visits some of the sample plots based on the sampling and interview project holder staff as well as the stakeholder and counties present in the project zone.

To support the verification findings, a comprehensive documentary review of project information (as listed in Annex 3) was conducted. This review was supplemented with field-based evidence, including semi-structured interviews at selected sites, field visits/42/, obtained during the audit process.

5.1 Project and monitoring plan implementation

5.1.1 Project activity implementation

The project areas have been updated in this monitoring period. The forest area has changed from 19,823.74 ha to 18,437.1 ha and the wetland area has changed from 62,383 to 52,553.5. Also, the number of properties linked to the project has been reduced from 143 to 124. Additionally, the Activity Reporting Plan was revised to streamline monitoring processes, combining forest and wetland ecosystem tracking into a unified framework for enhanced integration and oversight. The audit team verified the updates through a review of geospatial data files. Specifically, the reduction in forest area (from 19,823.74 ha to 18,437.1 ha) was confirmed using the shapefile/4/. The wetland area reduction (from 62,383 ha to 52,553.5 ha) was verified using the shapefile/4/. During the current monitoring period, the project area has been adjusted to reflect the voluntary withdrawal of 19 properties. The project holder has correspondingly updated the project boundaries and

monitoring parameters to exclude these properties from the current reporting cycle. Compliance Assessment of Project Monitoring Plan Execution:

Project Implementation Status :- The monitoring report confirms all project activities are being executed as planned, with operations commencing on May 06, 2016. Field verification during the audit demonstrated tangible progress in conservation activities implementation.

Methodological Compliance:- The project adheres to:

- AFOLU Sector / BCR0002 (REDD+ GHG Quantification, Version 3.1, 15/09/2022)
- AFOLU Sector / BCR0004 (Wetlands GHG Quantification, Version 2.0, 23/06/2022)

Risk Management:- The Risk Analysis document reflects effective adaptation through mitigation actions, particularly for risks originally classified as high/medium per the BCR Permanence Risk Management Tool.

The project commenced its operations on May 06, 2016, with the following key activities implemented as part of its monitoring and conservation framework:

1. **Activity 1: Capacity building for men and women enrolled in the project, in the following components: technical-environmental, social and administrative-financial, in order to strengthen decision-making in favor of the project's objectives. Improved income for landowners generated by the sale of carbon credits**

Indicator: No. of properties and No. of training

Progress of monitoring period (2022-2023): No. of properties – 124 & No. of training – 10.

Total progress: No. of properties – 124 & No. of training – 10.

2. **Activity 2 -: Implementation of the territorial governance strategy for participatory decision-making on the sustainable management of strategic ecosystems**

Indicator: Progress of the governance roundtable

Progress of monitoring period (2022-2023): 20%

Progress: 30%

3. **Activity 3 -: Continuous monitoring of changes in forest area as a proportion of total area in project areas**

Indicator: Rate of change of coverage

Progress of monitoring period (2022-2023): 7,14

Progress: 21,43

4. **Activity 4 -: Monitor environmental threats (fire) in the project area and/or possible management alerts**

Indicator: Thermal anomalies/land cover fire monitoring

Progress of monitoring period (2022-2023): 7,14

Progress: 21,43

5. **Activity 5 -: Promote the implementation of sustainable productive actions and practices at farm and local levels to maintain carbon stocks and conserve biodiversity in strategic ecosystems**

Indicator: Farms that implement sustainable production practices (SPP), ecosystem conservation actions and strategies.

Progress of monitoring period (2022-2023): 19,03%

Progress: 34,03%

6. **6. Activity 6 -: B.1: Participatory Biodiversity Monitoring**

Indicator: Percentage of Co2Bio initiative properties with progress in the monitoring stages implemented (1. baseline,ii. biodiversity monitoring and iii. closing socialization of results).

Progress of monitoring period (2022-2023): 7,14%

Progress: 24,42%

7. **Activity 7 -: B.2: HCV Monitoring**

Indicator: Areas of Conservation Value (HCV) indicator report, for the different components HCV1 Species Richness, HCV2 Landscape, HCV3 Important Ecosystems and HCV4 Eco-system Services.

Progress of monitoring period (2022-2023): 7,14%

Progress: 24,42%

8. Activity 8 -: Water Management Program

Indicator: Percentage of CO2BIO initiative properties with diagnosis, design, implementation and monitoring of water management.

Progress of monitoring period (2022-2023): Percentage of CO2BIO PROYECTO 2 initiative properties with diagnosis, design, implementation and monitoring of water management.

Progress: 20%

5.1.2 Monitoring plan implementation and monitoring report

The verification process evaluated the Monitoring Plan's compliance with current BCR Standard Version 3.4 requirements and its proper implementation of all applicable tools, including:

1) Biodiversity toolbox for inland wetlands. Version 1.0 October 27, 2021.
2) Tool to demonstrate compliance with REDD+ safeguards. Version 1.1 January 26, 2023.
3) BCR Tool Monitoring, Reporting and Verification (MRV). Version 1.0 February 13, 2023.
4) Sustainable Development Goals (SDGs) Tool Version 1.0, June 27, 2023.
5) BCR Tool Avoiding Double Counting (ADC). Version 2.0, February 07, 2024.
6) BCR Guidelines Baseline and Additionality. Version 1.3 March 01, 2024.
7) BCR Permanence Risk Management Tool. Version 1.1 of March 19, 2024.
8) Sustainable Development Safeguards Tool SDGs. Version 1.1 July 4, 2024

The assessment confirmed the Monitoring Report's full alignment with all specified methodologies and tools, demonstrating proper implementation of the project's monitoring framework according to current standards. All adjustments made to the monitoring processes were verified as compliant with BCR requirements

The audit team conducted a comprehensive review of the project's implementation through the following processes:

1. **Documentary Review**

   - Assessed all project documentation, including monitoring reports, boundary adjustments, and compliance records.

2. **Field Verification**

   - Conducted on-site inspections to validate reported activities.

- Engaged in structured interviews with property owners (designated as ecosystem managers) and the technical team of the Catarubén Foundation, following a predefined sampling methodology.

3. **Project Boundary Assessment**

- Verified that during the 2022-2023 monitoring period, 19 properties voluntarily withdrew from the project area.
- Confirmed that this adjustment was properly documented and reflected in updated project boundaries. *The audit team verified this change by reviewing the KML shapefile (CO2BIO_P2_AreaProyecto.shp), which reflects the reduction in the number of properties from 143 to 124.*

4. **Monitoring & Verification Credibility**

- The audit applied a structured verification approach to assess the reliability of reported activities.

The table below summarizes the verification methods and the level of credibility assigned to each process:

CO2Bio PROYECTO 2 Project activity	**Verified progress monitoring period (2022-2023)**	**Audit team assessment**	**Documentation Evidence**
Capacity building for men and women enrolled in the project, in the following components: technical-environmental, social and administrative-financial, in order to strengthen decision-making in favor of the project's objectives. Improved income for landowners generated by the	124 – No. of properties 10 - No. of trainings	Through document review, the audit team confirmed the completion of all required training programs and verified the execution of contracts with participating property owners.	Training records, recordings with attendance sheets and reports contain description of the capacity building & Contracts agreement of 124 properties. /53//55/

sale of carbon credits			
Implementation of the territorial governance strategy for participatory decision-making on the sustainable management of strategic ecosystems	20%	The evidence document shows in governance mechanism promotes transparency, stakeholder involvement, and data-driven decisions to ensure sustainability	Governance statergy progess report/57/, government strategy version 3/58/
Continuous monitoring of changes in forest area as a proportion of total area in project areas	7,14	The document details how thermal anomaly monitoring detects fires in CO2Bio PROYECTO 2's project zone, preventing vegetation loss and preserving carbon stocks in Colombia's Orinoquía region.	Report on heat spot monitoring (2022-2023) /59/
Monitor environmental threats (fire) in the project area and/or possible management alerts	7,14	The document details how thermal anomaly monitoring detects fires in CO2Bio's project zone, preventing vegetation loss and preserving carbon stocks in Colombia's Orinoquía region.	Report on heat spot monitoring (2022-2023)/59/
Promote the implementation of sustainable	19,03%	The evidence document detailed how project	Monitorng of property implementation

productive actions and practices at the farm and local levels to maintain carbon stocks and conserve biodiversity in strategic ecosystems.		protects critical carbon sinks and biodiversity in Colombia's Orinoquía region by implementing sustainable production practices across 124 farms, balancing ecosystem conservation with rural development	plans /60/ and conservation actions and sustainable production practices/61/
Participatory Biodiversity Monitoring	7,14%	The project integrates community-led bioacoustic monitoring with carbon sequestration objectives, using soundscape analysis to assess ecosystem health while empowering local stakeholders in Colombia's conservation efforts.	Biodiversity participatory acoustic monitoring report/32/
HCV Monitoring	7,14%	The project identifies and manages six HCV categories biodiversity, landscape ecosystems, critical habitats, essential ecosystem services, community livelihoods, and cultural values—using GIS mapping	Monitoring of high conservative values/62/

		and Brown et al. (2013) methodology to ensure long-term conservation and sustainable resource use.	
Water Management Program	Percentage of CO2BIO PROYECTO 2 initiative properties with diagnosis, design, implementation and monitoring of water management	The evidence document summarise the Phase-driven approach ensures SDG 6 compliance through characterization, design, implementation, and monitoring of water efficiency measures, aligning local needs with global sustainability targets	Water management program progess report/63/ and water management program- CO2Bio PROYECTO 2 project 2 /64/

This audit reviewed the monitoring plan, the methodology applied, the quantification of GHG reductions or removals and the legislation applicable to the CO2Bio PROYECTO 2.

5.1.2.1 Data and parameters

5.1.2.1.1 Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Data/Parameter	**Total biomass in forests**
data unit	t/ha
Description	Plant biomass contained in forest ecosystems (Orinoco Biome). It is estimated from the sum of aboveground biomass (BA) and belowground biomass (BS).
Source of data	Ministry of Environment and Sustainable Development - IDEAM (2019)
Values	412,66

Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	- Carbon emission factor in total biomass. - Calculation of baseline deforestation emissions. - Calculation of emissions from deforestation in the scenario with the project. - Calculation of emissions from deforestation in leakage areas.
Justification for the choice of data or description of the measurement methods and procedures applied.	The value is taken from the evaluated proposal of the national reference emission level (NREF), so it represents a conservative value, according to the national context for the estimation of GHG emissions.
Additional comments	N/A

Data/Parameter	**Mean difference in aboveground biomass**
data unit	t/ha
Description	Changes in aboveground biomass stocks between fragmentation classes (Core - Patch and Perforated - Patch).
Source of data	Ramirez-Delgado et al. (2018) - Estimating Colombia's forest degradation through fragmentation analysis, in their Annex 2.
Values	Core - patch transition = 117.46 Perforated - patch transition = 83.23
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	- Emission factor for degradation - Calculation of baseline degradation emissions. - Calculation of emissions due to degradation in the scenario with the project. - Calculation of emissions due to degradation in leakage areas.
Justification for the choice of data or description of the measurement methods and procedures applied.	$$\Delta BA_{núcleo-parche} = BA_{núcleo} - BA_{parche}$$ $$\Delta BA_{perforated-patch} = BA_{perforado} - BA_{parche}$$ Where: $\Delta BA_{núcleo/perforado-parche}$ = Changes in aboveground biomass stocks between fragmentation classes. $BA_{núcleo}$ = Average aboveground biomass in the core class $BA_{perforado}$ = Average aboveground biomass in the Perforated class BA_{parche} = Average aboveground biomass in patch class
Additional comments	Selection of values according to the type of forest.

▪

Data/Parameter	**Soil organic carbon in forests**
data unit	tC/ha
Description	Cumulative soil carbon content in forest ecosystems
Source of data	Ministry of Environment and Sustainable Development - IDEAM (2019)
Values	65
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	- Soil carbon emission factor (COS) - Calculation of baseline deforestation emissions. - Calculation of emissions from deforestation in the scenario with the project. - Calculation of emissions from deforestation in leakage areas.
Justification for the choice of data or description of the measurement methods and procedures applied.	The value is taken from the evaluated proposal of the national reference emission level (NREF), so it represents a conservative value, according to the national context for the estimation of GHG emissions.
Additional comments	N/A

Data/Parameter	**Total biomass in wetlands**
data unit	t/ha
Description	Plant biomass contained in wetland ecosystems. It is estimated from the sum of aboveground biomass (BA) and belowground biomass (BS).
Source of data	Own data
Values	Herbaceous stratum = 14.43 Aquatic Stratum = 14.79 Dispersed stratum = 79.44
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	- Definition of the carbon emission factor in total biomass for herbaceous and sparse strata in wetlands. - Calculation of emissions in baseline forest ecosystems. - Calculation of emissions in forest ecosystems in project areas. - Calculation of emissions in forest ecosystems in leakage areas.
Justification for the choice of data or description of the	Sampling was conducted according to nationally validated methodologies and was carried out in eligible project areas.

measurement methods and procedures applied.	
Additional comments	

Data/Parameter	**Soil organic carbon in wetlands**
data unit	t/ha
Description	Carbon content of soils in wetland coverages
Source of data	Own data
Values	Herbaceous stratum = 274.2 Aquatic Stratum = 767.9 Dispersed stratum = 350.3
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	- Definition of the soil carbon emission factor for herbaceous and sparse strata in wetlands. - Calculation of emissions in baseline forest ecosystems. - Calculation of emissions in forest ecosystems in project areas. - Calculation of emissions in forest ecosystems in leakage areas.
Justification for the choice of data or description of the measurement methods and procedures applied.	Sampling was conducted according to nationally validated methodologies and was carried out in eligible project areas.
Additional comments	

5.1.2.1.2 Data and parameters monitored

- Monitored data and parameters

Data/Parameter	**Eligible forest area**
data unit	Hectares
Description	Areas within the geographical boundaries of the project that correspond to the forest category, according to the national definition of forest. Year 2023.
Source of data	Forest and Carbon Monitoring System
Values	18,347.7 hectares
Indicate what the data is used for	- Calculation of emissions in forest ecosystems in project areas. - Calculation of emissions in forest ecosystems in leakage

(Baseline/Project/Leakage Emission Calculations)	areas.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	ArcGISV3.2 and QGIS V3.28 software, Google Earth Engine. Accuracy Atacama = 96.0
Measuring/reading/recording frequency	Annual
Calculation method (if applicable)	Eligible areas monitoring procedure
Quality control procedures applied	AcATaMa procedure

▪

Data/Parameter	**Eligible Wetlands Area**
data unit	Hectares
Description	Areas within the geographical boundaries of the project that correspond to the category of wetlands (herbaceous, aquatic, and dispersed), according to the national definition of wetlands.
Source of data	Sentinel 2 remote sensor satellite imagery, 10-meter spatial resolution, 10-day temporal resolution, supported by in situ observations. Planet imagery and Sentinel 1 radar support.
Value(s) of the monitored parameter	52,312 hectares
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	- Calculation of emissions in eligible wetland ecosystems - project areas. - Calculation of emissions in wetland ecosystems in leakage areas.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	ArcGISV3.1 and QGIS V3.28 Accuracy Land Cover Maps 2023. 0.98 Confusion Matrix. The description of the information used is found in 8.2.7. Satellite Images Corine Interpretation, and 8.2.8. Geospatial Information Management BCR0004.
Measuring/reading/recording frequency	Annual
Calculation method (if applicable)	Eligible areas monitoring procedure
Quality control procedures applied	Formats for on-site observations and field coverages Procedure Confusion Matrix Characterization of cartographic inputs

	Instructions for land cover interpretation under the Corine Land Cover methodology adapted for Colombia, scale 1:100-000.

5.1.2.2 Environmental and social effects of the project activities

Based on the findings presented by the project lead, the following key observations were documented during the field visit to the properties visited and through review of supporting documentation:

- **No Negative Environmental Impacts**: The assessment of sub-elements—Land Use, Water, Biodiversity, and Climate Change—in the environmental evaluation matrix confirms that the project's activities do not generate any adverse effects within the project's area of influence.

- **Compliance with Standards**: The criteria outlined in paragraph 14 of the BCR Standard Version 3.4, as well as in the Sustainable Development Safeguards Tool (SDS Tool) Version 1.1 (version 1.1 of July 4, 2024), have been fully met.

- **Environmental Benefits**: Since the project's activities focus on environmental protection and greenhouse gas (GHG) reduction, it is confirmed that the project has a positive impact on the Orinoquía region's ecosystem.

- **Social and Economic Benefits**: The project's activities are designed to generate social and economic benefits through climate change mitigation efforts, contributing to the reduction and removal of greenhouse gases

- **Social and Governance Compliance**: Similarly, the evaluation of sub-elements such as Human Rights, Corruption, Economic Impact, and Forest Governance indicates that the project's activities do not pose any negative impacts in the project's area of influence.

5.1.2.3 Procedures for the management of GHG reductions or removals and related quality control for monitoring activities

The audit team conducted a thorough review and verify of the information provided by the project holder, supported by documented evidence. The evaluation demonstrated a strong and well-structured approach to document management and control, reflecting the project's commitment to transparency, accountability, and quality.

As part of this review, the audit team also assessed the quality control and assurance procedures developed and implemented by the project. These procedures were found to be robust and effective in ensuring the reliability and consistency of reported data and activities.

The geospatial data for the REDD CO2BIO Project (Version 3) is stored in the geodatabase file "REDD Co2BIOV3.gdb" and contains several key feature classes that support the project's monitoring and reporting requirements. The primary layer, "CO2BIO_P2_AreaProyecto," includes vector data for all 124 properties in the project area along with their respective area measurements. Another critical layer, "Bosque_AP_Monitoreo_2021_2023_V3," provides information on forest cover within these properties, enabling the calculation of forested areas for each parcel. Additionally, the geodatabase contains the "Categories_Runap" layer within the "Restricted Access" feature class, which identifies areas with access restrictions and shows their spatial relationship with the project properties. Supporting documentation for the geodatabase can be found in the "8.1.1. REDD+ Geodatabase" folder, specifically in the file "Diccionario Datos cartográficos GDB REDD CO2BIO P2 V3.xlsx." This Excel file serves as a metadata reference, describing each layer in the geodatabase and providing essential details about the spatial data structure and attributes. Together, these components create a comprehensive geospatial framework that facilitates property monitoring, forest cover assessment, and compliance with access restrictions, while the accompanying metadata ensures proper data interpretation and transparency.

	GEO-DATABASE DATA MODEL FOR THE PRESENTATION OF FOREST MONITORING MAPPING (2022-2023) - CO2BIO PROJECT P2 VERIFICATION 3		
GEODATABASE	DATASET	FEATURE CLASS	GEOMETRÍA
	Acceso_Restringido	Categorías_Runap	Polygon
		Consejos_Comunitarios_Comunidades_Negras	Polygon
		Evidencia_No_Traslape_Resguardos_Indigenas	Polygon
		Evidencia_Traslape_RUNAP	Polygon
		Resguardos_Indígenas_Legalizados	Polygon

REDD CO2BIO P2 V3.gdb		Zonas_Reservas_Campesinas	Polygon
	Area_de_Fugas	Cinturon_Fugas_REDD	Polygon
		Bosque_AF_Monitoreo_2020_2021_V2	Polygon
		Bosque_AF_Monitoreo_2021_2023_V3	Polygon
		Fragmentación_AF_2021_V2	Polygon
		Fragmentación_AF_2023_V3	Polygon
	Area_de_Proyecto	Áreas_de_Proyecto_REDD	Polygon
		Bosque_AP_Monitoreo_2020_2021_V2	Polygon
		Bosque_AP_Monitoreo_2021_2023_V3	Polygon
		Fragmentación_AP_2021_V2	Polygon
		Fragmentación_AP_2023_V3	Polygon
	Observaciones_Insitu	Puntos_Validacion_AcATaMa	Punto
		Puntos_REDD_ODK	Punto
	Proyectos_Carbono	Areas_proyecto_BCR_Estandar	Polygon
		Areas_proyecto_CERCARBONO_Estandar	Polygon
		Areas_proyecto_COLCX_Estandar	Polygon
		Areas_proyecto_VERRA_Estandar	Polygon
	Zonas_Compensaciones	Compensaciones_Areproyecto	Polygon

		Cormacarena_Predios_PSA	Polygon
		Cormacarena_Predios_Zonas_Intervenidas_PSA	Polygon
		Ecopetrol_GDB_PM_APIAY_Compensacion	Polygon
		Ecopetrol_APE_CP09_Inversion1PorCiento_PG_OtrasCompensaciones	Polygon
		Ecopetrol_CP50_ODS02_Inversion1PorCiento_PG	Polygon
		Ecopetrol_GDB_PM_APIAY_Compensacion	Polygon
		Ecopetrol_MP_1P_Cubarral_ODS02_CompensacionBiodiversidad	Polygon
		Ecopetrol_MP_1P_ODS11_CompensacionBiodiversidad	Polygon
		Ecopetrol_PM_Cubarral_Compensaciones	Polygon
		Ecopetrol_VEX_1PC_Inversion1PorCientoPG	Polygon
		Ecopetrol_VEX_CA_Inversion1PorCiento_PG	Polygon
		Ecopetrol_VEX_CA_Inversion1PorCiento_PG_otrasCompensaciones	Polygon

The instructions for the Geographic Information System GIS (FC-GOG-26. Instructive AcATaMa).

Additionally, the supporting evidence reviewed included the following:

Newsletters issued on timely manner by the project, which served to communicate updates, key activities, and engagement outcomes to stakeholders.

Posts, presentation and videos session recordings provided visual documentation of training sessions, further enhancing the transparency of capacity-building and stakeholder engagement efforts.

Attendance sheets of participants, which confirmed stakeholder engagement and participation in the training and awareness-raising sessions conducted by the project team. s

5.1.2.4 Description of the methods defined for the periodic calculation of GHG reductions or removals and leakage

The Verification Body conducted a comprehensive review of the monitoring methods applied by the Project Host for the periodic calculation of GHG reductions, removals, and leakage during the current monitoring period. The monitoring activities were assessed for compliance with the registered monitoring plan and the applicable performed in accordance with the methodological requirements and technical specifications set forth in the BCR0002 methodology (Version 3.1, dated September 15, 2022) and the BCR0004 methodology (Version 2.0, dated June 23, 2022).

The Project Host applied the prescribed procedures to collect activity data using geospatial analyses, remote sensing technologies, and validate emission factor. The activity data were supplemented, where applicable, with field verification to ensure accuracy and consistency. Emission factors used in the quantification were consistent with previously validated values and remained appropriate for the current monitoring period.

Leakage monitoring was conducted in accordance with the approved methodology, using spatial proximity analysis to define leakage areas and track potential displacement of emissions. The eligibility of activity data was verified according to the defined methodological criteria for both the baseline and monitoring periods.

Throughout the verification process, the audit Team reviewed all data sources, calculations, and supporting documentation. All procedures, parameters, and calculations were found to be transparent, complete, and correctly applied. No material errors or deviations from the approved methodology were identified.

Overall Conclusion:

Based on the verification activities performed, the Audit Team concludes that the monitoring methods for the periodic calculation of GHG reductions, removals, and leakage have been implemented in full compliance with the applicable methodology and monitoring plan. The monitoring system provides a credible, conservative, and accurate basis for the quantification of emission reductions achieved during the monitoring period. This conclusion was reached through a detailed review of the monitoring report, supporting datasets, calculation procedures, and verification of the consistency and completeness of the applied methods.

5.1.2.5 Assignment of roles and responsibilities for monitoring and reporting the variables relevant to the calculation of reductions or removals

Department	Roles

Legal Leader	1. Provide legal advice on all aspects related to land disassociation. 2. Ensure compliance with all applicable laws and regulations. 3. Review necessary legal documents, including disassociation contracts and termination agreements. 4. Manage legal risks and issue legal opinions for decision-making.
Carbon Superleader	1. Oversee technical aspects related to GHG (greenhouse gas) reduction. 2. Assess the impact of land disassociation on climate change mitigation projects. 3. Coordinate with the quantification team to ensure data accuracy and emissions projections
Initiative Leader	1. Coordinate the implementation of the land disassociation procedure. 2. Supervise operational activities and ensure compliance with established procedures. 3. Evaluate the impact of land disassociation on climate change mitigation projects
Governance Unit Leader	1. Manage and keep the document management system related to land disassociation updated. 2. Draft necessary legal documents, including disassociation contracts and termination agreements.

	3. Coordinate internal communication between the different involved areas. 4. Ensure all records and documents are properly archived and accessible for review.

5.1.2.6 Procedures related with the assessment of the project contribution whit the Sustainable Development Goals (SDGs)

The audit team confirmed that the project adheres to established procedures and effectively utilizes the designated tools to manage and implement sustainable actions in alignment with the following Sustainable Development Goals (SDGs).

SDG 5: Gender Equality- The CO2Bio Proyecto 2 activities supported SDG 5 by promoting gender equality through inclusive capacity building for both men and women, while also strengthening decision-making, territorial governance, and sustainable ecosystem management practices.

SDG 6: Clean Water and Sanitation - Under CO2Bio Proyecto 2, a Water Management Program was implemented to support SDG 6, shifting its focus from wastewater treatment (indicator 6.3.1) to equitable access to safe drinking water (indicator 6.1.1), based on property-level diagnostics. Through the development and monitoring of Water Efficiency and Saving Plans (PUEAAs), 67 of 106 properties met technical standards, promoting sustainable water use and improving access.

SDG 13: Climate Action - CO2Bio Proyecto 2 contributes to Sustainable Development Goal 13 (SDG 13) by implementing actions that reduce deforestation and forest degradation, thereby lowering greenhouse gas (GHG) emissions. Through ongoing emissions monitoring, the project directly supports target 13.2, which promotes the integration of climate action into national policies, as measured by indicator 13.2.2—total annual GHG emissions.

SDG 15: Life of Terrestrial Ecosystems - CO2Bio Proyecto 2 contributed to SDG 15 by identifying high conservation value areas and monitoring forest cover, supporting target 15.1 (forest area conservation) and indicator 15.1.1. Additionally, through fire monitoring and satellite tracking of land cover, the project supported target 15.3 and indicator 15.3.1, promoting land degradation neutrality.

The table below highlights the CO2BIO PROYECTO 2 project's contributions to selected Sustainable Development Goals—SDG 5, SDG 6, SDG 13, and SDG 15—demonstrating its

alignment with relevant criteria and indicators aimed at advancing these global objectives through project implementation.

Selection of SDGs applicable to the CO2BIO project and their contribution to the SDGs								
SDG	*Sustainable Development Goal*	*Goal*	*Indicator*	*Project Activity*	*Project contribution*	*Summary of the project contribution*	*Activity unit of measure*	*Verification (2021 – 2023 period)*
SDG 5	Gender equality	Ensure women's full and effective participation and equal opportunities for leadership at all decision-making levels in political, economic and public life.	5.5.2 Proportion of women in management positions	Strengthening the capacity of men and women involved in the project, in the following components: technical-environmental, social, and administrative-financial, in order to strengthen decision-making in support of the project's objectives. Implementation of the governance strategy in the territory, for participatory decision-making on the sustainable management of	It will strengthen the knowledge and skills of women, ensuring informed decision-making processes. It will enable the direct participation of women as representatives in the governance table, mainly by the ecosystem managers. It strengthens the leadership and resource management of women owners in charge of the administration or management of the	Integrate a gender focus in all scenarios designed for capacity building, with the main objective of ensuring equal access to information and active participation, without distinction between men and women.	Number of women landowners in leadership positions of the properties.	47 reports of women owners in management position /48/

				strategic ecosystems. Promote the implementation of sustainable production actions and practices at the farm and local level, to maintain carbon reserves and conserve biodiversity in strategic ecosystems.	properties			
SDG6	Clean Water and Sanitation.	By 2030, achieve universal and equitable access to safe drinking water at an affordable price for all	Proportion of the population with access to safely managed drinking water services.	Development and Implementation of a Water Management Program	Execution of activities that will have an impact on the development of the project in relation to the proportion of the population with housing that lacks access to potable water	Diagnose, design, implement, and monitor a program for Efficient Water Use and Environmental Protection (PUEAA) aimed at enhancing water use for human consumption and wastewater management, through capacity building and workshops	Percentage of the population that improves their access to potable water after the implementation of the project	Activities Report SDG 6.1.1 /46/

SDG 13	Climate Action	Integrate climate change measures into national policies, strategies, and plans	13.2.2 Total greenhouse gas emissions by year	Quantify the greenhouse gas (GHG) emissions and reductions of the project	Periodic monitoring of GHG emissions in the project's eligible areas and leakage areas will allow for identifying the impact of the project's development in relation to the reduction of deforestation and forest degradation	The project's activities are focused on promoting sustainable practices for forest conservation in private properties. In this sense, it contributes directly to the reduction of GHG emissions from deforestation and forest degradation	Reduced tCO_2e	Emissions__CO2BIO_P2_V3/44/
SDG 15	Life of Terrestrial Ecosystems	By 2020, ensure the conservation, restoration, and sustainable use of terrestrial ecosystems and freshwater inland ecosystems and their services, particularly forests, wetlands, mountai	"Monitoring of the GHGs	Continuous monitoring of changes in forest area as a proportion of total area in project areas.	It allows for identifying critical and high-value areas, not only in terms of biodiversity but also in relation to their importance for ecosystem services, their preservation, and the associated cultural values	The project supported the conservation of vital coverage essential for biodiversity conservation, as the properties predominantly contained dense, fragmented, open, and gallery forests, as	Hectares of forest	Report on the monitoring of high conservation values. /47/

		ns, and arid areas, in line with the obligations undertaken under international agreements				well as secondary vegetation and grasslands, all of which play a crucial role in providing structure to various habitats.		

The follow-up process on the actual contributions arising from the implementation of the SDG-related plans for the CO2BIO PROYECTO 2 project shows that, with the development of the tool designed for this purpose, a monitoring approach is being effectively embraced by the beneficiaries or ecosystem managers as designated

5.1.2.7 Procedures associated with the monitoring of co-benefits of the special category, as applicable

This verification was conducted using a combination of project documentation provided by the proponent and direct field observations. The audit team supplemented the review through on-site visits, discussions with environmental managers, and semi-structured interviews with selected landowners.

Based on the evidence gathered during the site visit and the consistency observed across the submitted documentation, the audit team found that the project activities are in clear accordance with the stated objectives. Additionally, the project is shown to deliver supplementary benefits as required under the Orchid category, which is structured around three core criteria:

1. **Biodiversity Conservation**

Objective: Ensure the protection and enhancement of orchid species and their habitats within the project area.

Actions:

- Conduct bi-annual surveys to monitor orchid populations and habitat conditions.
- Implement restoration activities for degraded orchid habitats.
- Track invasive species and mitigate their impact on native orchid populations.

Indicators:

- Number of orchid species identified and their population trends.
- Hectares of habitat restored or conserved.
- Reduction in invasive species coverage.

2. **Benefits to Communities**

Objective: Ensure local communities derive tangible social and economic benefits from the project.

Actions:

- Provide training and capacity-building programs for community members on sustainable orchid conservation and eco-tourism.
- Develop income-generating activities (e.g., handicrafts, guided tours).
- Establish a community feedback mechanism to address concerns and suggestions.

Indicators:

- Number of community members trained and employed.
- Increase in household income linked to project activities.
- Level of community satisfaction measured through surveys.

3. **Gender Equity**

    - **Objective**: Promote equal participation and benefits for women and marginalized groups in all project activities.

Actions:

- Ensure at least 50% participation of women in training and decision-making processes.
- Design gender-specific programs to address barriers faced by women in accessing project benefits.
- Monitor and report on gender-disaggregated data for all project outcomes.

Indicators:

- Percentage of women participating in project activities.
- Number of gender-specific initiatives implemented.
- Improvement in women's access to resources and leadership roles.

These requirements align with the project's 40-year accreditation period and ensure a holistic approach to monitoring co-benefits/49/.

Based on the verification exercise, there is clear alignment between the project activities and the requirements of the Orquídea category. This conclusion is supported by observations made during the field visit, as well as the consistency and coherence of the documentation submitted by the project proponent throughout the verification process.

Additionally, during the assessment of the co-benefits for the project, the Audit Team reviewed the supporting documents (Co-benefit plan)/49/ to evaluate whether the project activities corresponded to the co-benefit components

5.2 Quantification of GHG emission reductions and removals

The verification team reviewed the procedures and calculations applied for the quantification of reference emissions to ensure full compliance with the applicable methodologies and technical standards.

The verification team confirms that the quantification of reference emissions was meticulously performed in accordance with the methodological requirements and technical specifications set forth in the BCR0002 methodology (Version 3.1, dated September 15, 2022) and the BCR0004 methodology (Version 2.0, dated June 23, 2022).

The application of scientifically robust procedures, including proper data collection, parameter selection, calculation approaches, and documentation, was verified to be consistent with the approved standards and protocols. The verification team confirms that the applied methods ensure the technical integrity, accuracy, and methodological consistency required for establishing the reference emissions scenario.

Based on the verification activities conducted, the verification team concludes that the quantification of reference emissions was carried out in full compliance with the applicable methodologies, and the procedures applied are scientifically robust, transparent, and consistent with the approved standards.

5.2.1 Baseline or reference scenario

The verification team conducted a comprehensive assessment of the baseline scenario as identified and documented by the project proponent in the project description, in accordance with the applicable requirements of the applied methodologies (BCR0002 v3.1 and BCR0004 v2.0), the BioCarbon Standard. The assessment verified the appropriateness of the baseline scenario and ensured that all underlying assumptions, parameters, data sources, and calculation approaches were applied in a transparent, conservative, and scientifically justified manner.

The verification team reviewed the methods and formulae described in the project description and confirmed that the quantification of baseline emissions/removals follows

the procedural requirements set out in the applied methodologies, specifically: BCR0002 (Version 3.1, September 15, 2022) and BCR0004 (Version 2.0, June 23, 2022)

The baseline scenario was determined based on historical land use change analysis, using activity data derived from multi-temporal satellite imagery, validated with field surveys and ancillary data. Baseline GHG emissions were calculated using the approved methodological equations, incorporating activity data (AD), emission factors (EF), and carbon stock change coefficients. For each land cover class and GHG source, specific equations prescribed by the methodology were applied, taking into account emissions from deforestation, forest degradation, wetland conversion, and soil carbon loss where applicable.

The verification team carried out a detailed assessment of the steps taken by the project proponent to identify and quantify the baseline scenario. All assumptions, methods, and parameters applied in determining the baseline scenario were transparently presented in the project documentation. Data sources were clearly referenced and supported by field measurements, peer-reviewed literature, national forest inventories, and official government statistics. Emission factors and carbon stock densities were obtained from credible and validated sources, including IPCC 2006 Guidelines, country-specific studies, and prior project validations. Activity data was derived from high-resolution spatial datasets and remote sensing analyses, with validation through confusion matrices and field sampling. The verification team confirmed that uncertainty assessments were conducted in accordance with the applied methodology. Conservative approaches were systematically applied in cases of data variability or limited information, ensuring that baseline emissions were not overstated. Uncertainty discounts were applied to both activity data and emission factors as required.

The project host reviewed and accounted for relevant national forest and land-use policies, including deforestation rates, protected area regulations, REDD+ frameworks, and national GHG inventory reports.

The verification team verified that the baseline scenario consists of the emission factors, activity data, projection variables, and other relevant parameters specified in the applied methodology. Historical deforestation rates were calculated based on appropriately defined reference periods. Projection of future baseline emissions was performed following the conservative, stepwise procedures outlined in the methodology.

Data quality assurance and quality control (QA/QC) procedures were found to be in place and consistent with the requirements of ISO 14064-2, the applied methodologies. The verification team reviewed data management systems, audit trails, calibration records, and documentation practices to confirm data reliability and traceability.

Based on the verification activities performed, the verification team concludes that: The baseline scenario has been identified, justified, and documented in full compliance with the applicable methodologies, standards, and verification requirements. All assumptions, data sources, methods, and parameters have been transparently applied, conservatively selected, and supported by appropriate and credible evidence. Uncertainty has been properly considered and conservative assumptions applied. Relevant national and sectoral circumstances have been taken into account. Data quality assurance procedures are consistent with ISO 14064-2 and the applied methodology. The documentary evidence used to establish the baseline scenario is appropriate, sufficient, and properly justified.

5.2.2 Conservative approach and uncertainty management

The verification team reviewed the procedures applied to manage uncertainty in activity data. The accuracy of the maps used for estimating land cover change and activity data was ensured through the application of validated, high-resolution spatial datasets, and appropriate classification methodologies.

For the REDD+ component, the natural forest area for the year 2023 was modeled and validated using the AcATaMa tool (a QGIS add-on), applying established procedures incorporating field data and high-resolution satellite imagery. The verification team reviewed the confusion matrix generated during the validation process, which demonstrated an overall classification accuracy of 96.0%, exceeding the minimum accuracy threshold of 90% as required by methodology. This has been verified by AcATaMa files CO2BIO Vector files, Raster files and for model accuracy and classification CSV files has been assessed by the audits team/65/.

For the wetlands component, a similar validation approach was implemented using high-resolution imagery from WorldView-2 (0.30m resolution) and Sentinel-2 (10m resolution). The verification team reviewed the validation results, which demonstrated a classification accuracy of 98.8%, thereby meeting and surpassing the accuracy requirements established by the applicable methodology.

The verification team confirms that the procedures for activity data uncertainty management were properly implemented and are consistent with the requirements of the applied methodology.

The verification team assessed the application of emission factors and associated uncertainty management. The emission factors utilized in this monitoring period are consistent with those previously validated and applied during past verification cycles. The verification team confirmed that an uncertainty analysis conducted during the initial validation determined that the uncertainty associated with the applied emission factors was below 10%, which remains valid and applicable for the current monitoring period.

In accordance with the methodological requirements, conservative uncertainty discounts were systematically applied to the emission factors to address potential variability and inherent uncertainties, ensuring a conservative estimate of GHG emission reductions.

Based on the review and verification activities conducted, the verification team concludes that: Uncertainty management for both activity data and emission factors was conducted in full compliance with the applicable methodological requirements. The applied procedures for data accuracy validation and uncertainty discounting are technically sound, conservative, and adequately documented. The emission reduction estimations presented for this monitoring period are robust, conservative, and free of material errors related to uncertainty management.

Earthood confirms that the procedures for activity data uncertainty management were properly implemented and are consistent with the requirements of the applied methodology and with the requirements of:

- BCR Standard v3.4 (Section 22.3)
- ISO 14064-3:2019 (Section 7.3.6 & Annex E)
- Validation and Verification Manual v3.0 (Section 10.2.5)

Quantitative Uncertainty Assessment

The verification team performed a quantitative uncertainty assessment for key parameters contributing to the estimation of GHG emission reductions. The following data sources and uncertainty levels were used:

Parameter	Value	Source	Uncertainty
Total aboveground biomass (t/ha)	412,66	IDEAM, 2019	±12.3%
Wetland CH_4 emission factor	0.45 tCO_2e/ha/year	BCR MRV Tool, 2023	±15%
Land use/land cover classification	Overall accuracy: 88%	Project GIS assessment	±10%
Area estimation (activity data)	~8,300 ha (REDD+ & wetlands)	PDD v2.2 (2025)	±5%

These uncertainties were aggregated using the error propagation formula defined in ISO 14064-3:2019 Annex E:

$$Utotal = \sqrt{\{(12.3\%)^2+(10\%)^2+(15\%)^2+(5\%)^2\}} \approx 21.8\%$$

This reflects the estimated relative uncertainty of the reported GHG reductions and removals.

Sensitivity Analysis

To evaluate the influence of individual variables on emission reduction estimates, a ±10% variation was applied to each parameter. The resulting change in net tCO_2e was calculated as follows:

Parameter	±10% Change Impact	Sensitivity Rating
Biomass per hectare	±50,743 tCO_2e	High
Wetland CH_4 EF	±9,400 tCO_2e	Medium
Land classification area	±30,200 tCO_2e	Medium

Forest biomass was identified as the most sensitive driver, while wetland EF and LULC accuracy had moderate influence. These findings underscore the importance of using nationally accepted defaults with clearly documented uncertainty bounds.

Conservative Assumptions and Data Treatment

In accordance with BCR and ISO principles, the project and audit team applied a conservative approach throughout, including the following measures:

- Use of national default values (IDEAM 2019) even where localized data were available.
- Exclusion of emission reductions from areas with uncertain classification or temporary vegetation.
- Zero leakage was conservatively assumed, justified through legal restrictions and land-use stability, as detailed in the PDD.
- No buffer or over-crediting was applied for forest or wetland components.
- All GIS-based activity data were validated through field verification and accuracy assessments, with an overall LULC accuracy of 88% and a Kappa coefficient of 0.83.

Conclusion

Based on the analysis above, the overall uncertainty associated with the project's net GHG reductions is estimated at approximately 21.8%, driven mainly by biomass and emission factor variability. However, the project design and monitoring framework are conservative by structure, resulting in mitigation values that are not likely to be overstated.

Considering the application of a 5% materiality threshold and ISO-aligned uncertainty evaluation, the verification team concludes that the reported mitigation outcome of 507,429 tCO_2e is conservative, transparent, and consistent with the BCR Standard v3.4 and ISO 14064-3:2019.

5.2.3 Leakage and non-permanence

The verification team assessed the project's procedures for identifying, managing, and mitigating potential leakage and reversal risks in accordance with the applicable methodology, standards, and safeguards. The verification team reviewed the risk assessment matrix developed by the project holder, which systematically identifies potential leakage risks by analyzing activity type, market conditions, geographic context, and indirect sources of displacement. The verification confirms that preventive measures have been established to avoid the displacement of activities that could result in additional GHG emissions outside the project boundary.

The verification team confirms that the leakage risk management approach is consistent with the requirements of Environmental and Social Safeguard "G" for REDD+ projects, which mandates the identification, control, minimization of leakage, and reduction of emission displacement.

The verification team further evaluated the response protocol activated upon detection of potential leakage. This includes the use of established communication procedures and verification through satellite imagery to assess the presence and extent of emissions displacement. In cases where leakage is confirmed, quantification methodologies are applied, mitigation measures are implemented, and all actions are documented in the project's leakage control report. The verification team confirms that these procedures are in place and have been correctly implemented for the monitoring period.

The verification team assessed the reversal risk management process, which includes a comprehensive matrix addressing environmental (fire, wind, pests, diseases, water availability), financial (budgetary resources, financial solvency), and social (land tenure conflicts, political risks, opportunity costs) factors. The risk assessment aligns with the requirements of the "Permanence and Risk Management" tool (version 1.1, March 19, 2024, BioCarbon Standard).

The verification team also reviewed the inclusion of specific monitoring indicators and mitigation actions consistent with the AFOLU sector guidelines outlined in "Quantification of GHG Emissions REDD+ Project BCR0002" (version 3.1, September 15, 2022, BioCarbon Standard). The verification confirms that the monitoring framework is adequate to identify and address potential reversal events.

For the monitoring period 2022-2023, the verification team confirms that no high or medium reversal risks to the long-term permanence of emission reductions were identified.

Based on the assessment, the verification team concludes that the project has appropriately identified, assessed, and managed leakage and reversal risks in accordance with the applicable methodological, safeguard, and standard requirements. The procedures in place are sufficient to ensure the environmental integrity and permanence of the reported GHG emission reductions and removals.

5.2.4 Mitigation result

The verification team conducted a thorough assessment of the calculation of mitigation results to confirm compliance with the approved BCR methodologies and applicable BCR standard. This assessment included a detailed verification of input data, the application of calculation formulas, and the correctness of all calculation procedures.

The verification team confirms that the data sources and parameters utilized for the calculations are credible, traceable, and appropriate for the monitoring period under review. All data sources were properly referenced and supported by adequate evidence, including remote sensing analysis, validated emission factors and literature sources where applicable.

The verification team reviewed and confirms the following:

- The approved BCR0002 methodology (Version 3.1, dated September 15, 2022) and the BCR0004 methodology (Version 2.0, dated June 23, 2022), including its associated equations, tools, and procedures, was correctly and consistently applied throughout the monitoring period.

- Land-use classification, stratification, and activity data development were conducted in accordance with the methodology's requirements, ensuring accurate reflection of land cover changes and emissions sources.

- Calculations of baseline emissions, project emissions, and leakage were performed accurately following the stepwise procedures prescribed by the methodology.

- Uncertainty discounts were properly applied to reflect conservativeness and address residual uncertainty in emission estimates.

To assess the accuracy of the calculations, the verification team conducted a full review of the calculation spreadsheets, including verification of all formulas, conversions, and aggregations. In addition, spot-checking and replication of selected calculations were performed to validate the consistency and correctness of results. The verification also confirmed the consistent application of parameters, units, and assumptions throughout

all calculations. No material errors, omissions, or inconsistencies were identified during the verification process.

Based on the verification activities undertaken, the verification team concludes that: The methodology, tools, and calculation procedures have been correctly applied. Data sources and parameters used in the calculation are reliable, appropriately documented, and suitable for the monitoring period. The calculations performed are technically accurate, methodologically sound, and conservative. The reported GHG emission reductions and removals are free of material errors and may be considered accurate for the purposes of verification.

5.2.4.1 GHG baseline emissions

The verification team reviewed the procedures applied for the quantification of baseline or reference emissions associated with both deforestation, forest degradation, and wetland land-use change activities.

The verification team confirms that:

- The quantification of baseline or reference emissions associated with deforestation and forest degradation was performed in full compliance with the **BCR0002 methodology (Quantification of GHG Emission Reductions for REDD+ Projects, Version 3.1, September 15, 2022)**.

- In parallel, the quantification of baseline emissions related to land-use change in wetlands was conducted in accordance with the **BCR0004 methodology (Activities that Avoid Land Use Change in Continental Wetlands, Version 2.0, June 23, 2022)**.

The applied quantification procedures followed all methodological requirements, utilizing appropriate activity data, emission factors, parameters, and formulas as prescribed by the respective methodologies. All data sources, assumptions, and calculation procedures were transparently documented and consistently applied.

The verification team concludes that the quantification of baseline or reference emissions was correctly executed, scientifically sound, conservative, and fully compliant with the applied methodologies and verification requirements.

Baseline emission from deforestation

The activity data were derived from historical forest area change records within the reference region, calculated using the following equation.

$$FSC_{yr} = \left(\frac{1}{t_2 - t_1}\right) x \, (A_1 - A_2)$$

Where:

FSC_{yr} *Annual change in the surface covered by forest in the reference region; ha*

t_1 *Initial year of reference period; year*

t_2 *Final year of reference period; year*

A_1 *Forest surface in the reference region in the initial moment; ha*

A_2 *Forest surface in the reference region in the final moment; ha*

Based on the historical trend of deforestation in the reference region, the change in forest area within the eligible area of the project was projected. During the analysis period, adjustments were made to the eligible area; consequently, the projection of $FSC_{proyect,yr}$ was revised to reflect the updated conditions.

In accordance with the provisions of the BCR0002 methodology, the validated emission factor values are authorized for use in the estimation of monitored emissions. Therefore, these previously validated values have been consistently applied for the current monitoring period.

The following equation was applied for the quantification of emissions associated with deforestation in the reference scenario.

$$AE_{bl,yr} = AD_{bl,yr}\ x\ TCO_{2eq}$$

$AE_{lb,yr}$ *Annual emission in the baseline scenario;* tCO_2 */ha2*

$AD_{bl,yr}$ *Historical annual deforestation in the baseline scenario; ha*

TCO_{2eq} *Total carbon dioxide equivalent; tCO2e /ha*

For the estimation of annual forest area changes in the reference scenario, a deforestation rate of 1.16% was employed, based on the historical average observed in the delineated area. In alignment with methodological requirements, an adjustment to the FSC was applied to incorporate national conditions, using values specified in the latest version of the NREF.

Table below summarizes the projected land cover dynamics in the absence of project interventions and quantifies the associated baseline GHG emissions resulting from deforestation processes.

Year	Adjustment for national circumstances (%CN)	FSClb + %CNN (ha)	CTeq (tCO2e/ha)	GHG emissions in the baseline scenario (tCO2e/year)
2022	53,55%	352,67	723,08	255.010,0
2023	25,90%	268,94		194.465,0

The step-by-step calculations can be reviewed in Annex 7. Emission monitoring / 1. Emissions_CO2Bio_P2_V3 /

Baseline emission from forest degradation

The quantification of emissions associated with forest degradation under the reference scenario was conducted by analyzing the changes in carbon stocks resulting from transitions between specific forest structural classes, namely from core forest to patch forest and from perforated forest to patch forest. The estimation of baseline activity data was subsequently carried out applying the following set of equations:

$$PFD_{bl,yr} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{core,bl} - A_{c-p,bl}\right)$$

$PFD_{bl,yr}$ Annual historical primary forest degradation in baseline scenario; ha

t_2 Final year of the reference period; year

t_1 Initial year of the reference period; year

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

$A_{core-pat,lb}$ Reference region area that changes from the core to patch in the final year of the reference period; ha

And

$$SFD_{bl,yr} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{perforated,bl} - A_{perforated-pat,bl}\right)$$

Where:

$SFD_{bl,}$	*Annual secondary forest degradation in baseline scenario; ha*
t_2	*Final year of the reference period; year*
t_1	*Initial year of the reference period; year*
$A_{perforated,lb}$	*Area in a perforated class of the reference region, in the initial year of the reference period; ha*
$A_{per-par,bl}$	*Area in the reference region that change from perforated to patch in the final year of the reference period; ha*

Following this, the activity data were combined with the carbon equivalent values calculated from the differences in total biomass across the relevant fragmentation classes for both primary and secondary degradation types. The estimation was conducted using the equation presented below:

$$AE_{fd,bl,yr} = \left(PFD_{bl,yr} x DTBCO_{2eq,1}\right) + \left(SFD_{bl,yr} x DTBCO_{2e,2}\right)$$

Where:

$AE_{fd,bl,yr}$	Annual emission due to degradation, in the baseline scenario; tCO2/ha
$PFD_{bl,yr}$	Annual primary degradation in the baseline scenario; ha
$SFD_{bl,yr}$	Annual secondary degradation in the baseline scenario; ha
$DTBCO_{2eq,1}$	Carbon dioxide equivalent in the difference of total biomass per hectare, in the class of primary degradation ; tCO2e/ha

$DTBCO_{2eq,2}$ Carbon dioxide equivalent in the difference of total biomass per hectare, in the class of secondary degradation ; tCO2e/ha

1,2 Degradation type; 1-primary degradation, 2.secondary degradation

Table summarizes the estimated baseline GHG emissions associated with forest degradation during the period 2022–2023.

Year	Type of degradation	FD,bl,yr (ha)	DTBCO2,i (tCO2e/ha)	GHG emissions in the baseline scenario (tCO2e/year)
2022	Core - Patch (Primary)	75,61	251,85	19.052,0
2022	Perforated - Patch (secondary)	0,06	177,86	
2023	Core - Patch (Primary)	66,53	251,85	16.760,0
2023	Perforated - Patch secondary)	0,02	177,86	

The step-by-step calculations can be reviewed in Annex 7. Emissions monitoring / 1. Emissions_CO2Bio_P2_V3 /

Baseline emission from changes in land use in wetland

The estimation of emissions due to changes in the natural cover of the wetland and emissions generated within the project area during the monitoring period was performed using the following equation:

$$CNVC_{BL} = \left(\frac{1}{t_2 - t_1} ln \frac{A2}{A1}\right) x\ Ap$$

Where:

$CNVC_{BL}$ change in the area with natural vegetation cover in the baseline scenario, in the reference region (ha/year).

t_1 beginning year of the reference period in which the changes are analyzed

t_2 ending year of the reference period in which, the changes are analyzed

A_1 area in natural vegetation cover in the reference region in t1; (ha)

A_2 area in natural vegetation cover in the reference region in t2 ; (ha).

Ap eligible area for the project (ha)

and,

$$AE_{BL} = LUC_{BL} \left(BCF_{eq} + cos_{eq}\right)$$

Where:

AE_{BL} Annual emission in the baseline scenario; tCO /ha/year2e

LUC_{BL} Historical changes in the baseline scenario (ha/year)

BCF_{eq} Carbon dioxide equivalent contained in total biomass; tCO /ha2e

COS_{eq} Carbon dioxide equivalent contained in soils; tCO /ha2e

Stratum	Year	CSCNbl (ha/year)	CTeq (tCO2e/ha)	GHG emissions in the baseline scenario (tCO2e/year)
Herbaceous	2023	1271,74	75,1	95.767
Aquatic	2023	0,26	166,3	42
Dispersed	2023	45,83	201,1	9.218
Total				105.026

The step-by-step calculations can be reviewed in Annex 7. Emissions monitoring / 1. Emissions_CO2Bio_P2_V3 /

5.2.4.2 GHG project emissions

Emissions from forest deforestation

The verification team reviewed the procedures applied for the quantification of project emissions during the current monitoring period. The estimation of project emissions was conducted in full compliance with the guidelines for emissions monitoring established in

the applicable methodologies: **BCR0002 (Quantification of GHG Emission Reductions for REDD+ Projects, Version 3.1, Section 14.5)**; and **BCR0004 (Activities that Avoid Land Use Change in Continental Wetlands, Version 2.0, Section 16.5).**

In accordance with the provisions of these methodologies, only **activity data** was monitored for the reporting period. The verification team verified that the activity data was derived from validated remote sensing sources, supported by field observations and consistent with the approved monitoring plan.

The **emission factors** applied for the estimation of project emissions correspond to those previously validated during the initial project validation and used consistently for the baseline calculations. The verification team confirmed that these emission factors remain valid, appropriate, and scientifically justified for the current monitoring period.

The estimation of deforestation within the project area was carried out through the analysis of land cover transitions from forest to non-forest classes over the course of the monitoring period. The quantified change in area was subsequently combined with the applicable emission factors to calculate the corresponding greenhouse gas (GHG) emissions. The following equations were applied to conduct these analyses:

$$FSC_{REDD+project,yr} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{REDD+project,1} - A_{REDD+project,2}\right)$$

Where:

$FSC_{proj,yr}$	Annual change in the area covered by forest in the project area; ha
t_2	Final year of the reference period; yr
t_1	Initial year of the reference period; yr
$A_{REDD+project,1}$	Forest surface in the project area at the beginning of the monitoring period; ha
$A_{REDD+project,2}$	Forest surface in the project area at the end of the monitoring period; ha

And,

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

$EA_{REDD+project,yr}$ Annual emission in the project area; tCO2/ha

$AD_{REDD+project,yr}$ Annual deforestation in the project area; ha

TCO_{2eq} Total carbon dioxide equivalent; tCO2e/ha

For the 2022–2023 monitoring period, an average annual forest cover loss of 43.90 hectares per year was recorded within the project area. This loss corresponds to estimated greenhouse gas emissions of 32,321 tCO_2e per year. The observed forest cover loss is primarily attributed to natural factors affecting forest integrity, such as flood events occurring during the monitoring period (Section 8.1.5.1.1, Forest Cover Report 2022–2023).

Year	FSCproject,yr (ha/year)	TCOeq (tCO2e/ha)	Project GHG Emissions (tCO2e)
2022	44,70	723,08	32.321,0
2023	44,70		32.321,0

The step-by-step calculations can be reviewed in Annex 7. Emission monitoring / 1. Emissions_CO2Bio_P2_V3

- Emissions from forest degradation

The estimation of annual degradation in the project area was estimated with the following equations:

$$PFD_{REDD+proj,yr} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{core} - A_{c-p}\right)$$

Where:

$PFD_{REDD+project,y}$ Annual primary forest degradation in the project area; ha

t_1 Initial year of the monitoring period; yr

t_2 Final year of the monitoring period; yr

A_{core}	Area in core class in the project area, in the year of the start of the monitoring period; has
A_{c-p}	Project area that changes from the core to patch in the final year of the monitoring; ha

And,

$$SFD_{REDD+project,yr} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{perforated} - A_{perforado-patch}\right)$$

Where:

$SFD_{REDD+proj,yr}$	Annual secondary degradation in the project area; ha
t_1	Initial year of the monitoring period; yr
t_2	Final year of the monitoring period; yr
$A_{perforated}$	Area in perforated class in the project area, in the initial year of the monitoring period; ha
$A_{perforated-patch}$	Area in the project area that changes from perforated to patch in the final year of the monitoring period; ha

The annual emission due to degradation in the project area is estimated as follow:

$$AE_{fd,REDD+project,yr} = (PFD_{REDD+project,yr} x\ DTBCO_{2eq,1}) + (SFD_{REDD+project,yr} x\ DTBCO_{2eq,2})$$

Where:

$AE_{fd,REDD+project,yr}$	Annual emission due to degradation in the project area; tCO2 ha-1
$(PFD_{REDD+project,yr}$	Annual primary forest degradation in the project area; ha
$(SFD_{REDD+project,yr}$	Annual secondary degradation in the project area; ha
$DTBCO_{2eq,1}$	Carbon dioxide equivalent in the difference of total biomass per hectare, in the class of primary degradation; tCO2e ha-1
$DTBCO_{2eq,2}$	Carbon dioxide equivalent in the difference of total biomass per hectare, in the class of secondary degradation; tCO2e ha-1
	Degradation type; 1-primary degradation, 2-secondary degradation

During the monitoring period, changes in forest area attributable to primary degradation were identified for the year 2022. However, no such changes were observed for the year 2023; consequently, the annual emissions for the 2023 period are considered to be zero.

Table. Project emissions by degradation, for the period 2022 - 2023.

Year	Type of degradation	FD project, year (ha/year)	DTBCOi (tCO2e/ha)	Project GHG Emissions (tCO2e)
2022	Core - Patch (Primary)	0,05	251,85	12,0
2022	Perforated - Patch (Secondary)	0,00	177,86	
2023	Core - Patch (Primary)	0,00	251,85	12,0
2023	Perforated - Patch (Secondary)	0,00	177,86	

The step-by-step calculations can be reviewed in Annex 7. Emission monitoring / 1. Emissions_CO2Bio_P2_V3 / Sheet 4.

- Emissions from land use change in wetlands

The calculation of emissions due to changes in the natural cover of the wetland and emissions in the project area during the monitoring period was performed using the equation:

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

Where:

LUC_P	Change in the area with natural vegetation cover in the project area; ha/yr.
t_1	Year of beginning of the monitoring period
t_2	Final year of the monitoring period
A_1	Area in natural vegetation cover in the project area at the beginning of the monitoring period; ha
A_2	Area in natural vegetation cover in the project area at the end of the monitoring period; ha.

and,

$$AE_P = CNCV_P\ x\ (CBF_{eq} + cos_{eq})$$

Where:

AE_P	Annual emission in project area; tCO /ha/year2e
$CNVC_P$	Change in the area with natural vegetation cover in the project area; ha/year
CBF_{eq}	Carbon dioxide equivalent contained in total biomass; tCO /ha2e
COS_{eq}	Carbon dioxide equivalent contained in soils; tCO /ha2e

For the monitoring period (2023), changes in land use registered 240.72 ha for the herbaceous stratum. This corresponds to 18,085,4 tCO2e/year emitted in the herbaceous stratum.

Table. Emission monitoring of the project in wetland areas, in the period 2023.

Stratum	Year	LUCp (ha)	CTeq (tCO2e/ha)	Project GHG emissions (tCO2e/year)
Herbaceous	2023	240,72	75,1	18.085,4
Aquatic	2023	0,80	166,3	133,0
Dispersed	2023	0,00	201,1	0,0

The step-by-step calculations can be reviewed in Annex 7. Emission monitoring / 1. Emissions_CO2Bio_P2_V3 /

5.2.4.3 GHG leakage

As part of the verification activities conducted for the current monitoring period, Audit Team performed a detailed assessment of the procedures applied by the Project holder for the identification, delineation, and quantification of the leakage area, in accordance with the applicable methodological requirements.

The Project host employed a spatial proximity-based analysis for the identification of potential leakage areas, using the distribution of deforestation hotspots established under the baseline scenario. This approach is considered appropriate for capturing areas with an elevated risk of activity displacement as a result of project implementation.

For activity BCR0002 (forest deforestation), the leakage area was defined by applying a 100-meter buffer from the perimeter of the project boundaries, resulting in a total area of 10,673.4 hectares. Forest cover within this defined leakage belt was quantified for both the baseline and monitoring periods based on the spatial dataset Cinturon_Fugas_REDD.shp, and the respective shapefiles Bosque_AF_Monitoreo_2020_2021_V2 (2,593.7 ha) and Bosque_AF_Monitoreo_2021_2023_V3 (2,556.0 ha).

For activity BCR0004 (wetland natural vegetation transformation), the same 100-meter buffer approach was applied, resulting in a leakage belt of 10,461 hectares. The spatial definition of this area was supported by Cinturon_Fugas_Humedales.shp, with vegetation cover data extracted from Humedales_AF_Monitoreo_2020_2022_V2.shp (4,359.0 ha) and Humedales_AF_Monitoreo_2022_2023_V3.shp (4,306.5 ha), further classified into Disperso, Herbáceo, and Acuático strata.

The analysis appropriately excluded areas with limited or restricted access for deforestation agents and duly considered relevant environmental drivers that may contribute to potential emissions displacement. Eligibility of natural vegetation covers was evaluated and confirmed in accordance with the methodological eligibility requirements outlined in Section 10.3 for both baseline and monitoring periods.

All geospatial files, datasets, and supporting documentation provided by the Project hostt were subjected to independent review and cross-validation to ensure completeness, internal consistency, and accuracy of the information. No material inconsistencies or deviations were identified.

Based on the verification activities undertaken, the audit Team concludes that the delineation and quantification of the leakage area have been conducted in full compliance with the applied methodology. The leakage analysis appropriately reflects the project conditions and provides a credible and conservative basis for estimating potential leakage emissions for the monitoring period under review.

Emissions from deforestation in the leakage area

The calculation of emissions from forest deforestation in the leakage area was made taking into account the following equations:

$$FSC_{lk,yr} = (\frac{1}{t_2 - t_1}) \, x \, (A_{lk,1} - A_{lk,2})$$

Where:

$FSC_{lk,yr}$ Annual change in the surface covered by forest in the leakage area; ha/year

t_1 Initial year of the reference period; yr

t_2 Final year of the reference period; yr

$A_{lk,1}$ Forest surface in the leakage area at the beginning of the monitoring period; ha

$A_{lk,2}$ Forest surface in the leakage area at the end of the monitoring period; ha

and,

$$AE_{lk,yr} = (AD_{lk,yr} \, x \, TCO_{2eq}) - AE_{bl,lk,yr}$$

Where:

$AE_{lk,yr}$ Annual emissions in the leakage area; tCO /ha2

$AD_{lk,yr}$ Annual deforestation in the leakage area; ha

TCO_{2eq} Total carbon dioxide equivalent; tCO /ha2e

$AE_{bl,lk,yr}$ Annual emission in the leakage area, in baseline scenario; tCO2/ha

For the 2022–2023 period, an average annual forest deforestation of 18.85 hectares was recorded within the defined leakage area, corresponding to annual emissions of 13,630 tCO_2e. However, when compared to the baseline emissions scenario, this level of deforestation does not indicate a significant increase in GHG emissions attributable to the implementation of the project's REDD+ activities.

Monitoring of emissions from forest deforestation in the leakage area for the period 2022-2023.

Year	FSC lk,yr (ha/year)	TCO2eq (tCO2e /ha)	GHG emissions in the leakage area (tCO2e)	GHG emissions in the leakage area in baseline (tCO2e)	GHG emissions attributable to leakage due to project activities (tCO2e)
2022	18,85	723,08	13.630	23.035	-9.405
2023	18,85		13.630	23.035	-9.405

The step-by-step calculations can be reviewed in Annex 7. Emission monitoring / 1. Emissions_CO2Bio_P2_V3 /

Emissions from forest degradation in the leakage area

The estimation of annual degradation in the leakage area was estimated by applying the following equations:

$$PFD_{lk,yr} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{core,f} - A_{c-p}\right)$$

Where:

$PFD_{lk,yr}$ Annual primary forest degradation in leakage area; ha

t_1	Initial year of the monitoring period; yr
t_2	Final year of the monitoring period; yr
$A_{core,f}$	Area in core class in the leakage area, in the year of the start of the monitoring period; ha
A_{c-p}	Leakage area that changes from the core to patch in the final year of the monitoring; ha

And,

$$SFD_{lk,yr} = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{perforated,lk} - A_{perforated-patch,lk}\right)$$

Where:

$SFD_{lk,yr}$	Annual secondary forest degradation in the leakage area; ha
t_1	Initial year of the monitoring period; yr
t_2	Final year of the monitoring period; yr
$A_{perforated,lk}$	Area in perforated class in the leakage area, in the initial year of the monitoring period; ha
$A_{perforated-patch,l}$	Area in the leakage area that changes from perforated to patch in the final year of the monitoring period; ha

The annual emission by degradation in the leakage area is calculated, following the equation:

$$AE_{fd,lk,yr} = (PFD_{lk,yr} x\ DTBCO_{2eq,1}) + (SFD_{lk,yr} x\ DTBCO_{2eq,2})$$

Where:

$AE_{fd,lk,yr}$	Annual emission due to degradation in the project area; tCO2 ha-1
$PFD_{lk,yr}$	Annual primary forest degradation in the leakage area; ha
$SFD_{lk,yr}$	Annual secondary degradation in the leakage area; ha
$DTBCO_{2eq,1}$	Carbon dioxide equivalent in the difference of total biomass per hectare, in the class of primary degradation; tCO2e ha-1
$DTBCO_{2eq,2}$	Carbon dioxide equivalent in the difference of total biomass per hectare, in the class of secondary degradation; tCO2e ha-1
1,2	Degradation type; 1-primary degradation, 2-secondary degradation

Consistent with the observations made within the project area, no evidence of forest degradation processes was identified within the leakage area during the 2022–2023 monitoring period. Accordingly, the annual emissions from forest degradation for this period are considered to be zero.

Table. Emissions from degradation in the leakage area, for the period 2022 - 2023.

Year	Type of degradation	FDi f, year (ha/year)	DTBCO2, i (tCO2e/ha)	GHG emissions attributable to leakage (tCO2e)
2022	Core - Patch (Primary)	0,00	251,85	0,00
2022	Perforated - Patch (Secondary)	0,00	177,86	0,00
2023	Core - Patch	0,00	251,85	0,00

	(Primary)			
2023	Perforated - Patch (Secondary)	0,00	177,86	0,00

The step-by-step calculations can be reviewed in Annex 7. Emission monitoring / 1. Emissions_CO2Bio_P2_V3 /

-
- Emissions from wetland transformation in the leakage area

The quantification of GHG emissions that occurred in the wetland leakage area, due to the implementation of project activities during the monitoring period, were calculated by applying the following equations:

$$LUC_L = \left(\frac{1}{t_2 - t_1}\right) x \left(A_{L,1} - A_{L,2}\right)$$

Where:

LUC_L	Change in the area with natural vegetation cover in the leakage area; ha/yr.
t_1	Year of the beginning of the monitoring period
t_2	Final year of monitoring period
$A_{L,1}$	area in natural vegetation cover in the leakage area at the beginning of the monitoring period (ha).
$A_{L,2}$	area in natural vegetation cover in the leakage area at the end of the monitoring period (ha).

and,

$$AE_L = \left[CNCV_L \, x \left(CBF_{eq} + SOC_{eq}\right)\right] - AE_{L,BL}$$

Where:

AE_L Annual emission in leakage area; tCO /ha/year2e

$CNCV_L$ Change in the area with natural vegetation cover in the leakage area; ha/yr.

CBF_{eq} Carbon dioxide equivalent contained in total biomass; tCO /ha2e

SOC_{eq} Carbon dioxide equivalent contained in soils; tCO /ha2e

$EA_{f,lb}$ Annual emission in leakage area in the baseline scenario; tCO2e

As a result, during the monitoring period, land use changes in wetlands were observed exclusively within the herbaceous stratum (Table 39), with an annual transformation of 52.60 hectares. However, when compared to the baseline values, these changes do not represent an increase in GHG emissions within the leakage area. In accordance with the applied calculation methodology, any negative values resulting from the application of the equation were adjusted to zero (0) for the final calculations. Consequently, the annual emissions for the 2023 period are considered to be zero.

Monitoring of emissions from wetland transformation in the leakage area for the period 2023.

Stratum	Year	CNCVL (ha/year)	CTeq	AEL	EAL,BL	GHG emissions attributable to leaks due to project activities (tCO2e)
Herbaceous	2023	52,60	75,1	-3.599	7.551	0,00
Aquatic	2023	0,00	166,3	-4	4	0,00
Dispersed	2023	0,00	201,1	-1.058	1.059	0,00

The step-by-step calculations can be reviewed in Annex 7. Emission monitoring / 1. Emissions_CO2Bio_P2_V3 /

- **Net GHG emission reductions/removals**

The Validation and Verification Body reviewed the procedures applied by the Project Host to quantify the net greenhouse gas (GHG) emissions reductions achieved through avoided deforestation, forest degradation and wetland transformation during the monitoring

period. The quantification was performed in accordance with the applicable methodology, whereby the net emissions reductions are derived from the relationship between baseline scenario emissions, actual project emissions, and emissions associated with leakage.

The Project Host applied the prescribed equations to integrate these components, ensuring that all relevant sources and sinks were appropriately accounted for in the calculation of the emissions reductions. The audit Team has reviewed the calculation procedures, input data, and supporting documentation, and confirms that the applied approach is consistent with the methodological requirements, accurately reflects the project conditions during the monitoring period, and provides a conservative and transparent estimation of the net emissions reductions.

Emissions reductions - Deforestation

$$ER_{DEF,REDD+project} = (t_2 - t_1)x\left(EA_{DEF,bl,yr} - EA_{DEF,REDD+project,yr} - EA_{DEF,lk,yr}\right)$$

Where:

$ER_{DEF,REDD+project}$	Emission reduction due to avoided deforestation, monitoring period; tCO2e
t_2	Final year of the monitoring period; yr
t_1	Initial year of the monitoring period; yr
$EA_{DEF,bl,yr}$	Annual emission by deforestation in the baseline scenario; tCO2e
$EA_{DEF,REDD+project,yr}$	Annual emission by deforestation in the project area; tCO2 ha-1
$EA_{DEF,lk,yr}$	Annual emission by deforestation in the leakage area; tCO2 ha-1

Emissions reductions - Forest Degradation

$$ER_{FD,REDD+project} = (t_2 - t_1)x\left(EA_{FD,bl,yr} - EA_{FD,REDD+project,yr} - EA_{FD,lk,yr}\right)$$

Where:

$ER_{FD,REDD+project}$	Emission reduction due to avoided Forest degradation monitoring period; tCO2e
t_2	Final year of the monitoring period; yr
t_1	Initial year of the monitoring period; yr
$EA_{FD,bl,yr}$	Annual emission by forest degradation in the baseline scenario; tCO2e
$EA_{FD,REDD+project,yr}$	Annual emission by forest degradation in the project scenario; tCO2 ha-1
$EA_{FD,lk,yr}$	Annual emission by forest degradation in the leakage area; tCO2 ha-1

Emissions reductions - Wetlands

$$ER_{P,mp} = (t_2 - t_1)x\left(AE_{bl} - EA_p - EA_L\right)$$

Where:

$ER_{P,mp}$	Reduction of emissions by avoiding changes in the natural vegetation cover of the wetland, in the monitoring period (tCO2e/ha/year
t_2	Final year of the monitoring period; yr
t_1	year of the beginning of the monitoring period; yr
$EA_{BL,}$	emission from changes in the natural vegetation cover of the wetland in the baseline scenario (tCO2e/ha/year)
EA_P	Emission from changes in the natural vegetation cover of the wetland in the project area for the monitored period (tCO2e/ha/year)

EA_L	Emission from changes in the natural vegetation cover of the wetland in the leakage area for the monitored period (tCO2e/ha/year)

During the verification of the current monitoring period, the Validation and Verification Body assessed the Project Host approach for addressing leakage emissions and calculating the net greenhouse gas (GHG) emission reductions.

The assessment confirms that no significant increase in GHG emissions was observed within the leakage areas attributable to deforestation, forest degradation, or wetland transformation during the monitoring period. In accordance with the applied methodology and to ensure conservative quantification, any negative values generated during the calculation process were adjusted to zero (0) in the final emission reduction estimations, thereby preventing any potential overestimation of GHG benefits.

For the third monitoring period, the Project holder reported a total emission reduction of 507,429 tCO_2e (Table 40). Of this total, 384,833 tCO_2e are attributed to avoided deforestation, 35,788 tCO_2e to avoided forest degradation, and 86,808 tCO_2e to avoided wetland transformation.

Table. GHG emissions reduction report for the period 2022 - 2023.

Verification	Year	GHG emissions in the baseline scenario (tCO2e)	Project GHG Emissions (tCO2e)	GHG emissions attributable to leakage (tCO2e)	Net GHG reduction (tCO2e)
THIRD	01/01/2022 - 31/12/2022	274.062	32.333	0	241.729
	01/01/2023 - 31/12/2023	316.251	50.551	0	265.700
	Total	590.313	82.884	0	507.429
	Annual average	295.157	41.442	0	253.715

5.2.4.4 Ex-ante vs Ex-post Comparison of GHG emission reductions/removals

As assessment team reviewed the comparison between the ex-post net emissions reductions achieved during the 2022–2023 monitoring period and the ex-ante projections established at the time of project design.

The verified net emissions reductions for the monitoring period exhibit a variance of approximately 47.24% above the ex-ante estimate. This deviation is primarily attributed to a lower occurrence of forest degradation and wetland transformation events within both the project area and the defined leakage area, relative to the levels projected in the baseline scenario. As a result, actual GHG emissions under the with-project scenario were lower than initially anticipated, contributing to a higher total volume of verified emission reductions for the monitoring period. The observed increase in net GHG reductions during this monitoring period is primarily attributed to three key factors:

1. **Improved Activity Data Accuracy:** Higher-resolution satellite imagery and refined classification algorithms (including the AcATaMa tool for REDD+ areas) significantly enhanced the precision of land cover mapping, resulting in more accurate estimations of deforestation avoided and wetland area preservation.

2. **Expanded Monitoring Scope:** Compared to earlier monitoring periods, this verification cycle covered a broader and more updated set of geospatial and field data points, improving completeness of land-use dynamics and biomass assessments.

3. **Refined Emission Factor Application:** Although the emission factors remained consistent with prior verifications, updated field data and cross-validation with national datasets (IDEAM 2019) improved confidence in biomass stock estimates, allowing for more precise carbon quantification.

Additionally, several lower-performing or uncertain areas were excluded based on field verification and classification validation thresholds, thereby eliminating overestimated credits and contributing to the overall conservativeness of the estimate. These improvements collectively resulted in a higher, yet robust and verifiable, net emission reduction figure.

The Audit Team has reviewed the underlying data, assumptions, and methodological applications supporting this variance and confirms that the reported differences are justified, transparently documented, and consistent with the applied methodology. The Project Host's approach to quantification remains conservative and compliant with the applicable verification requirements.

Year	***Estimated net GHG reduction*** *(tCO2e)*	***Net GHG reduction observed*** *(tCO2e)*	***Difference***
2022	*148.728*	*241.729*	*62.53%*
2023	*195.903*	*265.700*	*35.63%*
Total	***344.630***	***507.429***	*47.24%*

5.3 Sustainable development safeguards (SDSs)

The social and environmental assessment of the CO2Bio Proyecto 2 was thoroughly explained by the project holder, covering various aspects such as capacity building, governance strategy design, forest area monitoring, water management programs, and more. These activities were closely aligned with the Sustainable Development Goals (SDGs), specifically SDGs 5 (Gender Equality), 6 (Clean Water and Sanitation), 13 (Climate Action), and 15 (Life of Terrestrial Ecosystems). The assessment confirmed that these activities were instrumental in promoting gender equity, environmental sustainability, and local development.

Analysis of Biodiversity and Ecosystem Impacts:

The analysis within the project boundaries was comprehensive, focusing on forest ecosystem management, water resource optimization, and reduction of deforestation. Through participatory biodiversity monitoring and the analysis of high conservation values, potential threats to biodiversity were identified and managed, ensuring that the project did not negatively affect the environment. The promotion of sustainable production practices also contributed to the preservation of biodiversity within the region. The references used for this analysis, such as those from the BioCarbon Standard's "Sustainable Development Goals Tool," were up-to-date and reliable, enhancing the robustness of the evaluation.

Evaluation of Assumptions and References:

The evaluation of the assumptions considered for the assessment was rigorous. Documentation and evidence were provided in the form of verified property implementation plans (PIPs), water management programs, and detailed SDG tools /08/that documented the project's contributions to the relevant SDG indicators. The reliability and pertinence of the references were assessed through cross-referencing with the most recent version of the BCR Standard ("Empowering Sustainability, Redefining Standards," June 2024) and the use of validated datasets.

Evaluation of the BCR Tool:

The BioCarbon Standard's BCR Tool was used to assess the environmental and social impacts during the monitoring period. The evaluation process followed the guidelines set out in the "Sustainable Development Safeguards (SDSs)" of the BioCarbon Standard. The results showed that the project activities contributed positively to SDGs 5, 6, 13, and 15, with measurable outcomes such as a 21% reduction in GHG emissions, significant improvements in water access, and enhanced gender equality in decision-making. The use of the SDG Tool and its application in the project was crucial in documenting these contributions, supporting the credibility of the assessment.

Conclusion and Rationale:

Based on the evaluation, the conclusion is that CO2Bio Proyecto 2 has met its goals of promoting sustainable development, gender equality, and environmental conservation. The project's approach to integrating climate change action, biodiversity conservation, and community participation ensures long-term benefits for both the environment and the local population. This conclusion is supported by the use of the most up-to-date tools and methodologies, including the BCR Standard, ensuring the reliability and relevance of the assessment findings.

The project's ongoing efforts in improving water use efficiency, enhancing forest governance, and reducing GHG emissions provide a solid foundation for future progress and contribute to global sustainability targets. The successful implementation of the activities further validates the project's effectiveness in fostering sustainable development while mitigating potential environmental risks.

The verification team assessed the project's compliance with the Sustainable Development Safeguards (SDSs) Tool, Version 1.1 (July 4, 2024), as required under Section 15 of the BCR Standard v3.4 and Section 9.1 of the Validation and Verification Manual (VVM v3.0).

The safeguards were reviewed using a combination of desk-based document analysis, field inspections, and stakeholder interviews during the site visit (09–15 February 2025). A structured evaluation was conducted for each of the 10 safeguard categories, using the indicators and criteria established in the SDSs Tool. A summary of the assessment is provided below:

Safeguard Category	Indicators Assessed	Evidence Reviewed	Verification Method	Conclusion
1. Land and Resource Tenure	Legal ownership, access rights	Property deeds, carbon rights agreements, interviews with landowners	Review of land tenure documents and onsite cross-check	Compliant: Clear documentation and consent from all participating landowners
2. Biodiversity and Ecosystem Services	Protection of natural habitats, species conservation	GIS analysis of deforestation patterns, field photos, biodiversity monitoring records	Field observation, desktop land cover comparison	Compliant: No habitat degradation observed; wetland and forest integrity maintained

Safeguard Category	Indicators Assessed	Evidence Reviewed	Verification Method	Conclusion
3. Water Resources	Use, access, quality impacts	Water quality data, interviews, hydrological maps	Stakeholder interviews, field observation of water sources	Compliant: No adverse impacts; wetlands protected as part of core project strategy
4. Climate Resilience	Adaptation measures, extreme event mitigation	Project design, risk registers, flood/fire response planning	Review of risk register and field interviews	Compliant: Fire risk mitigation strategies in place; early warning system adopted
5. Local Livelihoods	Income diversification, benefit sharing	Training records, payment distribution logs, local employment data	Interviews with beneficiaries, audit of benefit transfer records	Compliant: Documented revenue-sharing and benefit mechanisms validated on-site
6. Indigenous Peoples and Local Communities	FPIC, cultural respect, participation	Participation logs, FPIC documentation, interviews	Field verification and review of stakeholder consultation minutes	Compliant: No Indigenous Peoples affected; FPIC obtained from local stakeholders
7. Gender Equality	Equal participation, benefit distribution	Gender-disaggregated participation logs, training attendance sheets	Interview with women beneficiaries and local leaders	Compliant: Gender balance confirmed in participation; 42% of beneficiaries women
8. Cultural Heritage	Protection of sacred sites, local customs	Project activity mapping, local consultation feedback	Field visits, interviews with elders and community reps	Compliant: No reported interference with cultural sites or practices

Safeguard Category	Indicators Assessed	Evidence Reviewed	Verification Method	Conclusion
9. Grievance Mechanism	Availability, accessibility, functionality	Grievance log, awareness materials, project communication strategy	Review of logs, stakeholder interviews	Compliant: Grievance mechanism functional and used by stakeholders
10. Governance and Transparency	Information disclosure, accountability	Monitoring reports, public meetings, stakeholder communication logs	Review of records and interview feedback	Compliant: Regular stakeholder updates and participatory decision-making observed

Based on this structured assessment, the verification team concludes that **CO2Bio Proyecto 2 is in full compliance** with all 10 safeguard categories as required under the SDSs Tool v1.1 and the BCR Standard. All safeguard indicators were adequately addressed and verified using triangulated evidence from both documentation and field engagement.

5.4 Project contribution with the Sustainable Development Goals (SDGs)

This audit conducted on-site verification of CO2Bio Proyecto 2 active contributions to the Sustainable Development Goals (SDGs), with a particular focus on its targeted efforts toward specific goals

1) For SDGs (Gender Equality) - During 2022–2023, CO2Bio Project 2 strengthened women's leadership in sustainable land management. Of 155 ecosystem managers, 47 were women, many as landowners and heads of households. Through trainings, knowledge exchanges, and forums, 76 women participated in topics like carbon monitoring, biodiversity, and REDD+ safeguards. Women also played key roles in developing land implementation plans, reinforcing their leadership in natural resource governance and enhancing their decision-making capacity in conservation efforts. The participation and leadership of women in sustainable land management activities were verified through capacity building evidence, including training attendance records, knowledge exchange documentation, and forum participation lists. Based on the review, audit Team found the information to be consistent and correct

2) SDG 6 (Clean water and sanitation) - During 2022–2023, CO2Bio Project 2 advanced SDG 6 by promoting sustainable water management across 106 rural properties. Based on a detailed diagnosis, 67 properties developed verified Water Efficiency and Saving Plans (PUEAA), aligning with indicator 6.1.1 on access to safe drinking water. Activities included workshops, training, and chlorine tablet distribution, particularly benefiting 59 properties with housing. This integrated approach improves water access, optimizes use, and supports long-term conservation in line with global sustainability goals.

3) SDG 13 (Climate Action): During 2022–2023, CO2Bio Project 2 contributed to SDG 13 by integrating climate action into land management strategies, focusing on reducing greenhouse gas emissions. Through regular monitoring, the project reported 78,674 tCO_2e in emissions, achieving an 86.67% reduction compared to the baseline, equivalent to 507.429 tCO_2e. This progress supports indicator 13.2.2, demonstrating meaningful advancement toward integrating climate change mitigation into regional planning and policies.

4) SDG 15(Life on Land)- CO2Bio Proyecto 2 contributed to Sustainable Development Goal 15 (SDG 15) through activities aimed at conserving terrestrial ecosystems. The HCV Monitoring activity identified 14,522.52 hectares of critical conservation value, directly supporting target 15.1 (indicator 15.1.1 – forest area as a proportion of total area), with 19,167.70 hectares of conserved forests out of 137,193.53 total hectares. Additionally, satellite-based monitoring of environmental threats and forest cover changes supported target 15.3 (indicator 15.3.1 – proportion of degraded land), helping maintain land integrity. Bioacoustic monitoring also recorded 335 bird species, reflecting rich biodiversity and effective ecosystem preservation.

5) The project was verified to be aligned with the current Version 3.3 of the BCR Standard/05/ from Differentiated to Common Responsibility, the Sustainable Development Safeguards (SDSs) Tool Version 1.0, and the 2023 SDG Tool. These frameworks offer clear guidance for reporting contributions toward the Global Goals. The successful implementation of conservation activities under CO2Bio Proyecto 2 is designed to support climate change mitigation, reduce greenhouse gas (GHG) emissions, and evaluate the project's positive impact on targeted Sustainable Development Goals (SDGs).

5.5 *Climate change adaptation*

The audit team confirmed that the CO2Bio Proyecto 2 project holder adheres to the criteria specified in the BCR standard, with the adaptation actions directly tied to the

implementation of project activities during the monitoring period. As part of this verification audit, the team reviewed the submitted information and evidence of activity implementation, evaluating them against the relevant BCR standard criteria, as detailed in the table below.

Criteria	***Compliance***	***Project activity in which the adaptation action is derived.***	***Activity progress in the monitoring period 2022 - 2023***
Improve the conservation conditions of biodiversity and its 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	The project promotes and provides improvement actions for the conservation and safeguarding of biodiversity and its ecosystem services. In addition, it identifies and monitors HCVs within the geographical boundaries of the project and manages the improvement of water resources within the properties.	G5: Promote the implementation of sustainable productive actions and practices at farm and local levels to maintain carbon stocks and conserve biodiversity in strategic ecosystems.	G5: 19,03%
		G3: Continuous monitoring of changes in forest area as a proportion of total area in the project areas…	G3: 7.14%
		G4: Monitor environmental threats (fire) in the project area and/or possible management alerts.	G4: 7.14%
		B1: Participatory Biodiversity Monitoring	B1:7.14%
		A1: Development and implementation of water management program	A1:20%

Criteria	*Compliance*	*Project activity in which the adaptation action is derived.*	*Activity progress in the monitoring period 2022 - 2023*
, among others).			
Implement activities that contribute to sustainable low-carbon productive landscapes.	Complies. The project promotes the implementation of sustainable production systems and practices. The project strengthens the capacities of the project participants, with the purpose of empowering the communities in the development of responsible actions for the care and preservation of natural resources.	G1: Capacity building for men and women enrolled in the project, in the following components: technical-environmental, social and administrative-financial, to strengthen decision-making in favor of the project's objectives.	G1: 124 properties and 10 training courses have been conducted
		G5: Promote the implementation of sustainable productive actions and practices at farm and local levels to maintain carbon stocks and conserve biodiversity in strategic ecosystems.	G5: 19,03%
		G2: Implementation of the territorial governance strategy for participatory decision-making on the sustainable management of strategic ecosystems.	G2:20%
		B1: Participatory Biodiversity Monitoring	B1: 7.14%
Design and implement adaptation strategies based on an ecosystem approach.	Complies. The project is based on the conservation and sustainable management of natural ecosystems, within nature-based solutions. Therefore,	G1: Capacity building for men and women enrolled in the project, in the following components: technical-environmental, social and administrative-financial, to strengthen decision-making in favor of the project's objectives.	G1: 124 properties and 10 training courses have been conducted

Criteria	*Compliance*	*Project activity in which the adaptation action is derived.*	*Activity progress in the monitoring period 2022 - 2023*
	it is important to develop actions to strengthen the capacities of local communities to achieve compliance with conservation strategies for strategic ecosystems.	G5: Promote the implementation of sustainable productive actions and practices at farm and local levels to maintain carbon stocks and conserve biodiversity in strategic ecosystems.	G5: 19,03%
		A1: Development and implementation of water management program	A1: 20%
Strengthens the local capacities of institutions and/or communities to make informed decisions to anticipate negative effects derived from climate change (recognition of vulnerability conditions).	Compliant. The project includes the development of training for the transfer of knowledge with the local community, with the purpose of providing the necessary tools to make informed decisions on the management of the properties. These training courses are oriented towards climate change and conservation actions for strategic ecosystems. In addition, a governance strategy was implemented to coordinate the	G1: Capacity building for men and women enrolled in the project, in the following components: technical-environmental, social and administrative-financial, in order to strengthen decision-making in favor of the project's objectives.	G1: 124 properties and 10 training courses have been conducted
		G2: Implementation of the territorial governance strategy for participatory decision-making on the sustainable management of strategic ecosystems.	G2: 20%

Criteria	*Compliance*	*Project activity in which the adaptation action is derived.*	*Activity progress in the monitoring period 2022 - 2023*
	project's stakeholders.		

5.6 Co-benefits (if applicable)

The Project employs a structured monitoring framework based on clearly defined components, conditions, criteria, and indicators, organized under the "Orquídea Category" model. *The* project delivers additional co-benefits under the Orchid category, which encompasses three core areas: biodiversity conservation, community development, and the promotion of gender equity.

The audit team has evaluated the Monitoring Plan for Co-Benefits/56/ under CO2Bio Proyecto 2 which includes.

- **Component-Based Framework**: The co-benefits are categorized under key components such as biodiversity conservation, community benefits, and gender equality.
- **Criteria and Indicators**: Each component has associated conditions, criteria, and quantifiable indicators. These indicators are monitored at set intervals (mostly biennially) and include units of measurement and responsible parties for data collection.
- **Assigned Responsibilities**: Specific teams or units (e.g., Geospatial Process, Biodiversity Area, Economic Benefits Unit) are assigned to measure the indicators using standard data collection methodologies.
- **Time-Scaled Data Collection**: Monitoring spans across the project's 40-year accreditation period (2016–2055), ensuring long-term evaluation of co-benefit impacts.

The plan is structured around three key components: biodiversity conservation, community benefits, and gender equity, each measured through specific indicators and monitoring protocols/56/.

1. **Biodiversity Conservation**

Criteria: The project must implement effective actions to halt biodiversity loss while maintaining ecosystem services.

Indicators:

Hectares of strategic ecosystems conserved. (70,701.01 Ha in 2022).

Number of species identified (335 species in 2022).

Audit team Assessment: The project demonstrates tangible conservation outcomes, with a clear focus on habitat protection and species documentation. The biennial monitoring frequency ensures regular updates, though future reports should clarify methodologies (e.g., species sampling techniques) to enhance transparency.

2. **Benefits to Communities**

Criteria: The project must foster participatory decision-making and deliver measurable economic improvements for local stakeholders. Additionality Promote and strengthen participation mechanisms for community development.

Indicators:

Number of participatory events (10 events in 2022).

Increase in economic benefits for community members.

Audit team Assessment: The project actively engages communities through workshops and financial incentives, aligning with social equity goals. These activities indicate an inclusive approach, providing educational, social, and financial support to the local communities directly involved in or affected by the project. This has been identified with the supporting documentation of capapcitiy building/53/ and attendance records of meeting with stakeholders/55/. Additionality

3. **Gender Equity**

Criteria: Women's leadership in project administration and decision-making must be prioritized.

Indicator: Women landowners in leadership roles (47 in 2022).

Audit team Assessment: The inclusion of 47 women landowners reflects progress in gender representation. However, the indicator could be strengthened by tracking women's

participation in specific leadership activities (e.g., committee roles) and barriers addressed (e.g., access to training).

Verification Methods and Alignment with BCR MRV Tool:

The audit team verified the above co-benefit indicators using a combination of:

- Documentary review (Monitoring Plan, training logs, stakeholder records, species lists)
- Field-level verification during site visits (photos, interviews, activity logs)
- Spatial data analysis (GIS shapefiles and habitat overlays)

This approach aligns with the procedures outlined in the BCR MRV Tool v1.0 and the Validation and Verification Manual (VVM v3.0), ensuring consistency with the expected verification process for co-benefits under the BCR Standard.

Conclusion:

Based on the review of documentation, monitoring results, stakeholder interviews, and field observations, the verification team confirms that the project complies with the requirements of the "Orquídea Category" co-benefit classification. The implementation of the co-benefit monitoring framework is complete, appropriately structured, and effectively executed. The project has demonstrated verifiable and material contributions to biodiversity, community empowerment, and gender equity as per the indicators reviewed. Therefore, the project's eligibility for the Orchid co-benefits classification is substantiated and can be upheld with confidence.

5.7 REDD+ safeguards (if applicable)

The audit team reviewed the REDD+ Safeguards Monitoring Plan report, which is periodically updated in accordance with the Biocarbon Standard's "Tool for Demonstrating Compliance with REDD+ Safeguards," Version 1.1. The following detailed report outlines how each of the REDD+ safeguards has been addressed, based on the guidance provided in the document.

SAFEGUARD A THEMATIC NATIONAL INTERPRETATION: INSTITUTIONAL					
ID	**Requirement "BCR tool to demonstrate compliance with REDD+ safeguards".**	**National Interpretation Element**	**ID indictor**	**Compliance**	**Audit Team Assement**

A	On compatibility: Demonstrate that the project activities are in accordance with these policies and are not contrary to them	A1 Correspondence with national legislation:	1.1	A legal compatibility matrix was projected, in which each of the activities implemented in the framework of CO2Bio Proyecto 2 were related and aligned with national and international regulations	The Audit Team has reviewed the compatibility matrix/15/ for the CO2Bio Proyecto 2 and it was found that project aligns with international agreements and national policies, strategies, plans, and programs
SAFEGUARD B THEMATIC NATIONAL INTERPRETATION: INSTITUTIONAL					
B2	Implement tools to ensure effective, transparent and efficient disclosure of information associated with project activities. To this end, a record shall be kept of the means used for disclosure.	Transparency and Access to Information: Transparent, accessible and clear. Disseminate through workshops, documents and internet, adapting to the needs.	2.1	As part of the implementation of project activities (ID G1 and G2), the project was registered with Renare, as well as the use of communication and information dissemination channels, the PQRS system, and meetings with organizations	The Audit Team has reviewed the supporting documents submitted by the project holder, which include the project's YouTube channel, Instagram account, and Facebook page/11/, all of which are used to provide regular updates on the project and its activities. Additionally, the audit team reviewed the following records of communication with ecosystem managers/10/: via WhatsApp, via email, and through the CARBO platform.
B2	Implement tools to ensure effective, transparent and efficient disclosure of information associated with project	Transparency and Access to Information: Transparent, accessible and clear. Disseminate through workshops, documents and	2.2	As part of the implementation of project activities (ID G1 and G2), the project was registered with Renare, as well as the use of communicatio	The audit Team reviewed the communication process with beneficiaries and other stakeholders, noting the active use of the Requests, Complaints, Claims, and Suggestions (PQRS) System/12/. This tool has ensured efficient handling of inquiries and

	activities. To this end, a record shall be kept of the means used for disclosure.	internet, adapting to the needs.		n and information dissemination channels, the PQRS system, and meetings with organizations	feedback. In 2022, 16 petitions, 6 complaints, and 1 claim were received, while in 2023, 21 petitions and 11 complaints were managed. All cases were addressed promptly and are now closed.
	Implement tools to ensure effective, transparent and efficient disclosure of information associated with project activities. To this end, a record shall be kept of the means used for disclosure.	Transparency and Access to Information: Transparent, accessible and clear. Disseminate through workshops, documents and internet, adapting to the needs.	2.3	As part of the implementation of project activities (ID G1 and G2), the project was registered with Renare, as well as the use of communication and information dissemination channels, the PQRS system, and meetings with organizations	The Audit Team reviewed supporting documents such as videos, presentations, posts/13/, and posters used to ensure transparency and keep stakeholders and community members informed about project updates.
	Implement tools to ensure effective, transparent and efficient disclosure of information associated with project activities. To this end, a record shall be kept of the means used for disclosure.	Transparency and Access to Information: Transparent, accessible and clear. Disseminate through workshops, documents and internet, adapting to the needs.	2.4	As part of the implementation of project activities (ID G1 and G2), the project was registered with Renare, as well as the use of communication and information dissemination channels, the PQRS system, and meetings with organizations	The Audit Team has reviewed the Activity Report G.1 /14/, which outlines efforts to strengthen the capacities of both men and women involved in the project. The report also details various training sessions related to carbon, community engagement, and knowledge-sharing activities on topics such as non-timber forest products (NTFPs), alternative water solutions, among others.
	Implement tools to ensure	Transparency and Access to Information:	2.5	As part of the implementation of project	The audit Team has reviewed supporting documentation, including

	effective, transparent and efficient disclosure of information associated with project activities. To this end, a record shall be kept of the means used for disclosure.	Transparent, accessible and clear. Disseminate through workshops, documents and internet, adapting to the needs.		activities (ID G1 and G2), the project was registered with Renare, as well as the use of communication and information dissemination channels, the PQRS system, and meetings with organizations	the RENARE webpage/16/, to verify the registration of CO2Bio Proyecto 2 in Colombia's National Registry of Greenhouse Gas Emissions Reductions.
B3	Implement tools to ensure effective, transparent and efficient disclosure of information associated with project activities. To this end, a record shall be kept of the means used for disclosure.	Accountability: Accountability for management and results.	2.6	Within the framework of the implementation of project activities (ID G1 and G2), management reports were issued, as well as carbon certificate emissions reports and the corresponding financial statements	The Audit Team has reviewed the carbon emission certificates/17/, management reports/18/, and account statements/19/.
B4.	Implement tools to ensure effective, transparent and efficient disclosure of information associated with project activities. To this end, a record shall be kept of the	Recognition of Forest Governance Structures: Recognize and strengthen forest decision makers to participate in decision making	2.7	As part of the implementation of project activities (ID G2), a governance strategy was designed in the territory	The audit Team has reviewed governance strategy /21/ which outlines the governance strategy for the "Gobierno Digital G2" initiative. It defines roles, responsibilities, and structures to ensure transparency, accountability, and coordination among stakeholders. Key principles include

	means used for disclosure.				collaboration, citizen focus, and efficient digital public service delivery. It also emphasizes continuous improvement and the integration of digital tools to modernize government operations .
B5	Implement tools to ensure effective, transparent and efficient disclosure of information associated with project activities. To this end, a record shall be kept of the means used for disclosure.	Capacity Building: Strengthen the capacities of stakeholders in technical, legal and administrative areas to improve decision making	2.8	Within the framework of the implementation of project activities (ID G1), 3 training spaces, 5 knowledge sharing spaces and 2 forums were created	The audit Team reviewed attendance records from multiple training sessions, including topics such as alternative water solutions/22/, REDD+ safeguards/23/, non-timber forest products/24/, carbon monitoring/25/, community management of illegal logging threats/26/, the importance of wetlands and meliponiculture/27/, and events like the biodiversity+Carbon+Water Forum 2023/28/ and Biodiversity and Climate Change/29/. During the site visit, local community members also confirmed their participation in these trainings through interviews.
SAFEGUARD C THEMATIC NATIONAL INTERPRETATION: SOCIAL AND CULTURAL					
C	Recognize and respect the rights of	Free, Prior and Informed Consent	3.1	In the framework of the	The audit Team has reviewed the The Activity G.1/14/ report which

	the communities present in the territory, establishing working groups and other mechanisms that enrolled them in the project from the prefeasibility and structuring phase. In addition, it must integrate traditional ancestral knowledge and propose new forms of sustainable use of the territory.	(FPIC): Apply national provisions on consultation and FPIC, in accordance with legislation, jurisprudence and guidance from the Ministry of the Interior.		implementation of project activities (ID G1 and G5), 3 training sessions, 5 knowledge exchanges and 2 forums were organized. In addition, the documents of the Preliminary Implementation Plans were updated	outlines a series of trainings and knowledge exchange sessions aimed at strengthening local capacities for conservation and climate change mitigation. These include topics such as carbon monitoring, illegal logging prevention, the ecological importance of wetlands, alternative water solutions, meliponiculture (native beekeeping), biodiversity, climate change, and non-timber forest products (NTFPs). It also covers key events like the biodiversity + Carbon & Water Forums held in 2022 and 2023. The report evaluates community participation, highlights the impacts of these activities, and provides conclusions and recommendations for future initiatives.
	Recognize and respect the rights of the communities present in the territory, establishing working groups and other mechanisms that enrolled them in the project from the prefeasibility and structuring	Respect for Traditional Knowledge: Respect and promote the traditional knowledge and visions of the territory of ethnic peoples and communities	3.2	In the framework of the project implementation, an inventory of the communities present was prepared and the resolution determining that prior consultation was not appropriate for the ethnic communities was processed	The audit Team reviewed the "RESOLUCIÓN NÚMERO ST- 0003 DE 05 ENE 2022"/30/ resolution issued by Colombia's Ministry of the Interior declaring that prior consultation with ethnic communities is not required for the implementation of CO_2Bio Proyecto 2. This project aims to conserve biodiversity and reduce greenhouse gas emissions by protecting forests and wetlands in private lands across Casanare, Arauca, Meta,

	phase. In addition, it must integrate traditional ancestral knowledge and propose new forms of sustainable use of the territory.				and Vichada. After legal and geographic analysis, the ministry concluded that no direct impact on ethnic communities would occur. As such, the project may proceed without prior consultation under national law
	Recognize and respect the rights of the communities present in the territory, establishing working groups and other mechanisms that enrolled them in the project from the prefeasibility and structuring phase. In addition, it must integrate traditional ancestral knowledge and propose new forms of sustainable use of the territory.	Benefit Sharing: Ensure the participation and fair distribution of derived benefits.	3.3	Within the framework of the implementation of project activities, 14,572,925,881 COP of economic benefits have been distributed	The audit Team reviewed the "Management Report on the Delivery of Economic Benefits – CO2Bio P2" /31/, the document provides an overview of the management and distribution of economic benefits generated by the CO2Bio P2 project, which focuses on carbon credit generation through forest and wetland conservation. It outlines how the project produced and commercialized carbon credits (CCVs), the income generated from these transactions, and how the resulting funds were distributed among participating landowners and ecosystem managers.
	Recognize and respect	Territorial Rights: Respect	3.4	In the framework of	The audit Team reviewed the "RESOLUCIÓN

	the rights of the communities present in the territory, establishing working groups and other mechanisms that enrolled them in the project from the prefeasibility and structuring phase. In addition, it must integrate traditional ancestral knowledge and propose new forms of sustainable use of the territory.	the territorial, collective and individual rights of ethnic and local communities.		the implementation of the project activities, the resolution that establishes the non-applicability of prior consultation for ethnic communities was managed. In addition, a legal analysis was conducted on the ownership of 124 properties	NÚMERO ST- 0003 DE 05 ENE 2022"/30/ resolution issued by Colombia's Ministry of the Interior declaring that prior consultation with ethnic communities is not required for the implementation of CO2Bio Proyecto 2. This project aims to conserve biodiversity and reduce greenhouse gas emissions by protecting forests and wetlands in private lands across Casanare, Arauca, Meta, and Vichada. After legal and geographic analysis, the ministry concluded that no direct impact on ethnic communities would occur. As such, the project may proceed without prior consultation under national law
SAFEGUARD D **THEMATIC NATIONAL INTERPRETATION: SOCIAL AND CULTURAL**					
D	Demonstrate that you have clearly and effectively shared information with communities and that they had the opportunity to participate.	Participation: Respect the right to full and effective participation of all stakeholders to ensure good governance and appropriate decision making on REDD+.		As part of the implementation of project activities (IDs G1, G2, G5, B1 and A1), various communication and information dissemination channels were used. In addition, participation in two forums,	The Audit Team has reviewed the supporting documents submitted by the project holder, which include the project's YouTube channel, Instagram account, and Facebook page/11/, all of which are used to provide regular updates on the project and its activities. Additionally, the audit team reviewed the following records of communication with

				three training spaces, five knowledge exchanges and the use of the PQRS system were promoted.	ecosystem managers/10/: via WhatsApp, via email, and through the CARBO platform
SAFEGUARD E **THEMATIC NATIONAL INTERPRETATION: ENVIRONMENTAL AND TERRITORIAL**					
E	Conserve, protect, restore and sustainably use ecosystems. In addition, they must comply with environmental standards and demonstrate that no activities involving the conversion of natural forests have been carried out.	Forest and Biodiversity Conservation: Support Forest conservation and the implementation of measures established for this purpose	5.1	During the implementation of project activities (ID G1, B1 and B2), the effectiveness in the execution of actions for forest conservation is demonstrated	The audit Team has assessed the bioacoustic monitoring report/32/ and found that it presents the results of a participatory bioacoustic monitoring initiative conducted under the CO2Bio Project P2. The report combines community involvement with the use of acoustic sensors (Audiomoths) to gather data on bird biodiversity across forest and wetland landscapes. The monitoring covered over 40 private properties, identifying 335 bird species, some of which are threatened or ecologically significant. The findings contribute to the identification and protection of High Conservation Value areas (HCVs) and support adaptive management for biodiversity conservation. Additionally, the report highlights the scientific, social, and economic value of engaging local communities in cost-effective, non-invasive biodiversity monitoring. Additional, the report on monitoring high

					conservation value represent that a Monitoring Plan for Wetlands and High Conservation Values (AVCs) in Colombia, structured around six key categories: AVC 1 – Biodiversity Hotspots: Identifies areas with high species richness, protected zones, and critical ecosystems using GIS mapping and species distribution models (e.g., Maxent). Areas were classified as high, medium, or low priority. AVC 2 – Conserved Landscapes: Evaluates ecosystem integrity through landscape metrics (e.g., connectivity, fragmentation) using Corine Land Cover data and Fragstats software. AVC 3 – Threatened Ecosystems: Assesses rare or endangered ecosystems based on IUCN Red List criteria and rarity indices. AVC 4 – Ecosystem Services: Maps areas vital for water regulation, carbon storage, and climate stability using forest cover, land use, and hydrological data. AVC 5 – Community Livelihoods: Highlights areas essential for local subsistence (water, agriculture, traditional resources) through participatory community engagement. AVC 6 – Cultural Heritage: Documents culturally

					significant sites (sacred, historical, or archaeological) in collaboration with indigenous and local communities. The Audit Team confirms that CO2Bio Project 2 successfully implemented this framework in Meta, Vichada, Arauca, and Casanare, integrating conservation with community needs. The plan also supports carbon credit initiatives and global climate mitigation efforts
E	Conserve, protect, restore and sustainably use ecosystems. In addition, they must comply with environmental standards and demonstrate that no activities involving the conversion of natural forests have been carried out.	Forest and Biodiversity Conservation: Support Forest conservation and the implementation of measures established for this purpose	5.2	During the implementation of project activities (ID G1, B1 and B2), the effectiveness in the execution of actions for forest conservation is demonstrated	The Audit Team has reviewed the non-forest conversion maps/34/ and found them to be accurate and in accordance with the project specifications.
E	Conserve, protect, restore and sustainably use	Provision of Environmental Goods and Services: Support the	5.3	Within the framework of the implementation of the project	The Audit Team has reviewed the Activity Report G.1 /14/, which outlines efforts to strengthen the capacities

	ecosystems. In addition, they must comply with environmental standards and demonstrate that no activities involving the conversion of natural forests have been carried out.	provision and enjoyment of ecosystem services		activity (ID A1), the efficient and sustainable use of ecosystem services was promoted, guaranteeing their long-term preservation	of both men and women involved in the project
	Conserve, protect, restore and sustainably use ecosystems. In addition, they must comply with environmental standards and demonstrate that no activities involving the conversion of natural forests have been carried out.	Provision of Environmental Goods and Services: Support the provision and enjoyment of ecosystem services	5.4	Within the framework of the implementation of the project activity (ID A1), the efficient and sustainable use of ecosystem services was promoted, guaranteeing their long-term preservation	Cormacarena, the environmental authority of Meta, Colombia, issued a certificate/35/ confirming that Fundación Cataruben (NIT 900.634.522-9) has no open sanctions or investigations in their records. The document, signed by Coordinator Ana Milena González Blanco, responds to a June 2022 inquiry and formally verifies the foundation's compliance with environmental regulations. This clearance confirms Fundación Cataruben's clean legal standing with the regional authority.
SAFEGUARD F THEMATIC NATIONAL INTERPRETATION: ENVIRONMENTAL AND TERRITORIAL					
F	Take measures to reduce the risks of reversion.	Environmental and Territorial Management: Support the consolidation of territorial	6.1	As part of the implementation of the project activity (ID G1), the III and IV Biodiversity,	The Audit Team has reviewed the Activity Report G.1 /14/, which outlines efforts to strengthen the capacities of both men and women

		and environmental management instruments provided for in the legislation, with a focus on conservation and sustainable forest management.		Carbon and Water Forum was held. The Risk Analysis and Management Matrix was also designed, and contractual clauses were established	involved in the project. also the linkage agreement to CO2/36/ outlines the contract numbered BH-P2-000 of 2022, established between Fundación Cataruben and a participating landowner (beneficiary), formalizes the integration of eligible private lands into the CO2Bio Climate Change Mitigation Initiative. This agreement supports the quantification, certification, and commercialization of carbon credits generated through forest and wetland conservation. It commits the beneficiary to preserving natural forests and wetlands, prohibiting deforestation and degradation, and adopting sustainable land management practices. Fundación Cataruben, as the project owner, is responsible for managing greenhouse gas (GHG) reduction activities and facilitating the sale of certified carbon credits, with 70% of the revenue directed to the beneficiary and 30% allocated for project administration. The contract includes a risk mitigation mechanism, reserving 15% of the credits as a buffer against potential environmental reversals. The agreement is valid for 15 years, extendable to 30, and includes terms for termination in cases of

					non-compliance or force majeure. It complies with Colombian environmental and legal standards and incorporates mechanisms for transparency, dispute resolution, and financial accountability.
F	Take measures to reduce the risks of reversion.	Sectoral Planning: Propose REDD+ actions based on environmental and territorial planning instruments, as well as legislation related to the conservation of forests and their biodiversity	6.1	As part of the implementation project, a legal compatibility matrix was prepared	Audit Team has reviewed the compatibility matrix/15/ for the CO2Bio Proyecto 2 and it was found that project aligns with international agreements and national policies, strategies, plans, and programs
SAFEGUARD G **THEMATIC NATIONAL INTERPRETATION: ENVIRONMENTAL AND TERRITORIAL**					
G	Identify and control leaks, minimize their impact and implement response protocols	Forest Control and Monitoring to Avoid Displacement of Emissions: Incorporate measures to reduce emissions displacement in its design and ensure timely monitoring and control when emissions displacement occurs	7.1	As part of the implementation of the project activity, an assessment of potential socioeconomic activities that could trigger a risk of leakage was carried out	The audit Team has reviewed the identified leakage, including the evaluation report /37/, leakage analysis /38/, and supporting documents, and found that the analysis was consistent with project methodologies and standards. The analysis of potential greenhouse gas (GHG) leakage associated with the CO2Bio Project 2 in Colombia's Orinoquía region evaluates whether conservation activities could unintentionally shift deforestation or emissions to areas outside the project boundary. The

					report includes risk identification, monitoring strategies, and mitigation plans, using satellite imagery and field data to track deforestation, degradation, and wetland transformation. During the 2022–2023 monitoring period, no significant GHG leakage occurred as a result of project activities. The study also includes social, environmental, and economic assessments, confirming that local practices are generally compatible with the project's conservation goals. It emphasizes proactive community engagement, ongoing monitoring, and early response protocols to manage any potential risks.

5.8 Double counting avoidance

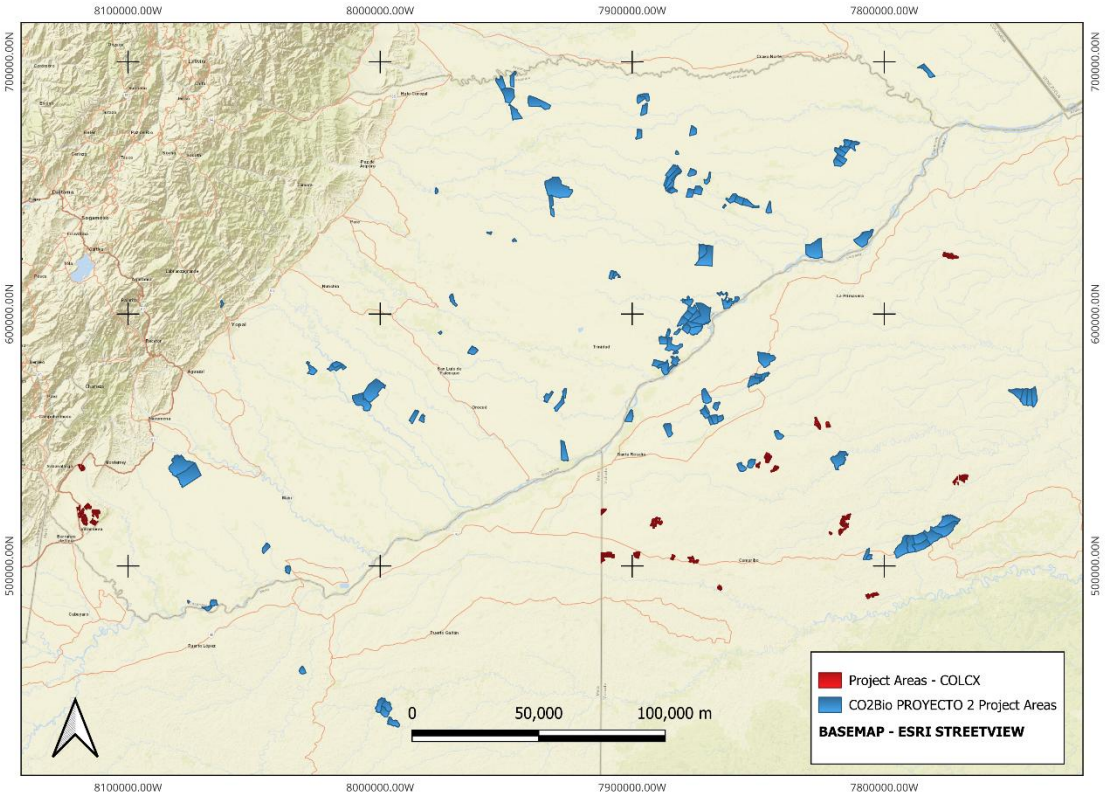
The audit team thoroughly verified 100% of the documentation provided by the project owner. This included confirmation of the project's registration on the RENARE platform. The verification process also assessed compliance with Colombia's Law 2 of 1959, which outlines regulations for the conservation of renewable natural resources, forest economy, and forest reserve zones. Additionally, the review confirmed the absence of overlaps with protected areas under SINAP and evaluated potential overlaps with mining titles and hydrocarbon exploration or exploitation zones.

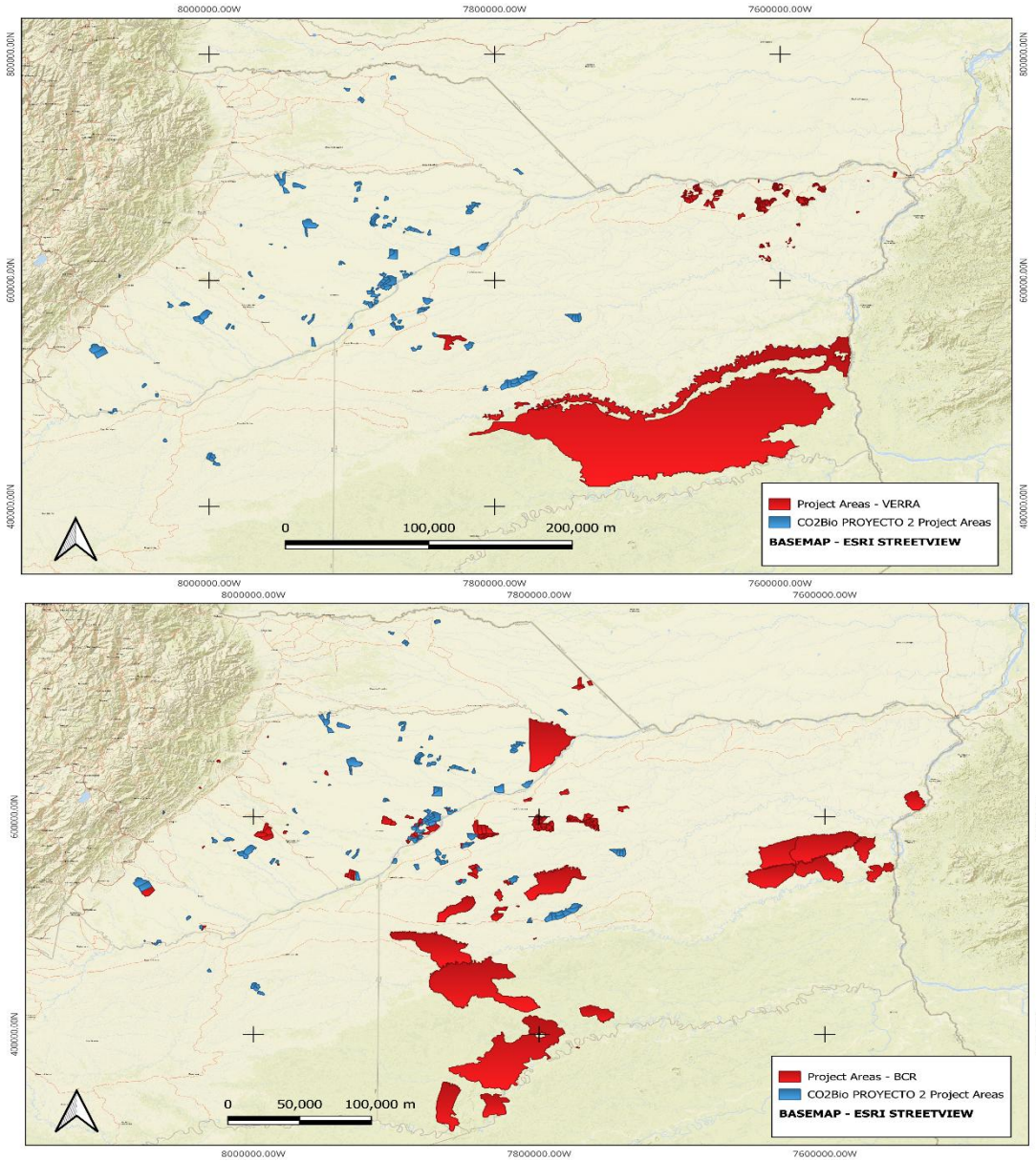
These KML files/04/ are intended to validate that the CO2BIO P2 project does not overlap with or conflict with the boundaries or claims of legalized Indigenous Reserves or Protected Areas.

According to the conditions under which the project was validated and by making an updated review of the main registries BCR, VERRA and CERCARBONO it was confirmed that the project does not present overlaps with other projects.

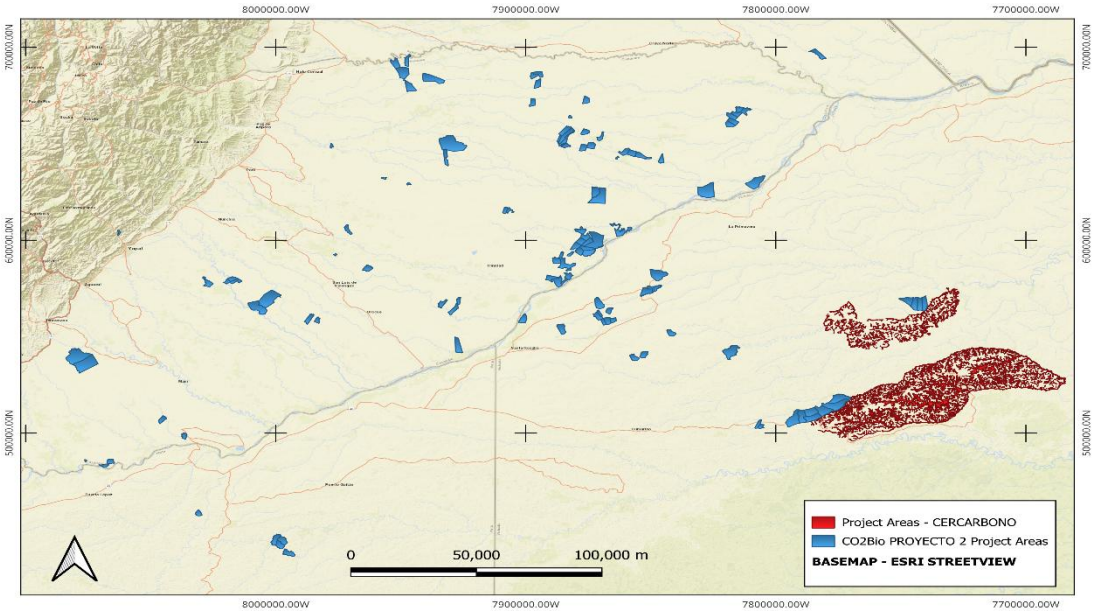
A geospatial analysis was performed to confirm the absence of overlapping areas between the CO2Bio Proyecto 2 project and other carbon projects registered under various standards/45/ in the region, as required by the BCR methodologies. The analysis is maps below, which clearly delineate the CO2Bio P2 project areas (marked in red) as separate from other carbon project boundaries. Additionally, the vector data provided in 2. Annexes / 8. Carbon Projects / 8.3.3. Projects Database were examined using GIS tools, validating that none of the 13,397 carbon projects—comprising 1,677 (COLCX), 942 (BIOCARBON REGISTRY), 3,524 (CERCARBONO), and 7,254 (VERRA)—overlap with the CO2Bio P2 project area, ensuring compliance with the requirement to avoid double counting of carbon credits. /45/

Following maps images of Location of the CO2BIO project areas compared to other standards

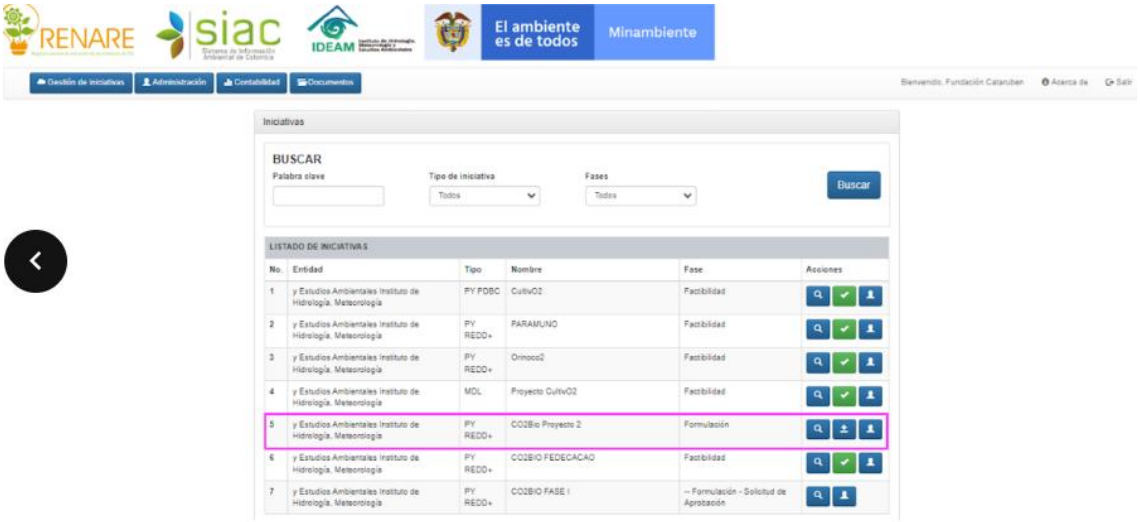


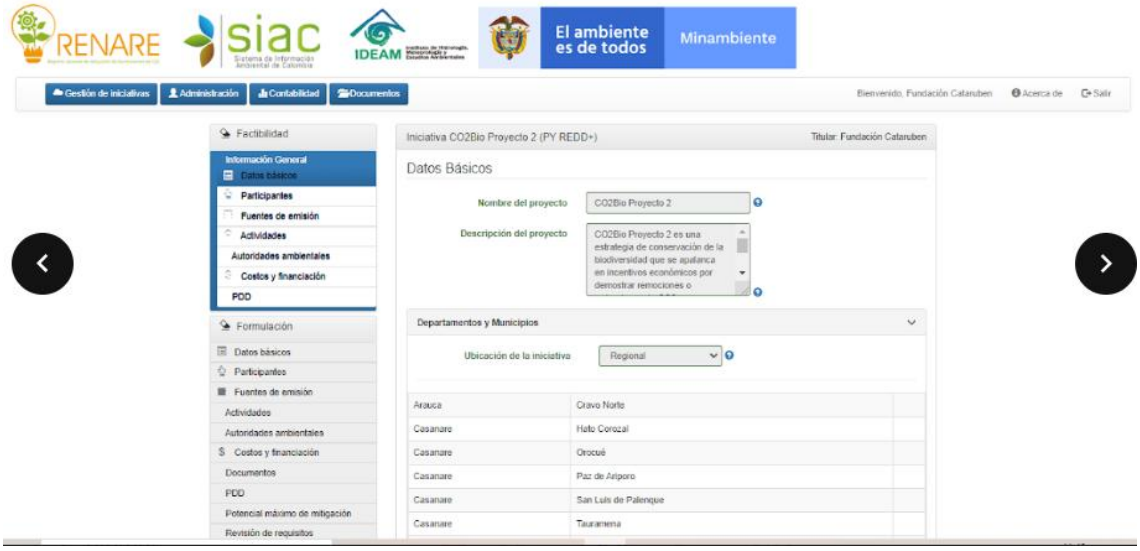

8000000.00W
7800000.00W
7600000.00W
4000000.00N
6000000.00N
8000000.00N
0
100,000
200,000 m
Project Areas - VERRA
CO2Bio PROYECTO 2 Project Areas
BASEMAP - ESRI STREETVIEW
0
50,000
100,000 m
Project Areas - BCR
CO2Bio PROYECTO 2 Project Areas
BASEMAP - ESRI STREETVIEW

SS



The CO2BIO P2 project is officially registered on the RENARE platform/16/ managed by the Ministry of Environment and Sustainable Development (MINAMBIENTE). This registration includes the filing of key documentation such as the right to petition/50/, emission sources/51/, and the associated baseline data/52/, as part of the project's formulation and submission process. The following image provides evidence of the project listing on the RENARE webpage, including the upload of the Project Document (PD) and the validation report, both published on January 13, 2022.:


RENARE
siac
IDEAM
El ambiente es de todos
Minambiente
Gestión de iniciativas
Administración
Contabilidad
Documentos
Iniciativas
BUSCAR
Palabra clave
Tipo de iniciativa
Fases
Buscar
LISTADO DE INICIATIVAS
No.
Entidad
Tipo
Nombre
Fase
Acciones
CO2Bio Proyecto 2
Formulación
CO2BIO FEDECACAO
Factibilidad
CO2BIO FASE I


RENARE
siac
IDEAM
El ambiente es de todos
Minambiente
Gestión de iniciativas
Administración
Contabilidad
Documentos
Factibilidad
Información General
Datos básicos
Participantes
Fuentes de emisión
Actividades
Autoridades ambientales
Costos y financiación
PDD
Formulación
Iniciativa CO2Bio Proyecto 2 (PY REDD+)
Titular: Fundación Cataruben
Datos Básicos
Nombre del proyecto
CO2Bio Proyecto 2
Descripción del proyecto
Departamentos y Municipios
Ubicación de la iniciativa
Regional
Arauca
Cravo Norte
Casanare
Hato Corozal
Orocué
Paz de Ariporo
San Luis de Palenque
Tauramena

5.9 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project owner ensures compliance with applicable laws with policies and methodologies established under the Document Management System for climate change-related projects. These measures are designed to identify relevant legal obligations, monitor ongoing compliance, and address issues related to the project, its participants, areas of influence, and compliance activities. This approach helps reduce legal risks by ensuring that all project activities are carried out within the bounds of applicable regulations.

The audit team has verified that the project holder has established procedures to regularly assess compliance with legal requirements. Accordingly, the project complies with all applicable regulations and includes a summary of this compliance in the project documentation.

STANDARD OR LAW	CHARACTERISTICS	COMPLIANCE
Law 165 of 1994	Approves the UNFCCC to stabilize GHG emissions and promote sustainable development.	CO2Bio P2 conserves forests and wetlands as carbon sinks, directly supporting Colombia's UNFCCC commitments.
Paris Agreement	Reduce GHG emissions and limit global warming to 1.5°C by conserving ecosystems.	The project avoids deforestation of 18,349.3 hectares, preserving carbon stocks and aligning with Colombia's Nationally

		Determined Contributions (NDCs).
Resolution 70/1 (Agenda 2030)	Transform our world: The 2030 Agenda for Sustainable Development.	The document establishes national policy aligned with the UN 2030 Agenda and supports project strategies.
UNFCCC | 15/03/2011	Limit global temperature rise and reduce emissions to prevent dangerous human interference in the climate system.	The project supports the goals of the UNFCCC, helping to mitigate climate change through ecosystem conservation
Law 1931 of 2018	Establishes Colombia's Climate Change Policy to integrate sustainability into development.	CO2Bio P2 promotes sustainable land-use practices and strengthens climate resilience in line with Articles 26–27.
CONPES 3700 (2011)	Improve water resource management and climate adaptation.	The project Protects wetlands and watersheds, ensuring water sustainability in alignment with SDG 6.
National Climate Change Policy (2017)	Identify and exploit opportunities while minimizing risks related to climate change	The project Complies with national climate policy for sustainable development and resilience.
Conpes 4080	Establish a roadmap to reduce deforestation and promote sustainable land management.	The project promotes governance and sustainable forestry in line with CONPES 4080.
Participatory governance strategy		
Resolution 70/1 (Agenda 2030)	Transform our world: The 2030 Agenda for Sustainable Development.	The project strengthens governance strategies to

		support SDG implementation.
UNFCCC | 15/03/2011	Limit temperature rise to avoid dangerous interference with the climate system.	The project's governance strategy is a mechanism promoting ecosystem conservation, consistent with the convention.
FAO's Voluntary Guidelines on Land Tenure (VGGT)	Serve as a reference and provide guidance to improve the governance of land tenure, fisheries, and forests with the primary objective of achieving food security for all and supporting the progressive realization of the right to adequate food within the context of national food security	The governance strategy for CO2Bio Project 2 adheres to the FAO's voluntary principles for responsible governance, emphasizing gender equality, transparent decision-making, and active community involvement as fundamental governance pillars. It also advocates for safeguarding the rights and resource access of vulnerable communities, while prioritizing environmental sustainability.
Law 1931 of 2018	Establish guidelines for climate change management and adaptation strategies in Colombia.	The CO2BIO P2 project aligns with the adaptation and mitigation objectives established by this law.
CONPES 3700 (2011)	Coordinate policies and actions on ecosystem services and biodiversity conservation.	Related to the project through biodiversity protection and ecosystem-based strategies.
National Climate Change Policy (2017)	Identify and capitalize opportunities while minimizing risks associated with climate change.	The CO2BIO P2 project follows policy guidelines for climate resilience and sustainability.
Forest Cover Monitoring		

CONPES 3700 (2011)	Coordinate policies and actions related to climate change in Colombia	Through the implementation of the CO2BIO P2 project, conservation efforts are conducted across forested areas identified on each private property formally associated with the project, totaling 103,595.8 hectares. These collaborative efforts between the project owner and the Ecosystem Manager are designed to preserve these forests and their biodiversity.
Decree 1791 of 1996	Establishes the regulatory framework for forest utilization	CO2BIO Project 2 aims to reduce greenhouse gas emissions through forest conservation. The decree governing forest use in Colombia promotes responsible and sustainable practices. By adhering to these regulations, CO2BIO P2 ensures that forested areas are managed sustainably, enhancing conservation efforts and minimizing the risk of uncontrolled deforestation
CBD | 09/11/1994	Promote measures that lead to a sustainable future	The main goal of CO2BIO Project 2 is to implement activities focused on reducing deforestation and forest degradation, along with preventing land-use changes in continental wetlands. These actions are carried out in accordance with the principles of Law 164 of 1994, demonstrating our strong commitment to

		environmental protection and sustainable natural resource management.
Environmental Threat Monitoring		
Law 1523 of 2012	Strengthen disaster risk management, including fire prevention.	Uses IDEAM alerts for real-time fire monitoring and rapid response, reducing threats to forests.
Paris Agreement	Development and transfer to improve resilience to climate change and reduce greenhouse gas emissions	Avoiding deforestation across 18,349.3 hectares linked to the CO2BIO P2 project represents a major milestone, reflecting a firm commitment to emission reduction and ecosystem conservation. By safeguarding these extensive territories, the project helps mitigate climate change through the prevention of carbon release stored in forest biomass. It also positively advances Sustainable Development Goals 6 (Clean Water and Sanitation) and 15 (Life on Land), reinforcing the project's compliance with international agreements such as the Paris Agreement. Protecting forests and savannas enhances biodiversity, preserves vital ecosystem services, and secures a sustainable water supply—crucial for sustainable growth and climate adaptation.
Sustainable Productive Practices		

CBD | 09/11/1994	Conserve biodiversity and ensure equitable resource sharing.	The project Monitors endangered species and protects High Conservation Value (HCV) areas through participatory biodiversity assessments.
Law 1931 of 2018	Establish guidelines for climate change management	The governance strategy aligns with the criteria set forth in this Law by encouraging community involvement in decisions related to environmental management, natural resource conservation, and sustainable development. It also supports gender equality and upholds the rights of local communities, ensuring the participation of local stakeholders in environmental governance processes.
Decree 1076 of 2015	Administers and manages the National Natural Parks System, as well as regulates the use and operation of the areas that comprise it.	This legal framework aligns with CO2BIO P2's efforts to promote sustainable production practices at both local and farm levels by supporting environmental management measures that help conserve carbon stocks and biodiversity within critical ecosystems. The decree specifically addresses ecosystem protection and restoration, biodiversity preservation, and soil degradation control—essential components for balancing

		productivity with environmental sustainability. By adhering to Decree 1076, CO2BIO P2 strengthens its commitment to Colombia's environmental laws, implementing practices that advance climate change mitigation and safeguard natural resources, goals that also reflect the core objectives of the Convention on Biological Diversity (CBD).
Resolution 1283 of 2016	Establishes the procedure and requirements for issuing the Benefit Certification	Resolution 1283 of 2016 directly supports CO2BIO P2's efforts to promote sustainable production, recognizing wetlands as vital ecosystems for conserving biodiversity and storing carbon. The resolution provides directives for wetland management and protection, promoting sustainable use that carefully balances resource utilization with preservation. By encouraging sustainable practices in and around wetland areas, CO2BIO P2 helps safeguard these ecosystems, maintaining essential ecological roles such as carbon capture and providing habitats for diverse species. This resolution reinforces

		CO2BIO P2's commitment to minimizing human impact, sustaining ecosystem services, and aligning local productive activities with goals to protect biodiversity and water resources.
Participatory Biodiversity Monitoring		
CBD | 09/11/1994	Promote measures that lead to a sustainable future	Participatory acoustic monitoring seeks to assess biodiversity across each property included in the initiative, focusing on both species facing some level of threat and key flagship species that inhabit these areas.
CITES | 03/03/1973	Ensure that wildlife and flora subject to international trade are not exploited unsustainably, meaning their trade does not threaten the survival of these species in the wild; therefore, the export, re-export, and import of live or dead animals and plants, as well as their parts and derivatives, are regulated according to their threat status.	High Conservation Value 1 (HCV 1) focuses on identifying species facing varying degrees of threat and mapping their distribution to establish reference zones for ongoing monitoring. Additionally, participatory acoustic monitoring enables the detection of diverse species within the study area, facilitating the identification of those that are threatened.
Paris Agreement | 12/12/2015	Fully implement development and transfer activities to enhance climate change resilience and reduce greenhouse gas emissions	This directly influences biodiversity because GHG conservation efforts extend beyond forests to include various land covers that affect the entire ecosystem. These efforts generate new

		ecological dynamics, contributing to and enabling measurements from High Conservation Values (HCVs) to comprehensive biodiversity monitoring.
Resolution 1125 of 2015 | 11/05/2025	Establishes guidelines for the management and monitoring of biodiversity in protected areas under the jurisdiction of Colombia's National Natural Parks	Baseline and field studies, along with data collected from monitoring, are vital for identifying natural reserve areas. These studies inform the work, and execution plans necessary for effective monitoring and management of each reserve's activities.
National Biodiversity Policy (2012) | 2012	Proposes strategic guidelines for biodiversity conservation in Colombia, emphasizing the importance and necessity of continuous monitoring	Biodiversity monitoring provides insight into the current condition of each project area and directly influences High Conservation Value 4 (HCV 4), which focuses on identifying regions of significant ecosystem service value.
High Conservation Value (HCV) Monitoring		
CBD | 09/11/1994	Promote measures that lead to a sustainable future	High Conservation Values (HCVs) are designed to safeguard the most critical components of ecosystems, which play a key role in preserving biodiversity and maintaining viable species populations. Each HCV category targets areas with distinct biodiversity importance, making their protection essential for

		effective on-site conservation. For instance: • HCV 1 identifies areas with high biodiversity concentrations, directly supporting the conservation of species within their natural habitats. • HCV 3 highlights rare or threatened ecosystems, emphasizing the urgency of preserving these at-risk environments to ensure their sustainability over time.
FSC National Standard (2021) | 01/10/2021	Certify sustainable forest management and protect HCV areas.	The project aligns with HCV criteria (e.g., community needs, cultural values) to ensure responsible forest governance.
National Biodiversity Policy (2012)	It outlines strategic directions for conserving biodiversity in Colombia, emphasizing the critical role of ongoing monitoring to ensure effective preservation efforts	HCV 2, which includes areas home to species of global or regional importance at the population or subpopulation level, plays a critical role in this process. These areas must be identified and regularly monitored to ensure the continued survival of key species

Resolution 1526 of 2012	Offers guidance for the management, monitoring, and assessment of Protected Areas under the framework of SINAP, in alignment with established conservation and sustainability standards	HCV 4, which encompasses areas that deliver vital ecosystem services in critical contexts, is especially pertinent to this legal framework. It focuses on identifying and safeguarding zones that contribute to essential functions like water regulation and disaster risk reduction—services that are crucial for human health and safety
Decree 2372 of 2010	Governs the National System of Protected Areas (SINAP) and sets forth the standards for establishing, managing, and safeguarding protected and conservation areas across Colombia	This convention establishes obligations for States to develop protected area systems and promote in situ conservation, which align with the principles of the HCVs. HCV 1, by identifying areas with high concentrations of biodiversity, and HCV 2, focused on threatened species, support these actions by providing a systematic approach to identifying critical conservation areas. Additionally, the promotion of sustainable development in surrounding areas, in line with the convention, is connected to the management of HCV 5 and 6, which emphasize the importance of local communities and cultural values in conservation efforts.

Water Management Program		
Ramsar Convention	Protect wetlands of international importance.	Implement wetland conservation strategies to maintain carbon storage and biodiversity.
UNCCD	Addresses the issue of land degradation, desertification, and the restoration of affected lands	Supports alignment with sustainable water and soil management policies by encouraging the implementation of national programs aimed at preventing desertification, consistent with broader strategies for the responsible use of natural resources
Resolution 70/1 (Agenda 2030)	Achieve SDGs, including climate action (SDG 13) and clean water (SDG 6).	Integrates SDG targets into project design, such as forest conservation and equitable water access.
Decree 2245 of 2017	Single Regulatory Decree of the Environment and Sustainable Development Sector, related to the demarcation of watercourse buffer zones	Establishes clear technical guidelines for defining protected zones around water bodies, ensuring that development activities within these areas adhere to environmental regulations and support the conservation of vital water resource
Law 373 of 1997	Establishes the program for efficient water use and conservation	Implementing the PUEAA fosters water-saving practices that are essential in regions where water availability is limited. By promoting efficiency and reuse, the program supports the conservation of water resources and

		helps ensure their long-term sustainability.
Decree 1076 of 2015	Consolidate environmental regulations for resource protection.	Promotes sustainable agriculture and soil conservation to prevent degradation, complying with national standards.
Decree 3930 of 2010	Partially implements the provisions of Title I of Law 9 of 1979 and Chapter II, Title VI, Part III, Book II of Decree-Law 2811 of 1974, focusing on the regulation of water use and liquid waste management, along with related measures	The program takes a comprehensive approach to water resource management, fostering stakeholder participation and supporting the preservation of aquatic ecosystems in alignment with the guidelines set forth in Decree 3930
Resolution 2115 of 2007	Specifies the characteristics, basic instruments, and frequencies of the control and monitoring system for the quality of water intended for human consumption	A clear alignment is established with the regulation's scope, particularly in areas such as planning, monitoring, community participation, environmental education, and long-term sustainability
Law 2294 of 2023	Advance Colombia's 2022–2026 National Development Plan for sustainability.	Aligns with investments in water infrastructure and ecosystem restoration to reduce rural inequalities.

5.10 Carbon ownership and rights

The CO2BIO PROYECTO 2 project has established a comprehensive system to define and secure carbon rights, particularly in the absence of specific Colombian legislation governing carbon ownership. The project relies on existing private property laws to legitimize claims over carbon sequestration benefits. Legal validation is supported by an exhaustive review of documentation, including Certificates of Tradition and Freedom,,

public deeds, adjudication resolutions, and purchase-sale contracts. These documents confirm land ownership and ensure that responsibilities tied to carbon agreements are legally binding. The project encompasses 124 privately owned properties, each subjected to a thorough ownership analysis based on documentation provided by the landowners.

To centralize this information, the project maintains a "Title Study" for each property detailed legal analysis prepared and signed by a qualified professional/43/. Currently, 124 such studies are on file, each documenting ownership verification, geographic boundaries/04/, land area, and registration status. This structured approach ensures that carbon rights are well-defined and enforceable. All contractual agreements/43/, including those formalizing carbon ownership, are archived in Carbon Ownership providing full transparency and traceability.

During this verification cycle, 19 properties were voluntarily excluded from the project, as detailed in Section 7 of the monitoring report. The Audit Team reviewed Document GPP-026, which outlines the procedure for delinking properties from the climate change mitigation project, ensuring compliance with established protocols.

The project upholds the principles of Free, Prior, and Informed Consent (FPIC) /53/through voluntary landowner participation and clearly defined withdrawal mechanisms. Each landowner enters a binding contract/43/ that outlines rights, benefits, and obligations, ensuring informed decision-making. Should an owner choose to exit the project, Procedure FC-GPP_026 /54/governs the unlinking process, requiring impact assessments, formal termination, and thorough documentation to maintain accountability. Contracts also include provisions for equitable benefit-sharing, performance obligations, and dispute resolution, ensuring fairness and long-term engagement.

Regarding ethnic or traditional communities, the project has confirmed through authoritative registries that no such groups reside within the project area. Had they been present, the project would have adhered to Colombian legal requirements, including prior consultation/53/ under Decree 1320 of 1998. Compensation and agreements are designed to be transparent, with contracts explicitly detailing payment structures, conservation commitments, and exit conditions. The FC-GPP_026 procedure/54/ further reinforces accountability by mandating formal requests, impact evaluations, and final approvals for any property withdrawals.

In conclusion, the CO2BIO PROYECTO 2 project demonstrates a robust legal and operational framework for securing carbon rights, ensuring FPIC compliance, and maintaining equitable stakeholder engagement. The systematic documentation, voluntary participation clauses, and structured withdrawal process reflect strong governance. As such, the assessment recommends verification approval, contingent on periodic reviews of land tenure updates and continued adherence to procedural safeguards.

5.11 Risk management

The audit team assessed the risk management strategy implemented by Fundación Cataruben for the CO2Bio PROYECTO 2. The analysis covered environmental, financial, and social dimensions, including the measures designed to prevent or mitigate these risks. The evaluation was based on the matrix provided in the spreadsheet titled "2. Gestión de Riesgos 2022-2023".

Environmental Risks

The environmental dimension included potential risks such as:

- Forest fires (natural and anthropogenic)
- Strong winds
- Pest and disease outbreaks
- Water-related impacts (e.g., flooding or drought)

Each of these risks was rated with low impact and low probability, resulting in a low overall risk level. Monitoring indicators were identified (e.g., number of affected hectares, number of fire events), and specific preventive actions were defined, including:

- Fire prevention strategies
- Community training and awareness programs
- Vulnerability mapping
- Reforestation with native species

Mitigation measures such as ecological restoration and the implementation of adaptive reforestation plans were designed to ensure ecosystem resilience and project permanence.

Financial Risks

Key financial risks evaluated include:

- Changes in regulations and technical requirements
- Fluctuations in carbon credit revenue
- Increased operational and maintenance costs

While most financial risks were classified as low, one was rated medium, related to regulatory and technical guideline changes. To manage these risks, the project holder proposed actions such as:

- Keeping up-to-date with regulatory changes
- Market trend analysis
- Establishing a financial reserve fund

Mitigation strategies included cost restructuring, scenario planning, and resource optimization to ensure the project remains financially viable over time.

Social Risks

Social risks such as land disputes, political dynamics, and opportunity costs are mentioned in the broader context of the project documentation. These are managed through stakeholder consultations, legal safeguards, and inclusive benefit-sharing strategies.

Evaluation of the "Risk and Permanence" Tool

Earthood confirmed that the project holder applied the "Permanence and Risk Management" tool, version 1.1 (dated March 19, 2024), as required by the BioCarbon Standard. The matrix reflects a structured approach to evaluating risk likelihood and impact (Impact × Probability), and assigns qualitative risk levels (e.g., low, medium). Monitoring indicators and corrective actions are clearly outlined and traceable, fulfilling the methodological requirements of the AFOLU sector guidelines (Quantification of GHG Emissions REDD+ Project BCR0002, version 3.1).

Conclusion and Rationale

Based on the documentation reviewed and the structure and detail of the risk matrix, audit team concludes that Fundación Cataruben has implemented a comprehensive and effective risk assessment and management process for CO2Bio PROYECTO 2. The matrix is complete, adheres to relevant methodological, relevant to BCR standard guidelines and includes mitigation strategies aligned with project-specific risks. Therefore, it is confirmed that of the "Permanence and Risk Management" tool is appropriate.

Buffer Deduction Justification Using the Risk and Permanence Tool

In addition to the qualitative assessment, the verification team reviewed the quantitative risk scoring conducted using the BCR "Permanence and Risk Management Tool" (v1.1, March 2024). The project's scores for each risk category were as follows: Legal/Tenure (1.0), Environmental (1.67), Financial/Operational (1.0), Governance/Political (1.33), and Community/Stakeholder (1.0), with a weighted aggregate score of 1.13. Based on BCR tool classification thresholds, this score places the project in the lowest risk category, corresponding to a 10% permanence buffer deduction.

The project's strong legal safeguards, stakeholder participation mechanisms, and adaptive environmental management strategies substantiate this classification. Earthood confirms that this assessment is consistent with the requirements of the BCR Standard v3.4 and the BCR Permanence and Risk Tool v1.1.

5.12 Stakeholder engagement and consultation

A comprehensive stakeholder consultation process has been conducted for the CO2Bio Proyecto 2, ensuring active engagement with ecosystem managers, local communities, NGOs, government entities, private sector partners, and academic experts. The consultation was structured through regular meetings, workshops, forums, digital communication, and participation in conservation bodies like SIRAPO and ASOCARBONO, facilitating continuous and inclusive dialogue. A thorough assessment of stakeholder interests, concerns, and potential risks has been completed, with corresponding mitigation measures integrated into the project design. This has been verified by the supporting documents which contains the regular meetings, newsletters, events and workshops conducted by the project holder/53//55/.

The project has identified and engaged with a wide range of stakeholders, including:

- Ecosystem managers and local community representatives (particularly carbon owners)
- Non-governmental organizations (NGOs)
- Government entities and conservation authorities
- Private sector partners, such as LATAM Airlines
- Academic and technical experts in biodiversity, climate change, and water resources
- Collaborative conservation platforms, including SIRAPO and ASOCARBONO

Stakeholder interests have been thoughtfully integrated into the project through a variety of participatory and educational activities. One major avenue has been the annual Biodiversity, Carbon and Water Forum, organized since 2020 by the Cataruben Foundation in commemoration of Earth Day. This forum serves as a platform for sharing progress, receiving feedback, and presenting new project proposals to the wider community. Additionally, the project's participation in conservation policy bodies such as SIRAPO and ASOCARBONO has allowed for regional coordination and alignment with national goals in biodiversity and climate change. A governance structure has also been implemented, which includes a board composed of carbon owners, strategic partners like LATAM Airlines, and the project owner, Cataruben Foundation. This Governance Board helps guide decision-making and ensure inclusivity. These efforts collectively help mitigate potential risks such as community exclusion, misinformation, or lack of trust.

Mechanisms for Stakeholder Feedback and Involvement - The project has instituted multiple mechanisms to facilitate and encourage stakeholder feedback and participation. These include annual forums such as the Earth Day event, which provide public venues for information sharing and discussion, as well as workshops and committee meetings designed to ensure ongoing dialogue. Additionally, the Governance Board gives stakeholders a formal voice in project implementation and oversight. The project team

also communicates continuously through digital platforms and newsletters, providing real-time updates and invitations to participate in various initiatives. Together, these strategies represent a structured approach to stakeholder involvement, allowing for both information dissemination and two-way communication.

Stakeholder Feedback and Grievance Management- Stakeholder feedback has been systematically documented and addressed. Key comments include requests from local farmers for additional sustainable agriculture training, which will be addressed through expanded workshops in 2024, and recommendations from conservation NGOs for enhanced forest monitoring, leading to the implementation of improved satellite tracking systems. Government officials suggested greater policy alignment with regional plans, which has been incorporated into the governance strategy.

Two formal grievances related to land access were received and successfully resolved through mediation and revised benefit-sharing agreements. A structured feedback loop ensures that stakeholders are informed of resolution outcomes and ongoing project adjustments based on their input.

The audit team confirms that the stakeholder consultation process for CO2Bio Proyecto 2 meets the required standards for inclusivity, transparency, and accountability. The project has effectively engaged stakeholders, addressed their concerns, and integrated their feedback into project activities

5.12.1 Public Consultation

During the public consultation period for the CO2Bio Proyecto 2 initiative, the project holder established and actively promoted the use of the Requests, Complaints, Claims, and Suggestions (PQRS) System as a formal mechanism for stakeholders to submit their observations, inquiries, and grievances. This system functioned as the primary channel for receiving public input and feedback throughout the 2022–2023 period. In 2022, the PP received a total of 16 petitions, 6 complaints, and 1 formal claim, while in 2023, 21 petitions and 11 complaints were recorded. All cases submitted through the PQRS system were addressed in a timely manner and were successfully closed, indicating that no unresolved matters remained at the end of the consultation periods.

The comments received covered a broad range of issues and inquiries related to project activities, implementation concerns, and stakeholder interests. The project holder responded to each submission in accordance with the internal PQRS protocols, providing written responses, clarifications, and where necessary, follow-up actions. Although no significant changes to the overall project design were triggered by these comments, the feedback received through PQRS informed minor administrative adjustments and helped improve the transparency and responsiveness of the stakeholder engagement process. The use of the PQRS mechanism ensured that all communications were logged, tracked, and

responded to within the timeframe established by the project's communication procedures.

The Audit Team reviewed the PQRS system as provided by the project holder. Upon detailed examination, the audit team found that the project holder had successfully addressed all issues raised by stakeholders through the PQRS mechanism. The Audit Team also confirmed that the system was functional, appropriately maintained, and had been implemented in a way that allowed for effective resolution of all registered cases. No evidence of unresolved complaints or ignored stakeholder input was identified during the review.

In conclusion, the public consultation process for the CO2Bio Proyecto 2 project was carried out in a manner that was both structured and responsive. The PQRS system served as a reliable and transparent tool for capturing stakeholder feedback and ensuring accountability

6 Internal quality control

During the verification process for the CO2Bio Proyecto 2 (P2), a comprehensive assessment was conducted through multiple stages.

1. The process began with virtual meetings, which included an introductory session where the audit team and the project holder's team were formally introduced. This was followed by continuous communication between both parties, which facilitated a clear and in-depth understanding of the project's scope, objectives, and operational context.
2. The verification also involved thorough documentary review. Relevant project documentation—such as reports, records, operational procedures, and compliance evidence—was systematically examined to ensure alignment with the applicable standards and verification requirements.
3. Additionally, a field visit was conducted by the audit team. This visit included on-site evidence collection, direct observation of project implementation, and visits to project locations. The auditors also engaged directly with local stakeholders and community members involved in or impacted by the project, allowing for firsthand verification of stakeholder engagement and benefit-sharing practices.

Throughout this process, the CO2Bio P2 project holder successfully demonstrated the effective development and implementation of Quality Control and Quality Assurance (QC/QA) procedures. These procedures are documented in the form of manuals, operational guidelines, and standardized formats. Upon review, these tools were found to be relevant, appropriate, sufficient, and consistently applied, fully meeting the requirements set forth by the BCR Standard. This reflects a strong commitment by the project team to ensure transparency, accuracy, and compliance in project execution.

7 Verification opinion

Earthood has performed the verification by obtaining evidence, conducting a comprehensive site visit, and requesting additional information. The Project holder has undertaken a detailed calculation of estimated emission reductions in accordance with the applied methodology. The explanations provided by the PH are deemed necessary by Earthood to give a strong level of assurance that the projected GHG emissions reductions are not only attainable but will, in fact, be achieved. This is exemplified by the commitments to high standards of accuracy and integrity shown throughout the verification process. This process was guided by the following key documents:

- AFOLU Sector Methodological Document / BCR0002: Quantification of GHG Emission Reductions from REDD+ Projects, Version 3.1, dated September 15, 2022.
- AFOLU Sector Methodological Document / BCR0004: Quantification of GHG Emission Reductions and Removals for Activities that Prevent Land Use Change in Inland Wetlands, Version 2.0, dated June 23, 2022.
- BCR Tools, including the Sustainable Development Goals (SDGs) Tool, Avoidance of Double Counting (ADC) Tool, and the Monitoring, Reporting, and Verification (MRV) Tool.
- ISO 14064-3:2019: Specification with guidance for the validation and verification of greenhouse gas (GHG) declarations.
- ISO 14064-2:2019: Specification with project-level guidance for the quantification, monitoring, and reporting of greenhouse gas (GHG) emission reduction and removal enhancement activities.

These documents collectively formed the basis for evaluating the accuracy, consistency, and transparency of the project's greenhouse gas accounting, monitoring, and reporting, ensuring compliance with internationally recognized standards and best practices.

In our opinion, the GHG emission reductions reported for the Project Activity for the Forests: 01/01/2018 - 05/05/2046 and Wetlands: 06/05/2016 - 05/05/2046 are calculated and stated in the MR/01/ dated. The GHG emission reductions were calculated correctly based on the approved monitoring methodology and BCR standard.

Year	***Observed net GHG reduction*** *(tCO2e)*

2022	241.729
2023	265.700
Total	507.429

8 Verification statement

Cataruben Foundation contracted Earthood Services Limited to carry out the verification of the CO2Bio PROYECTO 2 project. The project has been developed in accordance with the international standards ISO 14064-2:2019 and ISO 14064-3:2019, as well as the specific requirements outlined under the GHG Biocarbon Standard program

The CO2Bio PROYECTO 2 project is implemented in Colombia's Orinoco region, spanning several departments: in Arauca, the municipalities of Arauca and Cravo Norte; in Casanare, the municipalities of Hato Corozal, Maní, Paz de Ariporo, Orocué, Pore, San Luis de Palenque, Tauramena, Trinidad, and Yopal; in Meta, the municipality of Puerto Gaitán; and in Vichada, the municipalities of Cumaribo, La Primavera, Puerto Carreño, and Santa Rosalía.

Earthood conducted a comprehensive review of the supporting documentation submitted by the project holder, Fundación Cataruben, for the development of the CO2Bio PROYECTO 2. In addition, a field visit was carried out in coordination with the Cataruben team. Through semi-structured interviews and examination of primary data sources, Earthood verified the project's organizational and reporting boundaries, activity data, emission factors, global warming potentials, and the methodological assumptions applied.

Earthood defined the objectives, scope, and verification criteria for the CO2Bio PROYECTO 2 project within the commercial proposal, legal contract, and the approved audit plan. These elements are outlined in detail below:

Objectives

1. To verify the GHG statement in accordance with the requirements of ISO 14064
2. To ensure that all project activities, methodologies, and procedures — including monitoring practices — have been implemented as outlined in the Project Document (PD).
3. To confirm the absence of any material discrepancies in the baseline and the estimated GHG removals reported for the monitoring period.
4. To validate and verify the project activities, the PDD, the monitoring plan, identified GHG sources, sinks, and reservoirs, the quantification of GHG emission

reductions, the baseline scenario, legal and management requirements, relevant processes and data, and the applicable guidelines and methodological documents of the Biocarbon Registry.

Scope

The sectoral scope covers REDD+, with a focus on verifying the project's activities, Project Document (PD), monitoring plan, sources, sinks and/or reservoirs of greenhouse gases (GHG), the GHG emission reduction quantification period, baseline scenario, legal compliance, information management processes, and the relevant guidelines and methodological documents of the Biocarbon Standard.

Earthood Services Ltd. confirms that the CO2Bio PROYECTO 2 project is in full compliance with the Biocarbon Registry (BCR) Standard v3.4 /04/. The methodologies employed for quantifying greenhouse gas (GHG) removals were found to be both conservative and accurate. No qualifications or modifications were necessary during the verification process. Accordingly, Earthood concludes that the project meets all relevant criteria for GHG removals and is eligible for certification under the BCR registry.

Furthermore, the verification was conducted with a reasonable level of assurance, as per the applicable verification standards.

In addition, Earthood Services Ltd. acknowledges that the CO2Bio PROYECTO 2 project has contributed to several Sustainable Development Goals (SDGs)—specifically SDG 1 (No Poverty), SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action), and SDG 15 (Life on Land)—as defined by the project holder. These contributions are applicable to both components of the REDD+ initiative and were verified through a thorough review of the documentation provided by Fundación Cataruben, as well as direct observations during the field visit.

Earthood Services Ltd. has verified that the project includes established procedures for monitoring co-benefits related to special categories, with specific applicability to the Orchid category.

Based on the verification activities conducted, Earthood Services Ltd. affirms that the CO2Bio PROYECTO 2, developed by the Cataruben Foundation, is in full compliance with the principles outlined in ISO 14064-2:2019, ISO 14064-3:2019, and the BioCarbon Standard. The verification was conducted within the defined levels of assurance and materiality, and no material errors were identified.

This verification statement is issued for the benefit of the BioCarbon Standard and all other relevant stakeholders.

9 *Facts discovered after verification*

- **The audit confirms that findings were identified for the CO2BIO P2 project following the completion of the verification process and has been mentioned in the annex 2 of this verification report *Annex 1. Competence of team members and technical reviewers***

Competence Statement			
Name	Rahi Sarkar		
Education	M.Sc. Ecology and Environmental Studies B.Sc. Forestry		
Experience	1+ year		
Field	Forestry		
Approved Roles			
Team Leader	YES (VM only)		
Validator	YES (VM only)		
Verifier	YES (VM only)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	05/07/2024
Approved by	Deepika Mahala (Technical Manager)	**Date**	05/07/2024

Competence Statement	
Name	Dr. Kuldeep Joshi
Education	Ph. D Agroforestry/Forestry, MSc Agroforestry & B.Sc Forestry
Experience	3 years of Teaching & Research
Field	e.g., Climate Change & Environment / Forestry
Approved Roles	
Team Leader	NO
Validator	NO
Verifier	NO

Methodology Expert	NO		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	YES (TA - 14.1)		
Trainee Validator/Verifier	YES		
add rows, if necessary			
Reviewed by	Shifali Guleria	**Date**	23/09/2024
Approved by	Deepika Mahala	**Date**	23/09/2024

Competence Statement			
Name	Mr. Olto Jimenez Castellanos		
Education	Advanced Diploma in Environmental assessment of projects Advanced Diploma in Forestry Engineer		
Experience	10+ years		
Field	Nature-Based Climate Solutions and Carbon Project Development, Forest and Land Management, Biodiversity Conservation, Stakeholder Collaboration		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	Yes (Colombia)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (14.1)	Yes		
Trainee	NO		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	21/11/2024
Approved by	Deepika Mahala (Technical Manager)	**Date**	21/11/2024

Competence Statement

Name	Parth Kosambi		
Education	BSc in Geology, MSc in Geology, Graduate Certificate in GIS & MSc in Geodesy and Geoinformation Science		
Experience	1+ Year		
Field	Remote Sensing and GIS		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Local expert	NO (Name here the country he/she is qualified for)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (Remote sensing & GIS)	YES		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	10/04/2025
Approved by	Deepika Mahala (Technical Manager)	**Date**	10/04/2025

Competence Statement			
Name	Yogesh Kumar Meena		
Education	Environment Management (M.Sc.) Botany hons (B. Sc)		
Experience	1+ years		
Field	Agroforestry and Mangrove		
Approved Roles			
Team Leader	NO		
Validator	YES		
Verifier	YES		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (14.1)	YES		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	30/05/2025
Approved by	Deepika Mahala (Technical Manager)	**Date**	30/05/2025

Competence Statement			
Name	Max Almeida		
Education	Bachelor's in Law Master's in Political Science (Climate Change) Master's Degree Sustainability and Climate Change (in progress)		
Experience	2 years, 4 months (Climate Safe Sustainability Services)		
Field	Environmental and Sustainability Consultancy		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	YES (Brazil)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	YES		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	04/01/2024
Approved by	Deepika Mahala (Technical Manager)	**Date**	04/01/2024

Competence Statement	
Name	Dr. Rajesh Monga
Education	PhD: Forestry M.Sc.: Forestry B.Sc.: Agriculture
Experience	6+ Years
Field	Climate Change
Approved Roles	
Team Leader	NO
Validator	YES
Verifier	YES
Local expert	YES (India)
Financial Expert	NO
Technical Reviewer	NO
TA Expert (X.X)	Yes (TA 14.1 & TA 15.1)

add rows, if necessary			
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	12/11/2024
Approved by	Deepika Mahala (Technical Manager)	**Date**	12/11/2024

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AMS III.AR, AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0017, ACM0009, AM0034, AMS.I.B, ACM0016, AMS-III.BL, AMS-II.L, AMS-I.I., AMS-III.A.O., ACM0010, ACM0025		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1 & 14.1)		
Reviewed by	Shifali Guleria	**Date**	18/10/2024
Approved by	Deepika Mahala	**Date**	18/10/2024

Competence Statement	
Name	Dr. Sadaf Nazneen
Education	PhD (Environmental Sciences)
Experience	5+ Years
Field	Climate Change & Environment
Approved Roles	

Team Leader	YES (VM only)		
Validator	YES (VM only)		
Verifier	YES (VM only)		
Methodology Expert	NO		
Local expert	Yes (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	YES (TA 14.1)		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	26/03/2025
Approved by	Deepika Mahala (Technical Manager)	**Date**	26/03/2025

Competence Statement			
Name	Kaviraj Singh		
Education	Ph.D. (Environmental Engineering), IIT Delhi Masters (Energy & Environmental), DAVV Indore		
Experience	17 Years +		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-II.D., ACM0006, AMS-I.A., AMS-I.C., AMS-II.B., AMS-III.H, ACM0002, ACM0001, AM0080, ACM0018, AM0056, AM0073 VM0042		
Local expert	YES (India & United Kingdom)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert (X.X)	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1, TA 13.2)		
Reviewed by	Shifali Guleria (Quality Manager)	**Date**	29/04/2025
Approved by	Deepika Mahala (Technical Manager)	**Date**	29/04/2025

BACKGROUND INFORMATION

This section provides brief background information on each audit team member, including their roles, qualifications, and relevant experience involved in conducting the audit.

BACKGROUND INFORMATION			
NAME	Rahi Sarkar		
COUNTRY	India		
EDUCATION			
M.Sc	Subject/Specialization: Ecology and Environmental Studies		
B.Sc	Subject/Specialization: Forestry		
EXPERIENCE			
10/2022-Present	Company: Earthood Services Private Limited Designation: Project Officer		
SKILLS			
QMS/EMS	No		
VM Auditor	Yes		
Technical Expert	No		
Others	No		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	05/07/2024
Approved by	Deepika Mahala, Technical Manager	**Date**	05/07/2024
BACKGROUND INFORMATION			

NAME	Dr. Rajesh Monga		
COUNTRY	India		
EDUCATION			
PhD	Subject/Specialization: Forestry / Tree Improvement and Genetic Resources		
M.Sc.	Subject/Specialization: Forestry/Plant Breeding and Genetics		
B.Sc.	Subject/Specialization: Agriculture		
EXPERIENCE			
Oct 2024 - Present	Company: Earthood Services Private Limited Designation: Manager Climate Change		
May 2023 – Oct 2024	Company: KBS Certification Services Limited Designation: Manager Projects		
Jan 2022 – May 2023	Company: ITC Limited Designation: Manager Research & Development		
Apr 2021 – Jan 2022	Company: Chandigarh University Designation: Assistant Manager		
Aug 2018 – Feb 2021	Company: College of Forestry, Dr. YS Parmar University of H Designation: Research Scholar		
Jul 2016 – Jan 2017	Company: The Mullapur Multipurpose Co-Op Agri. Society Ltd Designation: Consultant		
Aug 2015 – Jun 2016	Company: The Dhatt Multipurpose Co-Op Agri. Society Ltd. Designation: Consultant		
	Insert rows, if necessary		
SKILLS			
QMS/EMS	NO		
CDM Auditor	NO		
Technical Expert	YES (TA 14.1 & TA 15.1)		
Others	Yes (Validator & Verifier)		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	12/11/2024
Approved by	Deepika Mahala, Technical Manager	**Date**	12/11/2024

BACKGROUND INFORMATION	
NAME	Dr. Kuldeep Joshi
COUNTRY	India
EDUCATION	PhD Agroforestry/Forestry
Insert Degree	M. Sc Agroforestry
Insert Degree	B.Sc Forestry
EXPERIENCE	

01.09.2022 – 31.08.2024	Company: **DBS Global University, Selaqui-Dehradun** Designation: Assistant Professor		
01.11.2017 – 31.07.2018	Company: **Maya Group of Colleges, Selaqui-Dehradun** Designation: I Assistant Professor		
01.08.2017 – 31.10.2017	Company: **Dolphin PG Institute, Dehradun** Designation: I Assistant Professor		
SKILLS			
QMS/EMS	NO		
CDM Auditor	NO		
Technical Expert	Yes (TA 14.1)		
Trainee Validator/verifier	Yes		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	23/09/2024
Approved by	Deepika Mahala, Technical Manager	**Date**	23/09/2024

BACKGROUND INFORMATION	
NAME	Mr. Olto Jimenez Castellanos
COUNTRY	Colombia
EDUCATION	
Advanced Diploma	Subject/Specialization: Environmental assessment of projects
Advanced Diploma	Subject/Specialization: Forestry Engineer
EXPERIENCE	
07/2021-02/2024	Company: ALLCOT COLOMBIA SAS Designation: NbS LAC Expert
12/2022-02/2023 **07/2021-09/2021**	Company: UNIVERSIDAD DISTRITAL FRANCISCO JOSÉ DE CALDAS Designation: Forestry Engineer Designation: Expert in flora and fauna management
03/2021-12/2021	Company: MINISTERIO DE DEFENSA NACIONAL – POLICIA NACIONAL – DIRECCIÓN DE ANTINARCOTICOS Designation: Environmental consultant
07/2020-06/2021	Company: HEALTH SAFETY AND ENVIRONMENT S.A.S. Designation: Operations manager - Foresty Engineer
SKILLS	
QMS/EMS	No
CDM Auditor	No

Technical Expert	Yes (TA 14.1)		
Local Expert	Yes (Colombia)		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	21/11/2024
Approved by	Deepika Mahala, Technical Manager	**Date**	21/11/2024

BACKGROUND INFORMATION			
NAME	Parth Kosambi		
COUNTRY	India		
EDUCATION			
MSc	Subject/Specialization: MSc Geodesy and Geoinformation Science (Awaiting official degree, transcripts provided)		
Graduate Certificate	Subject/Specialization: Graduate Certificate in GIS		
MSc	Subject/Specialization: MSc Geology		
BSc	Subject/Specialization: BSc Geology		
EXPERIENCE			
01/2020-10/2020	Company: Canadian Wildlife Federation Designation: Geospatial Analyst		
05/2019-10/2019	Company: Ontario Ministry of Natural Resources and Forestry Designation: GIS Assistant		
	Insert rows, if necessary		
SKILLS			
QMS/EMS	No		
CDM Auditor	No		
Technical Expert	Yes (Remote sensing & GIS)		
Trainee	Yes (Validator/Verifier)		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	10/04/2025
Approved by	Deepika Mahala, Technical Manager	**Date**	10/04/2025

BACKGROUND INFORMATION	
NAME	Yogesh Kumar Meena
COUNTRY	India
EDUCATION	
M.Sc.	Subject/Specialization: Environment Management
B.Sc.	Subject/Specialization: Botany
EXPERIENCE	
10/2024 - Present	Company: Earthood Service Limited

	Designation: Project Officer – Climate Change		
07/2023 - 09/2024	Company: Kosher Climate private limited Designation: Associate consultant		
SKILLS			
QMS/EMS	No		
CDM Auditor	No		
Technical Area Expert	Yes (TA 14.1)		
Validator/Verifier	Yes		
Local Expert (India)	Yes		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	30/05/2025
Approved by	Deepika Mahala, Technical Manager	**Date**	30/05/2025

BACKGROUND INFORMATION			
NAME	Max Almeida		
COUNTRY	Brazil		
EDUCATION			
Bachelor	Subject/Specialization: Law		
Masters	Subject/Specialization: Political Science (Climate Change)		
Masters	Subject/Specialization: Sustainability and Climate Change		
EXPERIENCE			
06/2021-10/2023	Company: Climate Safe Designation: Co-founder/Director		
SKILLS			
QMS/EMS	No		
CDM Auditor	No		
Technical Expert	No		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	04/01/2024
Approved by	Deepika Mahala, Technical Manager	**Date**	04/01/2024

BACKGROUND INFORMATION	
NAME	Ashok Kumar Gautam
COUNTRY	India

EDUCATION			
M. Sc.	Subject/Specialization: Environmental Sciences		
M. Tech.	Subject/Specialization: Energy & Environmental Management		
EXPERIENCE			
11/2013-onwards	Company: Earthood Services Pvt. Ltd. Last Designation: Director		
11/2011-11//2013	Company: KBS Certification Services Pvt. Ltd. Last Designation: Technical Manager / Head		
07/2008-10/2011	Company: SGS India Pvt. Ltd. Last Designation: Manager – CCP North		
07/2004-06/2008	Company: Advisory Services in Environment Management, GIZ Last Designation: Project Manager		
10/2001-06/2004	Company: Central Pollution Control Board Last Designation: Junior Research Fellow		
SKILLS			
QMS/EMS	Yes (EMS)		
CDM Auditor	Yes		
Technical Expert	Yes (TA 1.1, 1.2, 3.1, 13.1, 14.1)		
Reviewed by	Shifali Guleria	**Date**	18/10/2024
Approved by	Deepika Mahala	**Date**	18/10/2024

BACKGROUND INFORMATION	
NAME	Sadaf Nazneen
COUNTRY	India
EDUCATION	
PhD	Subject/Specialization: Environmental Sciences/Climate change and Blue Carbon
M.Sc	Subject/Specialization: Biosciences
B.Sc.	Subject/Specialization: Biosciences
EXPERIENCE	
12/2022-03/2023	Company: Department of Civil Engineering, Jamia Millia Islamia Designation: Research Scientist
	Insert rows, if necessary
SKILLS	
QMS/EMS	No
CDM Auditor	No
Technical Expert	Yes (TA 14.1)
Others	Yes (Validator / Verifier)

Reviewed by	Shifali Guleria, Quality Manager	**Date**	11/09/2024
Approved by	Deepika Mahala, Technical Manager	**Date**	11/09/2024

BACKGROUND INFORMATION			
NAME	Dr. Kaviraj Singh		
COUNTRY	India		
EDUCATION			
Ph.D.	Subject/Specialization: Environmental Engineering		
Masters	Subject/Specialization: Energy and Environment		
Masters	Subject/Specialization: Environmental Sciences		
EXPERIENCE			
06/2013-onwards	Company: Earthood Services Ltd. Last Designation: Executive Director & CEO		
08/2011-05/2013	Company: KBS Certification Services Pvt. Ltd. Designation: Global Head, CDM		
07/2007-08/2011	Company: SGS Group Designation: Manager		
07/2002-06/2003	Company: SENC Designation: Associate member		
SKILLS			
QMS/EMS	Yes (EMS)		
CDM Auditor	Yes		
Technical Expert	Yes (TA 1.1, 1.2, 3.1, 13.1,13.2)		
Local expert	Yes (India & United Kingdom)		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	29/04/2025
Approved by	Deepika Mahala, Technical Manager	**Date**	29/04/2025

• *Annex 2. Clarification requests, corrective action requests and forward action requests*

CL ID	01	**Section no.**	1.5	**Date :** 21/03/2025
Description of CL				

VVB has reviewed Section 1.5 of the Monitoring Report and has found that it is unclear how the general progress of the activities mentioned in the table titled "Summary Description of the Implementation Status of Project Activities" (pages 15 and 16 of the Monitoring Report) was calculated. In particular, the following activities require further clarification: a) Continuous monitoring of changes in forest areas as a proportion of total area in the project areas b) Participatory biodiversity monitoring c) Monitoring of environmental threats (fire) in the project area and/or management alerts d) High Conservation Value (HCV) monitoring The Project Holder (PH) is requested to provide a clear and detailed justification for metrics used to calculate the progress of these activities.

Project participant response	**Date : 31/03/2025**

Section 15 of the monitoring report was updated. Table 4, "Summary description of the state of implementation of project activities", on pages 15 and 16, was clarified and detailed, due to a possible typographical error. Regarding the specific activities, the following is clarified:

a) Continuous monitoring of changes in the forest areas of the project: the following adjustments and clarifications were made:

- **Creation of folder G.3**

  In order to organize and centralize the information, the "G.3" folder was created within the path 2.Anexo/2.Project Activities/G.3. All the documentation referring to activity G.3 is stored there, which was previously associated with SDG15.1.

- **Calculation of the indicator in the monitoring period***

  The calculation is based on 2.Anexo/2.Project Activities/Plan y Reporte de Monitoreo CO2BIO P2 (2022-2023), specifically in row 9 of the spreadsheet.

  Name of the activity: Cell D9 (G.3)

  Global goal: Cell H9

  Unit of measurement: Cell I9

  Result of the indicator: Cells S9 and T9

  Progress of reports and schedule: A schedule was prepared where the reports submitted to date are highlighted in gray, which are three (3) out of a total of fourteen (14). Each report is equivalent to 7.14% progress, so in the third verification there is already a compliance of 21.42%.

- **Use of the Official National Metric (IDEAM)**

  The indicator "Forest areas as a proportion of the total forest area" is based on the official methodological procedure of IDEAM (Environmental Indicators IDEAM), as described in 2. Annexes/8. Geospatial/8.1. REDD/8.1.3. Procedures/ IDEAM Indicator. Proportion of the area covered by natural forest. This methodology is used in its entirety for the calculation and monitoring of the indicator, guaranteeing consistency with national standards.

- **Detailed activity report:**

  The report describing the methodology used to measure this indicator is included in folder 2. Annexes/2. Project Activities/G3/A [Monitoring Activity of the proportion of the area covered by natural forest]. This document fully coincides with the methodological guide issued by IDEAM, ensuring the rigor and validity of the results.

b) Participatory biodiversity monitoring:

The information used to calculate the indicator comes from 2.Anexo/2.Project Activities / Plan y Reporte de Monitoreo CO2BIO P2 (2022-2023). In row 12 of the spreadsheet, activity B.1 is detailed, where:

Activity name: Cell D12

Global goal: Cell H12

Unit of measurement: Cell I12

Indicator result: Cells S12 and T12

Schedule and progress: There is a schedule that shows in gray the reports submitted. to date (3 of 14 in total). Each indicator is equivalent to 7.14% of compliance, which implies that, with the third verification, a progress of 21.42% is reached.

c) Fire monitoring:

The information used to calculate the indicator comes from 2.Anexo/2.Project

Activities/Plan y Reporte de Monitoreo CO2BIO P2 (2022-2023). Activity G.4 is detailed in row 10 of the spreadsheet, where:

Activity name: Cell D10

Global goal: Cell H10

Unit of measurement: Cell I10

Indicator result: Cells S10 and T10

Schedule and progress: There is a schedule that shows in gray the reports submitted to date (3 of 14 in total). Each indicator is equivalent to 7.14% compliance, which implies that, with the third verification, a progress of 21.42% is reached..

d) High Conservation Value (HCV) monitoring:

The information used to calculate the indicator comes from 2.Anexo/2.Project Activities/Plan y Reporte de Monitoreo CO2BIO P2 (2022-2023). Activity B.2 is detailed in row 13 of the spreadsheet, where:

Activity name: Cell D13

Global goal: Cell H13

Unit of measurement: Cell I13

Indicator result: Cells S13 and T13

Schedule and progress: There is a schedule that shows in gray the reports submitted to date (3 of 14 in total). Each indicator is equivalent to 7.14% compliance, which implies that, with the third verification, a progress of 21.42% is reached.

Documentation provided by project participant	
• 2.Plan y Reporte de Monitoreo CO2BIO P2 (2022-2023.xlsx**:** in folder 2.Anexos/2Project Activities • Monitoring Activity of the proportion of the area covered by natural forest**:** in folder 2.Anexos/2Project Activities/G3 • IDEAM Indicador. Proporción de la superficie cubierta por bosque natural.pdf: in folder 2.Anexos/8Geoespaial/8.1.REDD/8.1.3.Procedimientos/	
DOE assessment	**Date:** 07/04/2025
The VVB has reviewed **Section 1.5** of the monitoring report, along with the response provided by the Project Holder (PH). Based on the evaluation of the accompanying supporting documents, it is clear that the PH has transparently demonstrated the methodology used to calculate the general progress of the project activities. The PH has outlined the progress of each individual activity with sufficient clarity and supporting evidence, allowing for a clear understanding of the implementation status. Hence this issue is CLOSED.	

CL ID	02	**Section no.**	1.5	**Date :** 21/03/2025
Description of CL				
VVB has reviewed Section 1.5 of the Monitoring Report and noted that the Project holder (PH) has reported the following for the period 01/01/2022 to 12/31/2023 for the forest ecosystem and 01/01/2023 to 12/31/2023 for the wetland ecosystem: a total of 385,989 tCO2e reduced by avoiding deforestation and forest degradation, and 89,863 tCO2e reduced by avoiding changes in land use in wetlands, resulting in a total of 511,640 tCO2e reduced during the first monitoring period. However, it is unclear why the PH has referred to this as the "first monitoring period," as the Project Holder (PH) had previously mentioned 3 for the monitoring period number in the initial table of this document. Furthermore, the values reported are not traceable in the Emission Reduction (ER) sheet, and a date-wise distribution is not provided within the ER sheet. The PH is requested to revise the ER sheet to include a clear date-wise distribution (e.g., 01/01/2022–12/31/2023) and to ensure the values are traceable in the ER sheet. The reference to the "first monitoring period" should also be clarified in the context of the monitoring periods outlined by the PH.				

Project participant response	**Date : 31/03/2025**
Section 1.5 was reviewed and updated. It is clarified that the value corresponds to the third monitoring period and the ER sheet is updated so that the values are traceable. In this sense, the ER spreadsheet was updated to ensure the traceability of the values, and it is clarified that the value corresponds to the third monitoring period. In the forest ecosystem, a reduction of 385,989 tCO2e was achieved between 01/01/2022 and 12/31/2023, thanks to the prevention of deforestation and forest degradation. In addition, the emission of 89,863 tCO2e was avoided in the wetland ecosystem from 01/01/2023 to 12/31/2023, by preventing changes in land use.	
Documentation provided by project participant	
Folder: 2 Anexos/7 Emisiones 7. Emissions_CO2BIO_P2_V3_English.xlsx	
DOE assessment	**Date:** 07/04/2025
VVB has reviewed Section 1.5 of the Monitoring Report and the updated Emission Reduction (ER) sheet provided by the Project Holder (PH). The PH clarified that the reported values correspond to the third monitoring period, not the first as previously stated, and updated the ER sheet to include a clear date-wise distribution of emission reductions. The VVB confirms that the values are now traceable in the updated ER sheet, correctly aligned with the monitoring period, and therefore the issue is considered closed**.**	

CL ID	03	**Section no.**	4.2	**Date :** 21/03/2025
Description of CL				
In Section 4.2 of the Monitoring Report, the Project Holder (PH) states, "For the current verification period, the target has been changed to 6.1, using indicator 6.1.1, which measures the 'Proportion of the population with safely managed drinking water supply services'" However, it is unclear whether this change was approved by stakeholders and if they were notified accordingly. Furthermore, the rationale for shifting from an indicator that directly reflects access to water to one focused on practices like water disinfection is not clearly explained. The PH is requested to provide further clarification on the reasoning behind this change.				
Project participant response				**Date :** DD/MM/YYYY

Below, we provide the relevant clarifications regarding the change of indicator in Section 4.2 of the Monitoring Report.

Justification for the change of indicator: Although there was a change in the monitoring indicator, from **6.3.1** (Increase the percentage of proportion of wastewater treated safely) to **6.4.1** (Change in the use of water efficiency over time), it is important to highlight that **the project activity remains the same**: "**Development and Execution of a Water Management Program**". This adjustment was made based on a technical analysis that determined that the new indicator allows for a more accurate reflection of the project's contribution to the SDG, prioritizing the **optimization and efficient use of water resources**. However, the project **continues to address wastewater treatment**, including its consideration in future training within the program.

Consultation and approval of the change: Given that the adjustment corresponds only to the indicator used to measure the contribution of the activity to the SDG, **and not to a change in the activity itself**, **the approval of the ecosystem managers was not necessary**. This minor change seeks to **facilitate the evaluation of the project's contribution to the SDG**, without affecting the focus or objectives of the program.

Documentation provided by project participant
-

DOE assessment	**Date:** 07/04/2025
PH has provided justification regarding the change of the indicator from 6.3.1 to 6.4.1, VVB has accepted the justification. The indicator change is minor and is based on technical analysis for more accurate justification of the project's contribution. The project continues to monitor the waste water treatment and include its training in future for the program. CLOSED	

CL ID	04	**Section no.**	13.1(Table 30)	**Date :** 21/03/2025
Description of CL				
VVB has reviewed Table 30 in Section 13.1 of the Monitoring Report and found that the information provided does not include the acoustic monitoring report or the event details within the High Conservation Value (HCV) Monitoring Report. The Project Holder (PH) is requested to provide the appropriate evidence to substantiate these claims				
Project participant response				**Date : 31/03/2025**

The annexes referring to the High Conservation Value (HCV) Monitoring Report and Bioacoustic Monitoring are specified in Table 30 of Section 13.1. The annexes and their contents are listed below.

1. Annex B1 containing the folder: Bioacoustic Monitoring Report
   Path: 2. Annex/ 2. Project Activities/ B1/ Bioacoustic Monitoring Report Which contains:

   1. **CO2BIO P2 - V3 Bioacoustic & HCV Monitoring Report**.docx: general acoustic monitoring report**.**
   2. **CO2BIO P2 - V3 List of species bioacoustic monitoring.xlsx: Excel file that contains three main sheets**:
      - **Record of Identified Species:** Presents the biological classification of the 335 detected species, their common name, the degree of threat, and the frequency of song.
      - **Sampling Point Coordinates:** Gathers the 40 geographic locations (latitude and decimal longitude) where the AudioMoths were installed.
      - **Register by Property:** Indicates the species registered in each property and their respective degree of threat.

   3. Ubicacion_Audiomoth.shp: The vector information of the location of the AudioMoths.
   4. Registro de las grabaciones de audio.xls: The log of the audio recordings.
   5. Resolucion-0126-de-2024.pdf: Reference document Resolution 0126 of 2024, "Whereby the official list of threatened wild species of continental and marine-coastal Colombian biological diversity is established...", used to determine the threat category of the species.

2. **Anexo B2: Informe de Monitoreo de AVC**

   The information on the Monitored HCVs in the project areas and reference region is attached, which indicate the number of hectares per HCV in some degree of threat. Additionally, the corresponding vector information is attached. The path to find the information is the following: 2 Anexo/2.Project Activities/ B2/ Informe sobre el Monitoreo de Altos Valores de Conservación :1. GDB AVC

Documentation provided by project participant
Folders: 2. Anexos/2Project Activities/: • B.1 • B.2

DOE assessment	**Date:** 07/04/2025

The VVB has reviewed Table 30 of Section 13.1 and the supporting documentation submitted by the Project Holder (PH) in response to the initial clarification request. The PH provided additional evidence through Annex B1 and Annex B2. The VVB confirms that the documentation provided is complete, verifiable, and adequately supports the claims made in Table 30. Therefore, the issue is considered closed.

CL ID	05	**Section no.**		**Date :** 21/03/2025
Description of CL				
VVB has reviewed Table 10 of the Monitoring Report and found that no evidence or information has been provided for the following support links: • Support link: G.5 • Support link: G.3 • Support link: B.1 It is unclear to the VVB how the claims will be substantiated with the supporting links. PH is requested to provide evidence to substantiate all the claims mentioned in Section 10 of the Monitoring Report.				
Project participant response				**Date : 31/03/2025**

Table 10 of the report has been updated by explicitly naming the corresponding annexes and ensuring their inclusion in the annex folders. Specifically:

G5: The Property Implementation Plans agreed upon with the Ecosystem Managers for the project execution period are included. Additionally, the report and supporting evidence of the implementation and monitoring of sustainable production activities and the conservation of strategic ecosystems carried out during the monitoring period of Verification 3 are incorporated.

G3: The information on continuous monitoring of forest area as a proportion of the total area has been moved from the SDG 15.1 annex folder to 2. Annexes/2. Project Activities/G3. This change is because the assessment of the contribution to SDG 15.1 is based on the progress of Activity G3.

B1: The "Bioacoustic Monitoring Report" folder was created within Annex B1. This folder contains:

1. **CO2BIO P2 - V3 Bioacoustic & HCV Monitoring Report**.docx: general acoustic monitoring report**.**
2. **CO2BIO P2 - V3 List of species bioacoustic monitoring.xlsx: Excel file that contains three main sheets**:
    - **Record of Identified Species:** Presents the biological classification of the 335 detected species, their common name, the degree of threat, and the frequency of song.
    - **Sampling Point Coordinates:** Gathers the 41 geographic locations (latitude and decimal longitude) where the AudioMoths were installed.
    - **Register by Property:** Indicates the species registered in each property and their respective degree of threat.

2. Ubicacion_Audiomoth.shp: The vector information of the location of the AudioMoths.
3. Registro de las grabaciones de audio.xls: The log of the audio recordings.

4. Resolucion-0126-de-2024.pdf: Reference document Resolution 0126 of 2024, "Whereby the official list of threatened wild species of continental and marine-coastal Colombian biological diversity is established...", used to determine the threat category of the species.

Documentation provided by project participant
Folders: 2. Anexos/2Project Activities/: • G.5 • G.3 • B.1

DOE assessment	**Date:** 07/04/2025

ssThe VVB has reviewed Section 6 of the Monitoring Report, which outlines the progress of project activities during the 2022–2023 monitoring period. Based on the information provided, the VVB confirms that the reported activities are consistent with the claims made and demonstrate a clear contribution to climate change adaptation objectives. The documentation supports how the implementation of these activities enhances the resilience of ecosystems and local communities, in alignment with the project's adaptation goals.

CL ID	06	**Section no.**	7	**Date :** 21/03/2025
Description of CL				
In section 7 of monitoring report, PH has outlined "In accordance with the contractual provisions established in the project, the right of the owners of formally enrolled properties to request their voluntary withdrawal from the project is recognized. This mechanism is activated when a landowner decides to disengage, which gives rise to a formal process that includes the preparation of impact reports on the project, evaluating the consequences of that decision. Once the impacts have been evaluated, the withdrawal is contractually formalized, which guarantees the correct documentation and traceability of the process" (p. 34 from Monitoring Report) VVB is unclear about the format or process for providing information regarding the reasons for voluntary withdrawal from the project. Additionally, VVB requests further clarification on how the Project Holder will manage the area that will be excluded from the project, as well as the implications on emission reductions following the voluntary withdrawal.				
Project participant response				**Date : 31/03/2025**

a.) Unlinking Procedure

It is clarified that the voluntary withdrawal process is framed within the procedure FC-GPP_026. Procedure for Unlinking Properties from Climate Change Mitigation Projects.

Document GPP-026 establishes a comprehensive procedure for unlinking properties from climate change mitigation projects of the Cataruben Foundation. The key elements include:

- Objective: To define a clear and transparent process for unlinking, ensuring that all parties understand the requirements.
- Scope: Covers the entire unlinking process, from the initial request to the formal unlinking and documentation filing.
- Associated Documents: The procedure references other essential documents, such as FC-GPP-19, FC-GPP-20 and FC-GIP-04.
- Definitions: Provides definitions of key terms to avoid ambiguities.
- Responsibilities: Details the roles and responsibilities of the departments involved in the unlinking.
- Procedure Description: Describes the step-by-step process, from receipt of the request to document filing.

In conclusion, the Procedure for Unlinking Properties from Climate Change Mitigation Projects serves as a complete and detailed guide for unlinking properties from climate change mitigation projects. By providing a clear, transparent and legally sound process, it ensures that the unlinking is carried out efficiently and effectively, protecting the interests of both the Cataruben Foundation and the property owners.

b.) management of withdrawal areas

The voluntary withdrawal of certain areas from the project means that they can no longer generate mitigation results. Therefore, these results are not included in the current monitoring period. In addition, the leakage belt has been adjusted due to the change in the total project area. This ensures that the excluded areas do not affect the project's mitigation results. As a result of these changes, the project areas have been adjusted as follows: the forest area has been reduced from 19,823.74 to 18,437.1 and the wetland area has been reduced from 62,383 to 52,553.5. The leakage belt has also been adjusted in accordance with these updated areas. (See sheet 4 Monitoring REDD+_2022-2023 and Sheet 5. Monitoring Wetlands 2023 of Annex 7. Emissions_CO2BIO_p2_v3)

Finally, a description of the unlinking procedure is added in section 7 of the monitoring report.

Documentation provided by project participant

Folder: 2. Anexos/1. Carbon Ownership

- GPP-026. Procedimiento de Desvinculación de Predios a Proyectos de Mitigación de Cambio Climático

DOE assessment	**Date:** 07/04/2025

VVB review the repsonse provided by the Project holder and finds it unclear how the Project Proponent is ensuring that carbon credit claims associated with these properties, from previous verifications are being excluded from the current verification. The Project Holder is requested to provide clarification on the approach and methodology used to exclude these 19 properties and to confirm how the corresponding emission reductions or removals have been excluded from this verification cycle, in alignment with the requirements of the BCR Standard.#OPEN

Project participant response	**Date : 08/04/2025**

para la exclusión de las áreas se siguieron los siguientes pasos:

1. **Step 1. Review of BCR requirements:** According to section 27 of the Biocarbon Standard version 3.4. "Registered project proponents must demonstrate continuous project improvement, with the highest quality, as well as up-to-date and real

information. The project proponent must identify any suggested or implemented modifications to the way in which the GHG project is carried out, operated or monitored. Finally, the project proponent must follow the guidelines contained in section 14.5 of the "Standard Operation Procedures: Changes after the GHG Project validation".

Below are the applicable criteria and requirements in accordance with the BCR Standard, taking into account the changes that have occurred in the current monitoring period.

Section 14.5.2 Permanent changes

Section 14.5.2.1. Corrections: Here the correction is related to the end date of the accreditation period. Before December 31, 2045, now May 5, 2046.

Section 14.5.2.3. Changes GHG project design:

- **literal f :** Elimination or addition of one or more sites of the GHG project with multiple sites:

  The project areas have been updated. The forest area has changed from 19,823.74 ha to 18,437.1 ha, and the wetland area has changed from 62,383 to 52,553.5. Also, the number of properties linked to the project has been reduced from 143 to 124.

- **literal j:** Voluntary updating of the applied BCR program methodologies or other applied BCR program methodological regulatory documents to a later valid version, or voluntary adoption of other BCR program methodologies, provided all requirements in the updated/changed BCR program methodologies and other applied BCR program methodological regulatory documents are fulfilled:

  The information from the PDD is transferred to the most recent BCR Project Description format. Thus, the PDD version is updated to version 2.0. In Appendix 1 of PDD VERSION 2.0 Summary of Post-Registration Changes, the changes in project areas and end date are summarized; these same changes are detailed in Section 13.2. of the Monitoring Report

  The "Appendix 1 Summary of Post-Registration Changes" section of VERSION 2.0 of the PDD and section 13.2 of the Monitoring Report were updated during the current round to clearly detail the permanent changes made

  2. **STEP 2. Emission Reduction Adjustment:** Taking into account that the reference emissions are calculated based on the project areas. To avoid an overestimation of the reference emissions, the project areas were updated in the baseline spreadsheets (Annex 7. Emissions_CO2BIO_P2_V3_ English).

- Sheet 1. Deforestation LB, cell I20 reflects the change in forest areas
- Sheet 3. Trasnformation LB, cells J35, J36 and J37 reflect the change in wetland areas.

  This ensures that the excluded areas do not affect the project's mitigation results. As a result of these changes, the project areas have been adjusted as follows: the forest area has been reduced from 19,823.74 to 18,437.1 and the wetland area has been reduced from 62,383 to 52,553.5. The leakage areas in the leakage belt has also been adjusted in accordance with these updates. (See sheet 4 Monitoring REDD+_2022-2023 and Sheet 5. Monitoring Wetlands 2023 of Annex 7. Emissions_CO2BIO_p2_v3)

  STEP 3. Validation of the updated version of the Project Document:

  According to BCR standard document Standardized Operating Procedure section 14.5. "The changes after the GHG project validation presented by the GHG project holder shall be assessed by a CAB. This assessment by the CAB can be presented with a verification exercise"

  In this sense, during the current verification, the validation of the aforementioned changes is also being carried out; the updated project document is presented in 2. Annexes/ 9. Post-Registration Changes to the Project.

  - PDD Co2BIo Proyecto 2 V2.0.docx

9.1.1. Anexos DP

Documentation provided by project participant	
DOE assessment	**Date :** 21/03/2025
PH has clarified that the modification has been done as per section 27 of the Biocarbon Standard version 3.4. PH has added some permanete changes such as changes in the Project design , Emission reduction adjustment and have provided the information in detail under section 13.2 of the MR. The justification has been found appropriate the finding is closed.	

CL ID	07	**Section no.**		**Date :** 21/03/2025
Description of CL				
In monitoring report, • 11.5.1, No Forest Conversion Maps • 11.7.1, Leakage Identification and Assessment • 8.1.5.1.1 Report Forest Cover 2022 - 2023 • 8.3.4. 1. Wetland Decrease Report 2022 - 2023 VVB has reviewed the sections and followed the track documents outlined in the Monitoring Report. However, these documents do not contain any information or details. PH is requested to provide the necessary information to substantiate the statements made in these sections.				
Project participant response				**Date : 31/03/2025**

It was reviewed and updated:

1.5.1, No Forest Conversion Maps. The articulation with Project Activity C3 was established to comply with the safeguard, incorporating non-forest conversion maps that show that there is no change in land use. This adjustment was implemented because the previous document did not contemplate such articulation. Annex G3 describes the procedure and results to calculate the proportion of forest within the project and, through the non-conversion maps, establishes that there are no transformations to other land uses.

11.7.1. Identification and assessment of leaks: The information in the Leak Management Report has been updated, which presents the data that supports the evaluation and monitoring of leaks in the project, guaranteeing the transparency of the monitoring report.

In section 3 of the report, the leakage analyses due to degradation and transformation of wetlands are highlighted, with the following results:

- For the period 2022-2023, an average annual forest deforestation of 18.85 ha was recorded in the leakage area, representing 13,630 tCO_2e emitted annually. However, when comparing this record with the baseline emissions, it does not represent a significant increase in GHG emissions as a result of the implementation of the project's REDD+ activities (Table 6 of the report).

- **Degradation:** No evidence of impacts on forest cover within the area of the leaks was found due to degradation processes. Therefore, the annual emissions derived from this phenomenon for the 2022-2023 period are considered null (0), according to the information presented in Table 7 of the report.

- **Wetland Transformation:** During the monitoring period, changes were identified in the land use of wetlands, limited exclusively to the herbaceous stratum, with an annual transformation of 52.60 ha (Table 8). However, when compared to the baseline, it was determined that they do not represent an increase in Greenhouse Gas (GHG) emissions in the leakage area. In the final calculations, negative values were taken as zero (0), so annual emissions due to the project activities implementation for the 2023 period are also considered null (0).

The analysis presented in this report allows us to conclude that:

The monitoring did not detect significant emissions from REDD+ activities. Deforestation in the area (18.85 ha/year) did not increase GHG emissions. No degradation was identified that affected forest cover, and changes in land use in wetlands did not generate increases in carbon emissions. The context analysis determined that the project activities, due to their nature and place of implementation on private properties, can hardly generate leaks in other areas or conflict with traditional practices. However, it is important to continue with prevention actions. From a social point of view, it is important to continue implementing actions to mitigate leaks as has been done so far.

8.1.5.1.1 Forest Cover Report 2022 - 2023: It is confirmed that the required information is found in the Forest Cover Report 2022 - 2023, where a detailed analysis of leakage areas in the areas viable for the CO_2BIO P2 project is presented.

Through a detailed spatial analysis, a cross was made between the flood areas modeled in Google Earth Engine and the areas with forest loss reported in the study period. This analysis allowed the identification that recurrent floods act as an external agent of forest disturbance. In total, a forest loss of 37.7 hectares was reported in the leakage area, of which 26.8 hectares correspond to areas affected by flooding.

This information has been updated in the monitoring report and in the quantification of emissions.

8.3.4. 1. Wetland Loss Report 2022 - 2023: The required information is found in the Wetland Loss Report 2022 - 2023, where a detailed analysis of the loss of coverage in wetland ecosystems within the CO2BIO P2 project area is presented.

Through a detailed spatial analysis, the areas modeled as floodable in Google Earth Engine were correlated with the coverage losses documented in the study period. This analysis allowed the identification that wetland degradation is mainly related to water return and seasonal river dynamics; natural factors that affect the stability of these ecosystems.

Likewise, in the leakage areas, it was identified that the loss of wetland cover is aggravated by unregulated anthropic activities, such as agricultural expansion and illegal logging, which intensifies the degradation of the ecosystem.

Table 2 (Wetland Decrease Results 2022 - 2023) presents the agents responsible for the loss of coverage. In total, a reduction of 52.6 hectares of wetlands was reported, of which 29.02 hectares were converted into cultivation areas and 23.64 hectares into dunes and beaches as a result of the hydrological return cycles in the region.

This information has been updated in the monitoring report and in the quantification of emissions.

Documentation provided by project participant

1. 1.5.1, No Forest Conversion Maps now G3

Folder: 2.Anexos/2. Project Activities/ G.3

- G.3

2. 11.7.1:

folder: 2. Anexos/3 Safeguard Compliance/ Salvaguarda G/

- Salvaguarda G informe de Gestión de Fugas

3. 8.1.5.1.1:

Folder: 2. Anexos/8 geospatial / 8.1. REDD+ / 8.1.5.1/

- Informe Cobertura Forestal 2022 - 2023

4. 8.3.4.1:

Folder: 2. Anexos/8 geospatial / 8.2. humedales / 8.2.4 Informe/

- Wetland Decrease Report 2022 - 2023

DOE assessment	**Date:** 07/04/2025
The information provided is satisfactory and CL is considered closed.	

CL ID	08	Section no.		Date : 21/03/2025
Description of CL				

In the document "Uso de información geoespacial – BCR0002 – BCR0004" the following is stated:

> "Para enriquecer aún más el proceso, se integraron insumos de apoyo, tales como imágenes de mayor resolución espacial (Tabla 2), datos de verificación en campo y se realizó una validación de consistencia con imágenes de distintos años. Estos insumos proporcionaron una referencia para las ediciones y permitieron una validación directa y confiable de las categorías "bosque" y "no bosque". La sinergia de estas herramientas complementarias fortaleció la calidad del proceso de edición, garantizando que los mapas finales reflejaran una interpretación adecuada"

> Translate: To further enrich the process, support inputs were integrated, such as images of higher spatial resolution (Table 2), field verification data, and a validation of consistency was carried out with images from different years. These inputs provided a reference for the edits and allowed for direct and reliable validation of the "forest" and "non-forest" categories. The synergy of these complementary tools strengthened the quality of the editing process, ensuring that the final maps reflected proper interpretation.

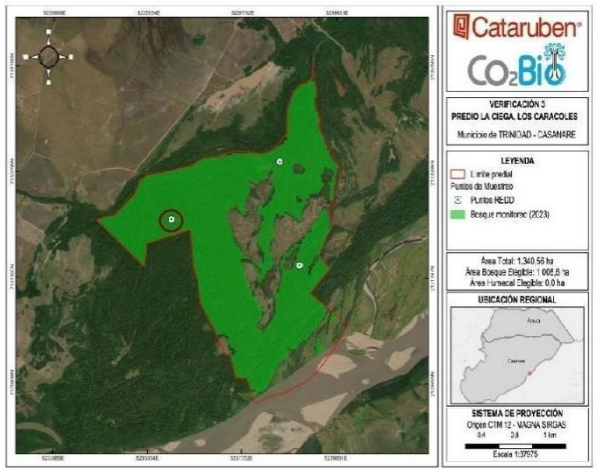
However, the spatial and spectral resolution of the sources reported in Table 2 are very similar to those used by "Sistema de Monitoreo de Bosque y Carbono (SMByC)". Therefore, the analysis using AcATaMa will have a high accuracy value. In this way, no new information is being produced, only a more exhaustive review of the IDEAM information is being carried out.

To improve the accuracy of the identification and monitoring of forest areas, fieldwork is carried out. In the folder "8.1.3. Procedimientos" and specifically in the folder "8.1.6 Observaciones in Situ REDD" explained that the verification of the areas is carried out using a platform called ""Open Data Kit".The information is uploaded to mobile data collection platform. The owner or the person responsible for these activities autonomously completes the digital form, takes a GPS point and photographic record.

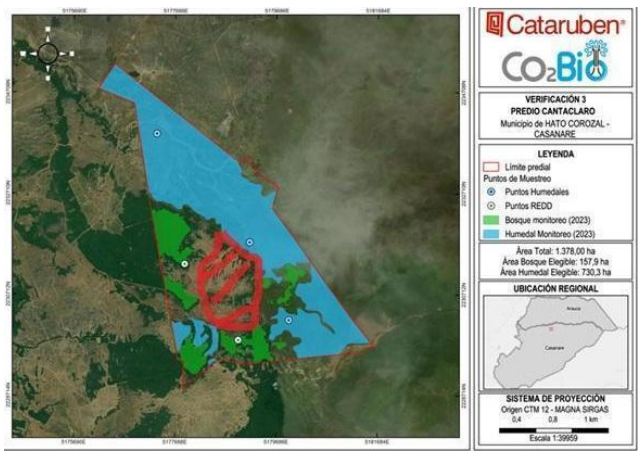
During the field trip of the audit, the verification points of forests and wetlands were visited. SET 3 was the data used for this activity. Forest and wetland verification points were visited by the owners or inhabitants of the property. In the interviews, owners and inhabitants were asked about the field verification activity of forest and wetland areas. The main findings were as follows:

1. Most of the interviewees stated that there had been no visits by PH professionals for these activities.
2. Many claimed that they had not filled out the digital "Open Data Kit" forms with checkpoints for the monitoring period.

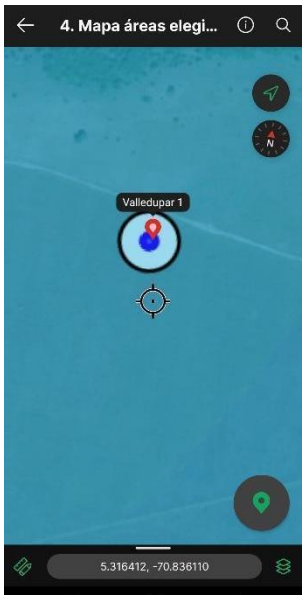
3. Several owners claimed that PH professionals had visited the property few times.
4. In the property "La Ciega, Los Caracoles", the owners stated that they had received visits from PH professionals, but that none of the verification points that were within SET3 had visited it. They even said that one of those points is very difficult to access.

	Inside the circle is the hard-to-reach checkpoint.

5. Predio Cantaclaro. The owners claim that there are areas of wetlands that are not identified by the project. They say that these areas have distinguishable characteristics of wetlands even better than those identified by the PH.

	In red, the areas that the owner in the field defined with wetland criteria are delimited. Compared to the blue area to the north of the property where the owner affirms that it does not present these flooding conditions in the rainy season.

6. RNSN Valledupar 1 y 2. There has been evidence of invasions of forest species that have changed areas of cover with trees.



Therefore, we request clarification of the following questions:

1. Is the process of verification points in the field carried out by selecting forest areas that present doubts in their identification and these points are subsequently verified in the field? It is requested to include the respective supports of the activity if it is carried out using this methodology.

2. Do the owners know and participate in this process of verification in the field of forest and wetland area? It is requested to include support from training, meetings or processes carried out that show that the owners participate in the verification of forest cover, following the established procedures and that ensure the reliability of the process of identifying areas.

3. How is data cross-verified to identify potential errors or inconsistencies? Is there an internal audit process in place to ensure the quality of this data?

4. What are the protocols for handling missing or invalid data?

Project participant response	**Date : 31/03/2025**

1. Yes, a professional with knowledge of the Corine Land Cover methodology travels to the field areas where there are doubts about the soil cover and identifies it. These points are collected with ODK and the Geospatial team analyzes them using the visual interpretation method known as PIAO (Photo Interprétation Assistée par Ordinateur), which examines the image through characteristics such as color, texture, structure and location. In addition, for the Audit, the following datasets were submitted.

    a. SET 1.: REDD Points ODK, information corresponding to the data taken in the field (described above). These are found in the respective Geodatabases.

    b. SET 2: AcATaMa validation points (procedures and means of verification or evidence of application of the procedure are attached)

    c. SET 3 : The verification points in the field with OVV include folder 8.5. Set Verification Points OVV, which contains the subfolder 8.5.1. Verification points with files that compare the location with satellite images to define the coverage.

    The discrepancy between a point collected in the field and the interpretation of the coverage is made through the FC-GOF-09 Format. Quality control of coverage interpretation

    Evidence is also presented as a photographic record in folder 8.1.6. REDD In Situ Observations; folder 8.2.5. REDD In Situ Observations

    The spatial information is found in the respective Geodatabase by component (GDB REDD+, GDB Wetlands). REDD/Observaciones in situ/Set Puntos ODK, Set Validación AcATaMa, Set Verificacion OVV ; Humedales/Validacion Mariz Confusion/ Observaciones in situ/Set Puntos ODK, Set Validación AcATaMa, Set Verificación OVV

2. The landowners are familiar with the methodology and participate in the process of identifying areas. However, due to its complexity, they do not fully master it. It is important to highlight that the classification of areas adheres to the methodological guidelines for the identification and delimitation of project areas, both for wetlands and forests. However, given the complexity and seasonality of the flooded savanna wetlands, owners may not recognize areas that are technically and methodologically classified as

wetlands. Therefore, additional training will be provided to improve the understanding and delimitation of wetlands that can be included in the project, thus ensuring compliance with the technical guidelines.

3. To ensure quality control and data consistency, the FC-GOF 09 form, Quality Control of Natural Cover Interpretation, is used. A competent professional in cover interpretation and quality control initiates this process by reviewing the conformity, semantic, thematic, and typological coherence of the file. After data capture, a professional interpreter verifies the information. The interpreter records the observations, corrections, adjustments and recommendations in a format with a geographic file of review points. The interpreter makes the necessary adjustments and returns it for further quality control. This iterative process continues until the layers are approved.

   Folder 2Anexo/8.Geoespatial/8.2. Humedales/8.2.6. Control de calidad. is added Which contains:

   - Shapefile de control de calidad
   - Imágenes utilizadas para la interpretación
   - Control de calidad y shapefile con observaciones
   - Aprobación del control de calidad y shapefile corregido.

4. For the management of invalid data, the procedure described in the previous numeral (3) is applied; in the case of missing data, the interpretation of coverages is used through satellite images of better resolution such as the Maxar or WordView suite to which we have access, or included in satellite image refinement algorithms assisted by artificial intelligence as the annex: S2DR3T-infer-20240430.ipynb

Documentation provided by project participant

Folder: 2.Anexo/8. Geospatial/8.1.REDD/8.1.3. Procedimiento/ FC-GOF-09.) // (2.Anexo/8. Geospatial/8.2.Humedales/8.2.2.

- Procedimiento/ FC-GOF-09

Folder: 2.Anexo/8.Geospatial/8.1 ,REDD/ 8.1.1. Geodatabase REDD+/REDD CO2BIO P2V3

- GDB REDD

Folder : 2.Anexo/8.Geospatial/8.2 Humedales/ 8.2.1. Geodatabas Humedales/ Humedales CO2BIO P2 V3

- GDB humedales

Folder : 2Anexo/8.Geoespatial/8.2. Humedales/8.2.6. Control de calidad.

- Shapefile de control de calidad
- Imágenes utilizadas para la interpretación
- Control de calidad y shapefile con observaciones
- Aprobación del control de calidad y shapefile corregido.

folder: 2.Anexo/8.Geospatial/8.7. 8.7. Refinamiento Imagen IA S2DR3T_infer_20240430

- S2DR3T-infer-20240430.ipynb

DOE assessment	**Date:** 07/04/2025

Field Verification Process: The methodology, including the use of ODK and PIAO, was clearly explained, and the evidence supporting the field verification process has been provided through relevant datasets and documents.

Landowner Participation: The involvement of landowners in the process was acknowledged, and the additional training planned to improve their understanding of wetland classification ensures their active and informed participation.

Data Cross-Verification and Quality Control: The detailed explanation of the quality control processes, including the use of the FC-GOF 09 form and the iterative review process demonstrates QC.

Handling Missing or Invalid Data: The procedure for addressing missing or invalid data, including the use of high-resolution satellite imagery and AI-assisted algorithms, was sufficiently outlined.

Based on the satisfactory explanation and the supporting evidence provided, the CL is now considered closed.

CL ID	09	Section no.		Date : 21/03/2025
Description of CL				

In a "Llano Lindo" property, sustainable actions were reported in what appears to be another property outside of the one reported as included within the property. PH must clarify on this issue?

Project participant response	**Date : 31/03/2025**

During the field visit, it was found that some of the activities that the owner showed were in areas other than the Llano Lindo property areas. These implementations are on another property that also belongs to the same owner in conjunction with his relatives.

Due to his enthusiasm, the owner forgot that he should only show the implementations within the Llano Lindo property, as established in the property implementation plan. However, it is important to highlight that the banana plantation, the drinker and the solar panel, although they are not part of the pre-established implementation plan, also benefit the inhabitants of the Llano Lindo property.

On the other hand, currently, the Llano Lindo property has completed 43% of the 10 activities established in the property implementation plan, which include the following.

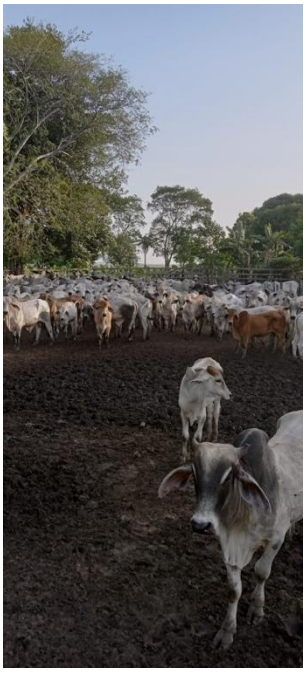
- Surveillance on the property
- Firewall strategies
- Wildlife monitoring
- Solar panel installation
- Electric fences
- Drinkers and troughs
- Rotational grazing
- Animal vaccination
- Pantry crop
- Minor species production

To date, **evidence of the implementation of 4 of these 10 activities has been obtained**, specifically:

1. **Wildlife monitoring**

2. Rotational grazing

3. Animal vaccination



4. Surveillance on the property

Documentation provided by project participant

DOE assessment	**Date:** 07/04/2025
PH has provided justification that the sustainale contribution which was shown on the property other than Llano Lindo property belongs to the same owner. Therefore the sustainable contribution demonstrated in that property is not considered in the Llano Lindo property. PH provided the evidences for the sustainable contribution of the Llano Lindo property which is located in the Project area and the justification is deemed appropriate. Closed.	

CL ID	10	**Section no.**		**Date :** 21/03/2025
Description of CL				
VVB has reviewed Section 4 of the Monitoring Report, "Contribution to the Sustainable Development Goals (SDGs)," and found that evidence for SDG 13, Climate Action, has not been provided in the relevant folder. Project Holder (PH) is requested to submit the necessary evidence to substantiate the claims made.				
Project participant response				**Date : 31/03/2025**
The annex "7. Emissions_CO2BIO_P2_V3_ English" is provided, which details how the project contributes to SDG 13 by quantifying the emission reduction in the monitoring period. The annex corresponds to the emission reduction calculation book, specifically the "00 Monitoring Summary" sheet. Likewise, in Table 8. Summary of impact on target 13.2, indicator 13.2.2, the value of the "Contribution to SDG 2022-2023" column is updated from 21% to 511,640 tCO2e				
Documentation provided by project participant				
Folder: 2 Anexos/7. Emisiones • Emissions_CO2BIO_P2_V3_ English.xlsx				
DOE assessment				**Date:** 07/04/2025

VVB has reviewed the emission reduction calculation sheet provided in the annex "7. Emissions_CO2BIO_P2_V3_English" and confirms that the information aligns with the contribution to SDG 13 – Climate Action. This issue is CLOSED.				
CL ID	11	**Section no.**		**Date :** 21/03/2025
Description of CL				
VVB has reviewed section 4.4 of the monitoring report and finds that no appropriate evidence has been provided to substantiate PH's claim. The statement made by PH reads, "This, together with the analysis of HCV 2, which discusses the structuring of the landscape and the present coverages, led us to find a total of 14,522.52 hectares with high importance for the conservation of biological diversity. This demonstrates the presence of a significant amount of untransformed natural cover. Additionally, for all HCVs, the participatory acoustic monitoring revealed a total of 335 bird species, distributed across 63 families and 237 genera, identified from 8,045 audio recordings. Among these species, 312 are categorized as 'Least Concern' (LC), 15 have not been assessed (NE), 7 are listed as 'Near Threatened' (NT), and 1 is classified as 'Vulnerable' (VU). (See folder: 2. Annexes / 4. SDG / SDG 15 / Target 15.1)." PH is requested to provide appropriate evidence to substantiate this claim.				
Project participant response				**Date : 31/03/2025**
Section 4.4. was updated, clarifying the data and linking the relevant evidence. In this sense, the following evidence is provided: The geographic information for the HCV and the high conservation value report is provided: Annex B2 The corresponding information HCV and the participatory acoustic monitoring revealed a total of 335 bird species, distributed in 63 families and 237 genera, identified from 8,045 audio recordings, 312 are categorized as 'Least Concern' (LC), 15 have not been evaluated (NE), 7 are listed as 'Near Threatened' (NT) and 1 is classified as 'Vulnerable' (VU)). It is now related in Annex B1. (See CL No, 4 and 5)				
Documentation provided by project participant				
DOE assessment				**Date:** 07/04/2025

The VVB has reviewed the updated Section 4.4 of the Monitoring Report, along with the supporting evidence provided in Annexes B1 and B2. The clarifications and documentation submitted by the Project Holder adequately substantiate the original claim regarding areas of high conservation value and biodiversity data. Based on the information reviewed, the Clarification Request is considered closed.

CL ID	12	**Section no.**		**Date :** 21/03/2025
Description of CL				
Based on the paragraph provided in section 7 of the monitoring plan, where PH mentions bond contracts related to land ownership, VVB has reviewed the information and requests that PH provide the signed bond contracts. How many bond contracts have been signed to confirm ownership, and can PH provide the relevant documentation to substantiate these agreements.				
Project participant response				**Date : 31/03/2025**
Annex 1 Carbon Ownership is attached, which contains the legal documents with confidential information of each of the properties and their owners that are part of the project. Within the annex you will find a folder for each property and in it the following minimum documentation: ● Linking Contract (“Copia de Contrato N° BHP-P1-019 de 2022-”) ● Citizenship Card (Copia Cedula de ciudadania) ● Certificate of tradition and freedom or document that replaces it (Copia de certificado de tradición y Libertad) ● Ownership Analysis : (“Copia de Análisis de titularidad”) ● Confidentiality Agreement (Copia de Acuerdo de Confidencialidad”) ● Act of Truthfulness of Information (Copia Acta de Veracidad”) It is important to clarify that all this information was reviewed and validated in the validation and first verification of the project by an independent VVB. Finally, a paragraph was introduced in section 7 of the validation and verification report citing annex 1 carbon Ownership				
Documentation provided by project participant				

folder: 2. Anexos/carbón Ownership

- Anexo 1 Carbon Ownerships

DOE assessment	**Date:** 07/04/2025
VVB has reviewed Section 7 of the Monitoring Report along with the supporting documentation, which includes 124 carbon ownership documents. The documentation is found to be consistent with the requirements of the applicable Standard, Hence this issue is closed.	

CL ID	13	**Section no.**		**Date :** 21/03/2025
Description of CL				
In section 11.2 of the PDMR, VVB has reviewed the evidence provided by PH, but it is unclear what is meant by "request" in the PQRS. Additionally, the evidence provided shows that in 2022, 23 requests were raised, and in 2023, 33 requests were raised. However, the monitoring report states that in 2022, there was 1 claim, 16 requests, and 6 complaints; and in 2023, 21 requests and 11 complaints. VVB seeks clarification regarding this discrepancy				
Project participant response				**Date : 31/03/2025**

The monitoring report section 11.2 has been reviewed and adjusted to clarify definitions and data. In this regard, we would like to provide the following clarifications:

9.1.1 Definition of "Request" in the PQRS:

9.1.2 **During the years 2022 and 2023, the term request was used interchangeably to refer to petitions. That is, in our internal classification, petitions were considered requests, which explains the initially reported number of requests for those years.**

9.1.3 Data Correction and Consolidation:

For the year **2022**, the total number of cases recorded in the PQRS was **23**, distributed as follows: **19 Petitions (Requests), 6 Complaints, 1 Claim, 0 Suggestions.**

For the year **2023**, the total number of cases recorded in the PQRS was **32** (not 33, as initially mentioned). The correct distribution is: **21 Petitions (Requests), 11 Complaints, 0 Claims y 0 Suggestions.** The discrepancy in the initially reported figure for 2023 (33 instead of 32) was due to the erroneous inclusion of an unsafe condition report, which did not correspond to a PQRS case but rather to an internal report directed to the Occupational Health and Safety department.

Documentation provided by project participant

Folder: 2. Anexos/3.Safeguards Compliance/Salvaguarda B/B2/PQRS System

- PQRS System

DOE assessment	**Date:** 07/04/2025
VVB has reviewed the response provided by the Project Holder, along with Section 11.2 of the Monitoring Report, and finds that the issue previously raised has been adequately addressed and clearly justified. Hence CL is closed.	

CL ID	14	**Section no.**		**Date :** 21/03/2025
Description of CL				
VVB has reviewed Table 16 of the monitoring report and noted that PH has stated that 14,502,617,364.83 COP of economic benefits have been distributed. However, the provided evidence indicates a total of 14,586,345,502.04 COP. PH is requested to clarify this discrepancy.				

Project participant response	**Date : 31/03/2025**
It is clarified that the error was due to a typing error in the consolidated data. This error occurred because the cut-off dates for data collection vary, as the data is updated as economic benefits are marketed and distributed. Therefore, the correct distributed value is COP 14,586,345,502.04.	
Documentation provided by project participant	
DOE assessment	**Date:** 07/04/2025
VVB has reviewed Table 16 of the Monitoring Report along with the supporting documentation provided by the Project Holder (PH) and identified an inconsistency in the reported economic benefit values. The supporting documentation indicates a value of **14,572,925,881**, while the Monitoring Report states **14,586,345,502.04**. The PH is requested to clarify and justify this discrepancy between the two sources. Therefore, the issue remains **OPEN** pending further clarification.	
Project participant response	**Date : 31/03/2025**
It is clarified that the error was due to a typing error in the consolidated data. This error occurred because the cut-off dates for data collection vary, as the data is updated as economic benefits are marketed and distributed. Therefore, the correct distributed value is COP 14,586,345,502.04.	
Project participant response	**Date : 8/04/2025**
A typographical error present in Table 16 has been corrected. **14,572,925,881**	
DOE assessment	**Date:** 25/04/2025
In Table 16 of the Monitoring Report (MR), the reported value is 14,502,617,364.83, whereas the supporting document states a value of 14,572,925,881. The VVB seeks clarification regarding this discrepancy between the two figures.This clarification is OPEN	

Project participant response	**Date : 28/04/2025**
In response to the finding regarding the discrepancy identified in Table 16 of the Monitoring Report (MR): The error in the Monitoring Report was corrected. The correct value, **14,572,925,881 COP**, is consistent with the information presented in the supporting document titled "Informe entrega de beneficios económicos." This discrepancy occurred because the cut-off dates for data collection vary, as the information is updated as economic benefits are marketed and distributed. Therefore, the correct distributed value is the one indicated in the supporting document. We trust that this clarification addresses the observation, and we remain available for any further information or verification that may be required.	
Documentation provided by project participant	
Informe entrega de beneficios económicos	
DOE assessment	**Date:** 20/05/2025
VVB has reviewed the value presented in the Monitoring Report (MR) and verified its consistency with the supporting document titled "Informe de entrega de beneficios económicos. The documented value of 14,572,925,881 COP is confirmed as accurate and aligned with the supporting evidence. Based on this review, the VVB considers the issue is CLOSED.	

CL ID	15	**Section no.**		**Date :** 21/03/2025
Description of CL				
VVB has reviewed table 15 and Table 17 and finds it unclear how the percentage of progress in compliance with Safeguard B and Safeguard C, as outlined in the Monitoring Plan, has been calculated. PH is requested to provide a clear justification for this calculation.				
Project participant response				**Date : 31/03/2025**

Below, we provide a clear justification on the calculation of the percentage of progress in the compliance with Safeguards B and C, as described in the Monitoring Plan.

Safeguard B: This safeguard has **four elements of national interpretation**:

1. **Transparency and Access to Information**
2. **Accountability**
3. **Recognition of Governance Structures**
4. **Strengthening of Training**

For **first element (Transparency and Access to Information)**, they established **five indicators**:

- Implementation of communication channels suitable for delivering and sharing project information.
- PQRS system for the management and attention of comments, questions, suggestions or complaints.
- Digital documents produced and disseminated within the framework of the project (brochures, posters, illustrative documents, guides, etc.).
- Activities or documents carried out with organizations, associations, community action boards or interest groups.
- Project registration on the platform **RENARE**.

The remaining three elements had only one indicator each.

For the quantification of the progress of Safeguard B, each indicator was monitored according to the established methodology and geared with the accreditation period. Then, the progress was calculated by taking the progress value reported for each period (in this case 2022-2023) and the average of the values was obtained for t

Table. Percentage of progress in compliance with Safeguard B, with respect to the Monitoring Plan.

SAFEGUARD B				
National Element	**Item**	**Name of Indicator(s)**	**(%) Progress 2022-2023**	**(%) Global Target Compliance**
B2. Transparency and Access to Information	2.1	Implementation of suitable communication channels to deliver and share project information.	8%	11%
	2.2	PQRS system for addressing and attending to comments, questions, suggestions or complaints.	19%	
	2.3	Digital documents produced and disseminated within the framework of the project, such as	8%	

		brochures, posters, illustrative documents, guides, among others.		
	2.4	Activities or documents carried out with organizations, associations, community action boards or interest groups.	7%	
	2.5	Project registration on the RENARE platform	7%	
B3. Accountability	2.6	Project management reports	25%	
B4. Recognition of Governance Structures	2.7	Territorial governance strategy	7%	
B5. Strengthening Training	2.8	Socializations, workshops, knowledge exchange, capacity building and other scenarios that contribute to building a participatory dynamic.	7%	

Source. Cataruben Foundation, 2024

Safeguard C: This safeguard also has **four elements of national interpretation**

1. **Free, Prior and Informed Consent (FPIC)**
2. **Respect for Traditional Knowledge**
3. **Distribution of Benefits**
4. **Territorial Rights**

Each of these elements had a single indicator. The calculation of the percentage of progress was made following the monitoring methodology established for each indicator, aligned with the corresponding accreditation period. Finally, the total progress of Safeguard C was obtained from the average of the values of each element.

Table. Percentage of progress in compliance with Safeguard C, with respect to the Monitoring Plan.

SAFEGUARD C				
National Element	**Item**	**Name of Indicator(s)**	**(%) Progress 2021-2023**	**(%) Global Target Compliance**
C6. Free, Prior and Informed Consent (CLIPI)	2.1	Working groups held with the communities.	7%	8,5%

C7. Respect for Traditional Knowledge	2.2	Analysis of developed community mappings	7%	
C8. Benefit Sharing	2.3	To supervise and guarantee the adequate distribution of economic benefits.	13%	
C9. Land Rights	2.4	Legal analysis of land tenure	7%	

Source. Cataruben Foundation, 2024

Documentation provided by project participant	
DOE assessment	**Date:** 07/04/2025
The VVB has reviewed the explanation provided for the calculation of progress on Safeguards B and C, as outlined in the Monitoring Plan. The methodology and indicators for each safeguard are clearly described, and progress percentages have been reported for the relevant accreditation periods. However, while the narrative outlines the approach, the VVB is unable to verify the reported values due to the absence of supporting documentation. The Project Holder is therefore requested to provide verifiable source documents or monitoring records used to calculate the reported progress for each indicator under Safeguards B and C.#OPEN	
Project participant response	**Date :** 08/04/2025

In response to the request for verifiable supporting documentation used to calculate progress on Safeguards B and C, we would like to clarify that the document titled "Plan de Monitoreo Salvaguardas REDD+ CO2Bio Proyecto 2 (2022-2023)" outlines in detail the methodology and indicators used to monitor and calculate the percentage of progress for each safeguard. It also includes the overall targets for each indicator. The project implements a biannual monitoring frequency.

For **Safeguard B**, progress was monitored across all four elements of the national interpretation of safeguards:

- Element B2: Transparency and Access to Information
    - Indicator 2.1 (Implementation of appropriate communication channels): Target of **65** documents; **5** documents were produced during this period, achieving **8%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Canales de Comunicación/ Medios de Difusión & Medios de Contacto).
    - Indicator 2.2 (PQRS system implementation): Target of **16** documents; **3** documents produced, reaching **19%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Sistema de PQRS).
    - Indicator 2.3 (Digital materials dissemination): Target of **38** documents; **3+** documents produced, achieving **8%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Videos, Presentaciones & Post).
    - Indicator 2.4 (Engagement with organizations and local groups): Target of **14** documents; **1** document produced, reaching **7%**. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Encuentros).
    - Indicator 2.5 (Project registration in RENARE): Target of **14** documents; **1** document submitted, **7%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Registro Renare).
- Element B3: Accountability
    - Indicator 2.6 (Project management reports): Target of **32** documents; **8** reports delivered, **25%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B3 - Rendición de cuentas/ Informes de Gestión/ 2023 & 2022).
- Element B4: Recognition of Governance Structures
    - Indicator 2.7 (Territorial governance strategy): Target of **14** documents; **1** document developed, **7%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B4 - Reconocimiento de las estructuras de gobernanza forestal/ G2- Estrategia de Gobernanza).
- Element B5: Capacity Strengthening

- Indicator 2.8 (Workshops and knowledge exchanges): Target of **14** documents; **1** activity conducted, **7%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B5 - Fortalecimiento de capacidades/ G.1 - Fortalecimiento de capacidades).

For **Safeguard C**, the following elements and indicators were monitored:

- Element C6: Free, Prior, and Informed Consent (FPIC)
  - Indicator 3.1 (Community consultation meetings): Target of **14** documents; **1** documented meeting, **7%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C6 - Consentimiento libre, previo e informado/ G.1 - Fortalecimiento de capacidades).
- Element C7: Respect for Traditional Knowledge
  - Indicator 3.2 (Community mapping analysis): Target of 14 documents; 1 report completed, 7% progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C7 - Respeto del conocimiento tradicional/ Comunidades).
- Element C8: Benefit Sharing
  - Indicator 3.3 (Monitoring economic benefit distribution): Target of **15** documents; **2** reports delivered, **13%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C8 - Distribución de beneficios/ Informe Gestión CO2Bio P2).
- Element C9: Land Tenure Rights
  - Indicator 3.4 (Legal land tenure analysis): Target of **14** documents; **1** legal report completed, **7%** progress. (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C9 - Derechos territoriales/ Resolución No Procedencia de Consulta Previa ST - 0003 de 2022) & (CO2Bio project 2 - Third verification/ 2. Anexos/ 1. Carbon Ownership).

All source documents, evidence, and records corresponding to each indicator are available in the folders indicated above, located within the submission package: CO2Bio Project 2 – Third Verification/2. Annexes/3. Safeguard Compliance.

These records collectively support the calculation of the reported progress percentages for each safeguard indicator.

Documentation provided by project participant

Plan de Monitoreo Salvaguardas REDD+ CO2Bio Proyecto 2 (2022-2023)

- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Canales de Comunicación/ Medios de Difusión & Medios de Contacto).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Sistema de PQRS).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Videos, Presentaciones & Post).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Encuentros).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B2 - Transparencia y acceso a la información/ Registro Renare).

- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B3 - Rendición de cuentas/ Informes de Gestión/ 2023 & 2022).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B4 - Reconocimiento de las estructuras de gobernanza forestal/ G2- Estrategia de Gobernanza).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA B/ B5 - Fortalecimiento de capacidades/ G.1 - Fortalecimiento de capacidades).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C6 - Consentimiento libre, previo e informado/ G.1 - Fortalecimiento de capacidades).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C7 - Respeto del conocimiento tradicional/ Comunidades).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C8 - Distribución de beneficios/ Informe Gestión CO2Bio P2).
- (CO2Bio project 2 - Third verification/ 2. Anexos/ 3. Safeguard Compliance/ SALVAGUARDA C/ C9 - Derechos territoriales/ Resolución No Procedencia de Consulta Previa ST - 0003 de 2022) & (CO2Bio project 2 - Third verification/ 2. Anexos/ 1. Carbon Ownership).

DOE assessment

The VVB has reviewed the supporting documentation and confirms that the calculation of progress on Safeguards B and C has been carried out in accordance with the approach outlined in the Monitoring Plan. This issue is closed.

CL ID	16	**Section no.**		**Date :** 21/03/2025

Description of CL

In section 16.3.1 of the monitoring report, VVB is unclear on how the average annual deforestation of 18.85 hectares for the period 2022-2023 in the leakage area was calculated. PH shall clarify the approach or process used to determine this figure.

Project participant response	**Date : 31/03/2025**
The formula in section 16.3.1 of the monitoring report has been reviewed and supplemented. It is clarified that annual deforestation is calculated using the following formula: $CSB_{f,year}=(1t_2-t_1) \times (A_{f,1}-A_{f,2})$ $CSB_{f,year}=(1/(2021-2023)) \times (2593{,}8 - 2556{,}1)$ $CSB_{f,year}=18{,}85 ha$ The annual average deforestation in the leakage area during the two-year monitoring period (2022 and 2023) is calculated using 2021 as the starting year. By setting 2021 as the starting point, the formula can accurately analyze the changes over the two years. If 2022 was used as the start year and 2023 as the end year, the calculation would only reflect the changes that occurred in two years as if they had occurred in one. This is also consistent considering that the areas at the end of the previous monitoring period correspond to the areas at the beginning of the current monitoring period.	
Documentation provided by project participant	
DOE assessment	**Date:** 07/04/2025
The VVB has reviewed Section 16.3.1 of the Monitoring Report (MR) and noted that the Project Holder is using 2021 as the starting year and 2023 as the ending year to calculate the changes that occurred over the two-year period. However, the VVB remains unclear on the methodology used to calculate the values for $A_{f,1}$ and $A_{f,2}$. The Project Holder is requested to provide a detailed explanation of the calculation approach, including data sources, assumptions, and steps followed to derive these values. #OPEN	
Project participant response	**Date : 8/04/2025**

The values (Af) correspond to the spatial analysis of the forest areas that are located within the leakage belt. Af,1 corresponds to the analysis at the end of the year 2021 and Af,2 corresponds to the analysis at the end of the year 2023.

Af1 corresponds to the forest areas present in the adjusted leakage area at the end of 2021, taking into account that the leakage areas are adjusted due to the exclusion of the forest areas present in the properties that were voluntarily withdrawn.

Af2 corresponds to the monitoring of the area covered by forest in the leakage area in the period 2021 to 2023.

In this way, the change in the area covered by forest in the leakage area during the monitoring period can be calculated..

The data included in the ER sheet comes from the files "Af1 corresponds to the shapefile: Bosque_AF_Monitoreo_2020_2021_V2", while Af2 corresponds to the file: "Bosque_AF_Monitoreo_2021_2023_V3", which are located in annex 8.1. REDD/8.1.1. Geodatabase REDD/REDD CO2BIO P2 V3.gdb/ Area de fugas.

Documentation provided by project participant	
DOE assessment	**Date:** 25/04/2025
VVB was unable to locate the formula under Methodologies BCR0002 and BCR0005. The PH is kindly requested to clarify the source from which this formula was referenced.	
Project participant response	**Date : 25/04/2025**

The formula used for the estimation of the historical annual deforestation in the leakage area is found in the **Spanish version** of the AFOLU sector methodological document titled "Quantification of GHG Emission Reductions for REDD+ Projects", code BCR0002, version 3.1, dated September 15, 2022. The specific reference corresponds to Section 13.2.1 "Deforestation," under the subtopic "Historical Annual Deforestation in the Leakage Area," on page 32 of the aforementioned document.

Additionally, we clarify that no methodology identified as BCR0005 was used in the development of the calculations or in the Monitoring Report. However, methodology BCR0004 was utilized. In this regard, the formula used to estimate changes in the natural wetland cover in the leakage area is found in the Spanish version of the AFOLU sector methodological document titled "Quantification of GHG Emission Reductions and Removals. Activities that Avoid Land Use Change in Inland Wetlands", code BCR0004, version 2.0, dated June 23, 2022. This formula is located in Section 19.2 "Annual Land Use Changes in the Leakage Area," on page 62.

For better understanding, we kindly share both the Spanish and English versions of the BCR0002 document.

Documentation provided by project participant

BCR0002_Documento-metodologico-Proyectos-REDD_v3.1

BCR0002_Methodological-document-REDD-projects_v3.1

BCR0004_Documento-metodologico-Humedales-Continentales

DOE assessment	**Date:** 25/04/2025

PP has provided clarification for the formula however the annoitation for the formulas are diffierent under the spanish and english methodology which cretes confusión. Example:

In the spanish methodology the following is mentioned:

Deforestación histórica anual en el área de fugas

La deforestación histórica anual en el área de fugas se calcula con la ecuación:

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

Donde:

$CSB_{f,año} =$	Cambio anual en la superficie cubierta por bosque en el área de fugas, en el escenario sin proyecto; ha
$t_2 =$	Año final del periodo de referencia; año
$t_1 =$	Año de inicio del periodo de referencia; año
$A_{1,f} =$	Superficie boscosa del área de fugas en el momento inicial del periodo de referencia; ha
$A_{2,f} =$	Superficie boscosa del área de fugas en el momento final del periodo de referencia; ha

And in the English methodology:

Annual historical deforestation in the leakage area

The annual historical deforestation in the leakage area is estimated whit the equation:

$$FSC_{lk,yr} = \left(\frac{1}{t_2 - t_1}\right) x\ (A_{1lk} - A_{2lk})$$

Where:

$FSC_{lk,yr} =$	Annual change in the surface covered by forest in the leakage area; ha
$t_2 =$	Final year of the reference period; yr
$t_1 =$	Initial year of the reference period; yr
$A_{1,lk} =$	Forest surface in the leakage area in the initial moment; ha
$A_{2lk} =$	Forest surface in the leakage area in the final moment; ha

The formulas presented by PP are inconsistent and mix elements from different language versions of the methodology (Spanish/English), which may lead to confusion.

PP shall ensure that all formulas follow one single language version of the methodology—either Spanish or English—and clearly indicate which version is being used.

The exact annotations from the selected language must be used consistently throughout the documentation.

Additionally, it appears that the formula provided in the Monitoring Report (MR) corresponds to the Reference Region, while the formula is intended for calculating Leakage. PP shall clarify whether the Reference Region is being treated as the Leakage Region.

The finding remains OPEN

Project participant response	**Date : 24/05/2025**

The formulas in the monitoring report (version 1.2), the PDD (version 2.1), and Annex 7 (Emissions_CO2BIO_P2_V4) were updated, following the English versions of the BCR 0002 (version 3.1) and BCR0004 (version 2.0) methodologies. Additionally, the formula was verified according to the indications of the BCR0002 methodology version 3.2 section 14.4.1 and 14.5.2.

The calculation of emissions from forest deforestation in the leakage area was made taking into account the following equations:

$$FSC_{lk,yr} = (\frac{1}{t_2 - t_1}) \; x \; (A_{lk,1} - A_{lk,2})$$

Where:

$FSC_{lk,yr}$	Annual change in the surface covered by forest in the leakage area; ha/year
t_1	Initial year of the reference period; yr
t_2	Final year of the reference period; yr
$A_{lk,1}$	Forest surface in the leakage area at the beginning of the monitoring period; ha
$A_{lk,2}$	Forest surface in the leakage area at the end of the monitoring period; ha

and,

$$AE_{lk,yr} = (AD_{lk,yr} \; x \; TCO_{2eq}) - AE_{bl,lk,yr}$$

Where:

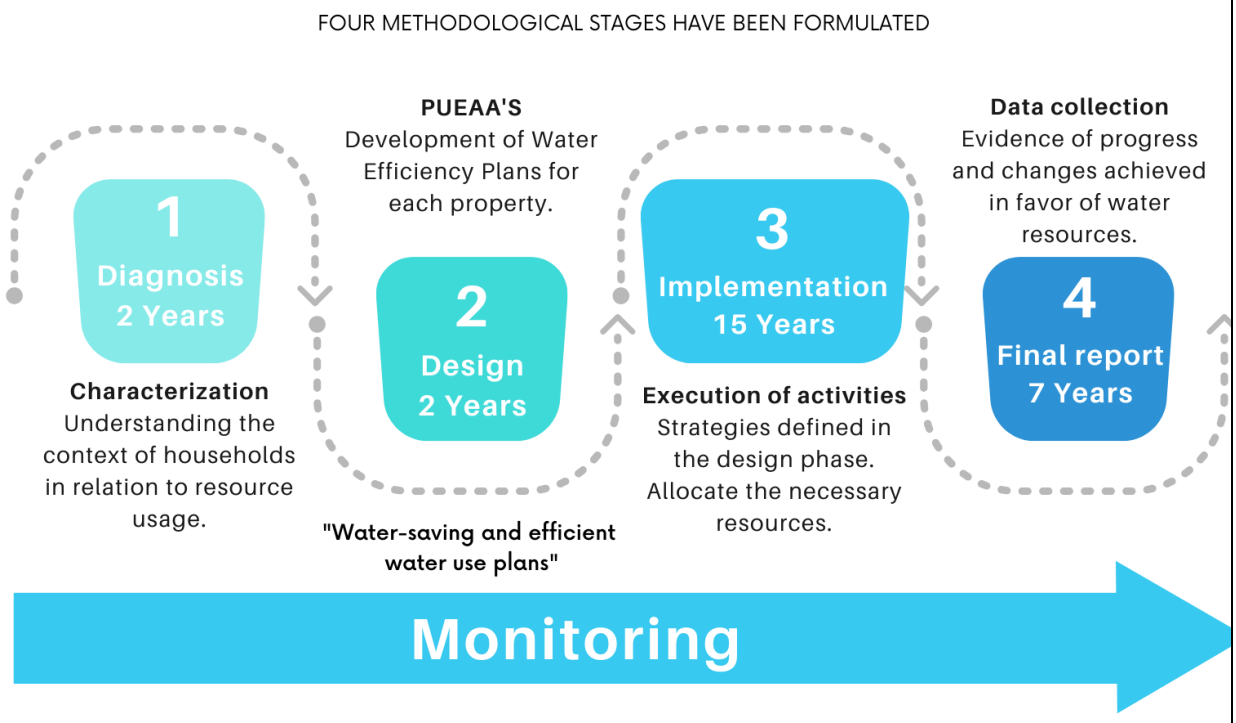
$AE_{lk,yr}$	Annual emissions in the leakage area; tCO /ha$_2$
$AD_{lk,yr}$	Annual deforestation in the leakage area; ha
TCO_{2eq}	Total carbon dioxide equivalent; tCO /ha$_{2e}$
$AE_{bl,lk,yr}$	Annual emission in the leakage area, in baseline scenario; tCO$_2$/ha

Emissions in the leakage are being managed according to the BCR methodology, which involves monitoring the leakage area, calculating emissions, and determining the difference with the emissions of the leakage area in the baseline scenario.
Documentation provided by project participant
Methodology Forest: BCR0002_Methodological-document-REDD-projects_v3.1 **Methodology Wetlands:** BCR0004_Documento-metodologico-Humedales-Continentales **MR version 1.2:** BCR_Monitoring Report CO2Bio P2_Verificacion3_V.1.2 **PDD version 2.1:** PDD Co2BIo Proyecto 2 V2.1 **ER calculation :** 7. Emissions_CO2BIO_P2_V3_ English

CL ID	17	**Section no.**		**Date :** 21/03/2025
Description of CL				
In section 4.2.2 of the monitoring report, it is stated that "a detailed diagnosis of 106 properties and the delivery of 67 plans for efficient water use and water savings (PUEAA) were carried out." However, upon reviewing the document, it was found that 124 properties are enrolled in the project. PH is requested to provide a justification for this discrepancy.				
Project participant response				**Date : 31/03/2025**

Below is the requested justification

The CO2Bio Project 2 water management program follows a methodological development structured in four stages that comprehensively address water management challenges. The diagnostic stage allows evaluating the sources, consumption, and quality of water in the linked properties. In the Design stage, customized solutions are developed to optimize its efficient use. The Implementation stage focuses on executing concrete actions for the sustainable management of the resource, and finally, the Final Report consolidates compliance with the established goals. Throughout each of these stages, continuous monitoring is carried out to guarantee the consistency and accuracy of the information.



In accordance with the above, during the 2022-2023 period, the initial characterization of 106 properties of the 124 linked to the project was carried out, of which 75 have housing and 31 do not. Subsequently, a detailed verification of the information was carried out through the Property Implementation Plans (PIP), which allow evidence and follow-up of the actions implemented in the mitigation and reduction of GHGs, reaching a total of 77 properties with validated information. This verification allowed detailed diagnoses with consolidated and precise data.

Subsequently, in the design stage, the Plans for Efficient Use and Water Saving (PUEAA) were developed, fundamental tools to optimize the management of water resources in the properties. Up to the date of validation of the report, 67 PUEAA have been executed, of which 59 correspond to properties with housing and 8 to properties without housing. All supporting documentation is available in the attachments folder for consultation and verification.

Documentation provided by project participant	
DOE assessment	**Date:** 07/04/2025
PH is requested to clarify why was the initial characterization of only 106 properties of the total 124 linked to the project was carried out. PH is requested to further clarify 1. How many properties are there in total in this verification period as per MR section 7 "Carbon owership and right" 19 properties amongst the 124 properties have terminated their contract. 2. In the previous verification report it was mentioned that there are 143 properties. PH is requested to clearly mention the total properties which were present during the initial Project design, The no of properties which are not included anymore in the Project and the total properties in the present verification. 3. PH is also requested to clearly mention the validation of the total PUEAA in the MR	
Project participant response	**Date :** 08/04/2025

1. According to Section 7 of the Monitoring Report corresponding to Verification No. 3, a total of 124 properties were included, a figure that already excludes the 19 properties that voluntarily withdrew from the project through the termination of their contracts.
2. During the initial design of the project, 141 properties were included, all of which were part of the validation process and the first verification.

   Subsequently, during the second verification period, the property El Barley requested the subdivision of its area among its three owners. This led to the signing of three independent contracts (Barley 1, Barley 2, and Barley 3). This modification did not affect the total project area or the eligible areas, resulting in a total of 143 properties linked to the project during that period.

   Additionally, as part of the second verification, the Sustainable Development Goals (SDG) tool from the BioCarbon standard was applied, evaluating the feasibility of contributing to SDG No. 6. As part of this process, 64 Efficient Water Use and Saving Plans (PUEAA) were developed for the properties that were active at that time.

   For Verification No. 3, and as previously mentioned, 19 properties voluntarily withdrew from the project. Of these, 16 had already been characterized and had a PUEAA, including: Guarataro, Morrocoy, Tolima, Finca Palmarito, La Esperanza, Rancho Aureca, Bonanza, El Chaparral, La Hermosa, La Niña, Murvia, La Yovereña, El Cóndor, La Envidia Española, Barley 3, and Palmarito. The remaining three properties —Flor Amarillo, Puerta Colorada, and Cañasbravas— had not yet been characterized at the time of their withdrawal.

   In this context, 59 new characterizations were conducted during Verification No. 3, reaching a cumulative total of 106 characterized properties between the second and third verifications (47 previously + 59 newly characterized).

   Of these 106 properties, 67 have a Property Implementation Plan (PIP), which serve to document and monitor the actions implemented for the mitigation and reduction of Greenhouse Gas (GHG) emissions.

   Summary:

- Properties at project initiation: 141
- Properties in second verification: 143 (after the subdivision of El Barley)
- Properties voluntarily withdrawn: 19
- Total properties in third verification: 124

3. This information is clarified and updated in the monitoring report.

Documentation provided by project participant

- SDG 6: (CO2Bio project 2 - Third verification/ 2. Anexos/ 4. SDGs (Sustainable Development Goals)/ ODS 6 - Agua limpia y saneamiento/ META 6.1 & META 6.4).
- Desarrollo y Ejecución de un Programa de Gestión Hídrica: (CO2Bio project 2 - Third verification/ 2. Anexos/ 2. Project Activities/ A.1 / A.1. PROGRAMA DE GESTIÓN HÍDRICA - CO2BIO PROYECTO 2, A.1.2. INFORME DE AVANCE PROGRAMA DE GESTIÓN HÍDRICA & Anexos).

Documentation provided by project participant	
DOE assessment	**Date:** 24/04/2025
PH has provided the justification related to the changes in the properties and has provided a detailed explanation related for the PUEAA In MR. PH has also identified the change of the properties Under post registration changes and have provided the details section 13.2 of the MR.	

CL ID	18	**Section no.**		**Date :** 07/04/2025
Description of CL				
During the review of Section Table 39 – "Emission Monitoring of the Project in Wetland Areas" for the period 2023, it was found that the CTeq values reported in the Monitoring Report (MR) were inconsistent with the calculations provided in the corresponding ER sheet. The Project Holder (PH) shall provide a detailed justification for this inconsistency.				
Project participant response				**Date : 08/04/2025**

Table 39 and the ER sheet were reviewed and no inconsistencies were found. For clarification, the total carbon equivalent (CTeq) is equal to the total biomass carbon (CBTeq) plus the soil organic carbon (COSeq). The ER sheet shows these two values separately, while table 39 of the MR shows the sum of both values.

Table 39. Emission monitoring of the project in wetland areas, in the period 2023.

Stratum	Year	CSCNp *(ha)*	CTeq *(tCO2e/ha)*	Project GHG emissions (tCO2e/year)
Herbaceous	2023	201,8	75,1	15.162,86
Aquatic	2023	0	166,3	0
Dispersed	2023	0	201,1	0

Source: Cataruben Foundation, 2024.

GHG emissions in the project area

EAp	CSCNp	CBTeq	COSeq
15.162,86	201,8	24,9	50,3
0,00	0	25,5	140,8
0,00	0	136,9	64,2

ER Sheet

75,1
166,3
201,1

Documentation provided by project participant

DOE assessment	**Date:** DD/MM/YYYY
VVB has reviewed of Table 39 of the Monitoring Report (MR) and the Emission Reductions (ER) sheet, it is now clear that the total carbon equivalent (CTeq) value presented in Table 39 represents the sum of the total biomass carbon (CBTeq) and the soil organic carbon (COSeq). This clarification is consistent with the reported data and applied methodology. Therefore, the clarification request (CL) is considered Closed.	

CL ID	19	**Section no.**	16.1	**Date :** 16/04/2025
Description of CL				
The assesment team is unbale to trace out the formulas used by the PH. As per the monitoring report document BCR002 v 3.1 and BCR004 v 2.0 is a standard document for applied methodology. PH to provide clarification on the discripency in the formulas.				
Project participant response				**Date : 25/04/2025**

In response to the findings raised, we would like to clarify that, due to a **typographical error**, the version of the methodology used was incorrectly stated in the Monitoring Report. The correct version is **BCR0002, version 3.1, dated September 15, 2022**.
This information has been corrected and updated in the Monitoring Report where the inconsistency was identified.

Regarding the formulas applied in **Section 16.1 of the Monitoring Report**, we confirm that the corresponding references are found in the Spanish versions of the following methodological documents:

1. Methodological document for the AFOLU sector titled "Quantification of GHG Emission Reductions for REDD+ Projects," code BCR0002, version 3.1, dated September 15, 2022:

- For the formulas in **Section 16.1.1** "**Baseline emissions from forest deforestation**" of the Monitoring Report, the reference is located in **Section 13.2.1** "**Deforestation,**" under the subsection "**Annual historical deforestation in the reference region,**" on **page 30** of BCR0002.

- For the formulas in **Section 16.1.2** "**Reference emissions from forest degradation**" of the Monitoring Report, the reference is located in **Section 13.2.2** "**Degradation,**" under the subsection "**Annual historical degradation in the project area in the baseline,**" on **page 34** of BCR0002.

2. Methodological document for the AFOLU sector titled "Quantification of GHG Emission Reductions and Removals. Activities that Avoid Land Use Change in Inland Wetlands," code BCR0004, version 2.0, dated June 23, 2022:

- For the formulas in **Section 16.1.3** "**Baseline emissions from changes in land use in wetlands**" of the Monitoring Report, the reference is located in **Section 19** "**Activity Data,**" specifically in **Subsection 19.1** "**Annual land use change in the project area,**" on **page 61** of BCR0004.

We trust this clarification addresses the observation raised, and we remain available for any further information you may require.

Documentation provided by project participant	
BCR0002_Documento-metodologico-Proyectos-REDD_v3.1 BCR0002_Methodological-document-REDD-projects_v3.1 BCR0004_Documento-metodologico-Humedales-Continentales	
DOE assessment	**Date:** DD/MM/YYYY
Project participant response	**Date : 24/05/2025**

The formulas in the monitoring report (version 1.2), the PDD (version 2.1), and Annex 7 (Emissions_CO2BIO_P2_V4) were updated, following the English versions of the BCR 0002 (version 3.1) and BCR0004 (version 2.0) methodologies Related with CL#16
Documentation provided by project participant

CL ID	20	**Section no.**	4.4.2	**Date :** 22/04/2025
Description of CL				
1) In section 4.4.2, 'Contribution to indicator 15.3.1 against the global target' of the monitoring report, VVB is unclear about specific acquisition dates for each year's map. PH shall provide the specific dates or time periods of the satellite images used for each year's forest map (2015-2023)? **2)** What specific 'medium resolution optical and radar images' were used in addition to Landsat? [Relevant Sections: 15.1.1 Forest area as a proportion of total area (Page 1, Sec 2. Inputs): Mentions data for the period 2015 to 2023, but not specific acquisition dates for each year's map. 15.1.2 Forest gain (Page 1, Sec 2. Inputs): Mentions data for the period 2017 to 2023, but not specific acquisition dates for each year's map.] **3.1)** PH shall clarify how exactly the 'Forest' / 'Non-Forest' classification was done. Was it an automated computer process or manual interpretation?" [Relevant Sections: 15.1.2 Forest gain (Page 1, Sec 1. Introduction) & 15.1.1 Forest area as a proportion of total area (Page 1, Sec 1. Introduction): Refer to the following IDEAM guidelines (Galindo et al. 2019), implying a specific methodology exists, but it's not detailed within this report. 15.1.2 Forest gain (Page 2, Sec 3. Methodology) & 15.1.1 Forest area as a proportion of total area (Page 2, Sec 3. Methodology).] **3.2)** PH shall clarify how areas with 'No information' (clouds/shadows) were handled in the forest area calculations.				

[Relevant Sections: 15.1.2 Forest gain (Page 2, Table 1) & 15.1.1 Forest area as a proportion of total area (Page 2, Table 1): Define Raster Value 3 as "No information: Is the surface that was not possible to interpret due to the presence of clouds, shadows or gaps."

15.1.2 Forest gain (Page 2, Sec 3) & 15.1.1 Forest area as a proportion of total area (Page 2, Sec 3): Describe the methodology but do not specify how pixels with value '3' were treated in area calculations (e.g., excluded, prorated, filled).]

4) PH shall describe how exactly was the 'eligible forest (2005-2015)' baseline was calculated for the Forest Gain report?

[Relevant Sections: 15.1.2 Forest gain (Page 2, Sec 3. Methodology): Mentions using "the eligible forest (2005-2015)".

15.1.2 Forest gain (Page 3, Sec 3.1. Calculation forest gain): Defines BTjt as "Area in hectares (ha) total eligible forest of project area (2005-2015)".

15.1.2 Forest gain (Page 3, Sec 3.2. Calculation of the indicator): States BTjt "corresponds to the area resulting from the determination of the stable forest through the intersection of forest 2005 and forest 2015". The exact operational steps (e.g., which specific 2005/2015 datasets, resolution matching, intersection method) are not detailed.]

Project participant response	**Date : 28/04/2025**

1. The information presented in section 4.4.2 (Contribution to indicator 15.3.1) comes from the natural forest cover maps — or "Forest / Non-Forest Maps" — produced by the Forest and Carbon Monitoring System (SMByC), the official scientific tool for continuous monitoring of forest cover and deforestation in Colombia. For the generation of the annual maps from 2015 to 2023, the SMByC primarily uses Landsat images (TM, ETM+, and OLI sensors) acquired between January 1 and December 31 of each year. The applied methodology is based on the «Protocolo de Procesamiento Digital de Imágenes para la Cuantificación de la Deforestación en Colombia, versión 2» (Galindo et al., IDEAM, 2014), Described in sections 8.1.3.1 and 8.1.3.2. The corresponding information has been updated and referenced in documents 15.1.1, 15.1.2, and in the aforementioned section 4.4.2.

2. The information used comes from the natural forest cover maps produced by the Forest and Carbon Monitoring System (SMByC), in accordance with the «Protocolo de Procesamiento Digital de Imágenes para la Cuantificación de la Deforestación en Colombia» (Galindo et al., IDEAM, 2014). The protocol establishes that Landsat images (sensors TM, ETM+, and OLI) captured between January 1 and December 31 of each year are used as the main input. This information can be found in Section 4. Methodological Process and 4.1. Image Selection of the protocol and is further expanded in http://www.siac.gov.co/smbyc.Anexo 8.1.3.1 and 8.1.3.2. You may also refer to Annex 8.1.3.4.

colombia_submission_nref_2023_-2027, section 8.4.1.1, item a. Image selection and download.

3. **3.1.** The information used comes from the natural forest cover maps produced by the Forest and Carbon Monitoring System (SMByC), in accordance with the «Protocolo de Procesamiento Digital de Imágenes para la Cuantificación de la Deforestación en Colombia» (Galindo et al., IDEAM, 2014). Section 4 of Annex 8.1.3.1 describes the methodological process, which includes both automated computer processing and visual interpretation stages. The processing steps —such as band stacking, geometric corrections, conversion of data to surface reflectance, cloud and water masking, radiometric normalization, and image composite generation— as well as change detection, are automated. Meanwhile, the visual verification of changes is carried out by a team of interpreters who perform quality control and adjustments to the process. These steps are already incorporated into the national forest map, in the production of which Fundación Cataruben does not participate. You may also refer to Annex 8.1.3.4: colombia_submission_nref_2023_-_2027.

   3.2. For the data with no information, a special treatment was applied, as described in documents 15.1.2. and 15.1.1.n summary, after delineating the project areas (shapefile), the natural forest cover map (raster) for each year in the 2015–2023 period was clipped using the Clip Raster tool in QGIS. This process produced an annual forest cover raster; pixels with no information are coded with the value 3 and are present only in the 2018 map (29 pixels, 2.6 ha). Each pixel was evaluated using the Continuous Change Detection (CCD) plugin v3.40.6, which analyzed their time series using a cloud-free Sentinel-2 mosaic (December 2023 – January 2024) and calculated the NDVI and the Greenness component of the Tasseled Cap index to determine forest or non-forest status. Pixels confirmed as forest were integrated into the official 2018 forest layer; the remaining ones were reclassified as "non-forest." Of the total 29 pixels analyzed (2.6 ha), 17 (1.5 ha) were confirmed as forest and 12 were classified as non-forest. Evidence of this analysis is available in 2.1.G.3.1. Validación bosque 2018 CCD. and in the Geodatabase REDD/ Actividad G3.

4. The description of eligible forest was incorporated into document 15.1.2 «Ganancia de Bosque». Operational processes were also detailed, including the use of the Cross Classification tool from the Semi-Automatic Classification Plugin (SCP) (Congedo, 2021) — Annex 8.1.3.3 — along with the inputs used. It is important to highlight that all data utilized come from national sources generated by the Forest and Carbon Monitoring System (SMByC), the official entity responsible for forest quantification and deforestation monitoring in Colombia.

   It is important to clarify that the information presented refers only to forest areas existing in each year of the analyzed period, and therefore differs from the project's eligible areas. This difference arises because the eligible area is defined as the forest present at the start of project activities and ten years prior to the project's start date — also referred to as stable forest. In contrast, this analysis quantifies only the forest effectively

present in the year or period selected to evaluate the SDG indicator, which is different from the monitoring of project areas.

Documentation provided by project participant

1. Anexo 8.1.3.1: Galindo G., Espejo O. J., Rubiano J. C., Vergara L. K., Cabrera E., 2014. Protocolo de procesamiento digital de imágenes para la cuantificación de la deforestación en Colombia. V 2.0. Instituto de Hidrología, Meteorología y Estudios Ambientales – IDEAM. Bogotá D.C., Colombia.
2. 8.1.3.4. colombia_submission_nref_2023_-_2027_, sección 8.4.1.1. item a. Selecion y descarga de Imagenes.
3. 8.1.3.2. Sistema de Monitoreo Bosque y Carbono
4. 15.1.2 «Ganancia de Bosque»
5. Anexo 8.1.3.3. Procedimiento: Congedo, Luca, (2021). Plugin de clasificación semiautomática: Una herramienta de Python para la descarga y el procesamiento de imágenes de teledetección en QGIS. Journal of Open Source Software, 6(64), 3172, https://doi.org/10.21105/joss.03172
6. 2.1.G.3.1. Validación bosque 2018 CCD. y en la Geodatabase REDD/ Actividad G3.

DOE assessment	**Date:** 09/05/2025

1) The VVB notes the project holder's clarification that forest cover maps for 2015–2023 are sourced from SMByC, with Landsat imagery acquired between January 1 and December 31 each year, as per the IDEAM (2014) protocol. This acquisition window is consistent with the requirements of BCR0002 (Section 13 – Monitoring and Data), which mandates transparent and verifiable activity data. The updates to documents 15.1.1, 15.1.2, and Section 4.4.2 provide sufficient traceability to official sources. This point complies with the standard and is closed.

2) The VVB confirms that SMByC's primary use of Landsat imagery, with Sentinel-2 applied solely for gap-filling in 2018, adheres to the IDEAM protocol (Sections 4 and 4.1). The supporting documentation (Annex 8.1.3.4, colombia_submission_nref_2023_-2027) clarifies the data sources, ensuring compliance with BCR0002 (Section 13 – Monitoring and Data) requirements for consistent data usage. No discrepancies were identified in the application of additional imagery. This point is closed.

3.1) The VVB verifies that SMByC's methodology (IDEAM, 2014), involving automated processing and visual interpretation for quality control, meets the requirements of BCR0002 (Section 13 – Monitoring and Data) for a robust and consistent classification process. The project holder's non-involvement in map production and reliance on official SMByC data further ensures compliance with the standard's expectations for verifiable data sources. This point is closed.

3.2) The VVB evaluates the project holder's methodology for handling "No Information" pixels in the 2018 map (29 pixels, 2.6 ha) using the CCD plugin with a Sentinel-2 mosaic (Dec 2023–Jan 2024). The classification of 17 pixels (1.5 ha) as forest and 12 as non-forest, based on NDVI and Tasseled Cap Greenness indices, is supported by referenced

documentation (2.1.G.3.1 and Geodatabase REDD/Actividad G3). This approach ensures data completeness and aligns with BCR0002 (Section 13 – Monitoring and Data) requirements for addressing data gaps. This point is closed.

4) The VVB notes the project holder's clarification that the 2005–2015 stable forest baseline (intersection of SMByC 2005 and 2015 forest layers) is used for project eligibility, while SDG 15.3.1 relies on annual SMByC maps. The operational details in document 15.1.2 (e.g., Cross Classification tool in QGIS) provide the required transparency, meeting BCR0002 (Section 10 – Baseline Setting) standards for baseline determination. The use of official SMByC data ensures reliability. This point is closed.

The CL 21 is closed.

CL ID	21	**Section no.**	15.2.2	**Date :** 22/04/2025
Description of CL				
After reviewing 13.1.4.1 Activity Data Uncertainty and 15.2.2 Monitored data and parameters, 1) PH should provide the justification for the specific Sentinel-2 bands used. Documented rules and criteria must be provided for defining the image acquisition temporal window (addressing target season, acceptable date ranges, criteria for extending the window) and the strategy for handling data gaps (e.g., due to cloud cover). 2) Code-related clarifications from PH: The code example uses numPixels: 3400. The procedure needs to define how the required number of training pixels is determined (e.g., based on area, number of classes, complexity) and how class balance is handled. The code example uses 50 trees initially and then tunes numberOfTrees and bagFraction. The procedure should specify initial default parameters, the methodology for tuning (not just show the code), and how the final parameters are chosen and documented for each classification run. 3) The procedure mentions review/editing in ArcGIS Pro using the Pixel Editor, but lacks specific rules or guidelines for these edits. PH shall describe on what basis pixels are changed? What ancillary data is used (high-res imagery, field data)? How is consistency maintained between different analysts or over time? 4) PH shall share related GIS or spatial files/layers/results with respective names. (Accuracy Atacama = 96.0, Values -18,349.3 hectares)				
Project participant response				**Date : 28/04/2025**

1. The requested adjustments have been made. Documents 8.2.7 "Satellite images – CORINE Interpretation" y 8.2.8 "Geospatial Information Management – BCR0004" are attached, the latter detailing the products and information acquisition strategies. It is important to note that the project has no data gaps. The study area has a monomodal climate regime with a well-defined dry season between November and March, a period when cloud cover is minimal. This information is referenced in section 15.2.2 (Eligible Wetland Area parameter) of the BCR Monitoring Report CO2Bio P2_Verification 3_V.1.1.

2. Concerning the established conditions, it is clarified that the information source for the eligible forest areas was incorrectly indicated in the Monitoring Report due to a typographical error. It is important to specify that, for this project, Fundación Cataruben did not generate the forest cover map. Instead, the 2023 map provided by the Forest and Carbon Monitoring System was used, which constitutes the scientific and official tool for the constant monitoring of forest cover and deforestation in Colombia. For more details, see the metadata of the raster Bosque 2023 (8.1.2.1. Informacion Geografica/ Validacion_bnb2023_CO2BIOP2.gdb/ Bnb2023_CO2BIO.tif), and 8.1.1. Geodatabase_REDD+/ REDD CO2BIO P2 V3.gdb/ Bosque_AP_monitoreo_2020_2021_v2.shp, Bosque_AP_monitoreo_2021_2023_v3.shp and Bnb2023_CO2BIO.tif

3. Regarding the established conditions, it is clarified that, due to a typographical error in the Monitoring Report, the information source regarding eligible forest areas was incorrectly indicated. For this project, Fundación Cataruben did not generate the forest surface map; the 2023 map provided by the Forest and Carbon Monitoring System was used, which constitutes the scientific and official tool for the constant monitoring of forest cover and deforestation in Colombia.

4. It is important to note that the 8.1.2 AcATaMa process was applied to the 2023 forest map, an input generated by the Forest and Carbon Monitoring System (SMByC), the official entity responsible for quantifying forest cover and monitoring deforestation in Colombia.The corresponding information can be found at the path **8.1.2.1 Información Geográfica/Validacion_bnb2023_CO2BIOP2.gdb/Bnb2023_CO2BIO.tif**.

The following supporting documents are included in the same directory:

- **8.1.2.2 Validación del Modelo BNB 2023 a partir de datos de campo – AcATaMa**
- **8.1.2.3 Validación AcATaMa BnB2023 CO2BIO P2 – Results**
- **8.1.2.4 Validacion_bnb2023_CO2BIOP2 – Results**

The last two files present the same result in different formats.

Documentation provided by project participant

8.2.7 «Imágenes satelitales – Interpretación CORINE»

8.2.8 «Gestión de la Información Geoespacial – BCR0004»

8.1.1. Geodatabase_REDD+/ REDD CO2BIO P2 V3.gdb

8.1.2.1. Informacion Geografica/ Validacion_bnb2023_CO2BIOP2.gdb

8.1.2. AcATaMa

8.1.2.2 Validación del Modelo BNB 2023 a partir de datos de campo – AcATaMa
8.1.2.3 Validación AcATaMa BnB2023 CO2BIO P2 – Results
8.1.2.4 Validacion_bnb2023_CO2BIOP2 – Results

DOE assessment	**Date:** 09/05/2025

1) The VVB notes the project holder's clarification that the 2023 forest map was sourced from SMByC, meaning Sentinel-2 band selection is governed by SMByC's methodology, not the project holder's process. The assertion of no data gaps due to the dry season acquisition window (Nov–Mar) is supported by Section 15.2.2 of the MR and documented in 8.2.7 and 8.2.8. This aligns with BCR0002 (Section 13 – Monitoring and Data) requirements for transparent monitoring processes. The VVB finds no discrepancies in the acquisition strategy. This point is closed.

2) The VVB verifies that since the 2023 forest map is an SMByC product, the machine learning parameters (e.g., numPixels: 3400, numberOfTrees, bagFraction) are determined by SMByC's methodology. The project holder's correction of the MR's typographical error and provision of metadata (8.1.2.1, 8.1.1) ensure traceability, meeting BCR0002 (Section 13.1.4 – Uncertainty) requirements for reliance on verified data sources. This point is closed.

3) The VVB confirms that as the 2023 forest map is an SMByC product, manual review or pixel editing falls under SMByC's methodology. The project holder's clarification that they did not generate the map addresses the concern, as editing rules are not applicable to their process. This complies with BCR0002 (Section 13 – Monitoring and Data) expectations for using verified data. This point is closed.

4) The VVB evaluates the provision of the SMByC 2023 forest map (18,349.3 ha) and the AcATaMa validation process, which reports 96.0% accuracy. The supporting files (8.1.2.2, 8.1.2.3, 8.1.2.4) enable verification of the accuracy assessment, aligning with BCR0002 (Section 13.1.4 – Uncertainty and Section 15.2.2 – Monitored Data) requirements for verifiable data. The independent validation by the project holder is noted, but the VVB confirms compliance based on the official SMByC data. This point is closed.

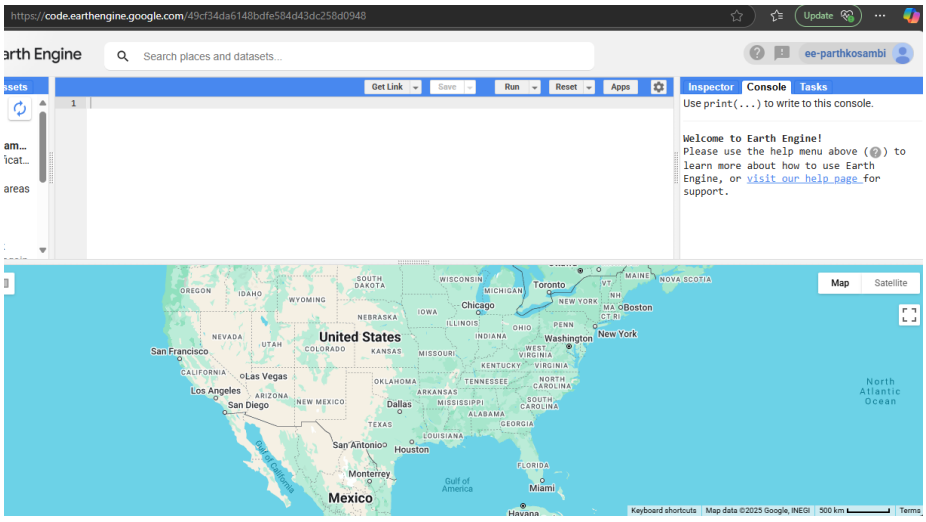
The CL 22 stands closed.

CL ID	22	Section no.	16.2	Date : 14/05/2025
Description of CL				

In section 16.2.1, document 8.1.5.1.1. Report Forest Cover 2022-2023 references a Google Earth Engine (GEE) script for flood-related forest loss assessment, linked at:

https://code.earthengine.google.com/49cf34da6148hf6584rd43dc258d0948

However, upon accessing the link, the script is empty (image attached), showing "NO accessible repositories".



The PH is requested to share:

i) The correct GEE script link with full access to the code and processing steps.

ii) Alternatively, if the script cannot be shared via GEE, please provide the script as a text file/JavaScript and include relevant datasets.

Project participant response	Date : 24/05/2025

1. The document titled "8.1.5.1.1.Report Forest Cover 2022 - 2023" shows the decrease in forest in the project areas through the mapping of floods/waterlogging for the period 2022 - 2023. The script detects floods in the period 2022 - 2023 using Sentinel 1 radar. Script: https://code.earthengine.google.com/fdddc092cf2c0cf697e48c1386a25e68 2. In case of "Broken Link", a script in .txt format is attached. (8.1.5.2.1. Script Sentinel 1 Flood). Paquete de datos 8.1.5.2.2. Var table _ CO2BIOP2v3. Productos Script: (8.1.5.2.3. Flood Inundation.tif, 8.1.5.2.4. Waterlogging.tif)
Documentation provided by project participant
1. Script Google Earth Engine https://code.earthengine.google.com/fdddc092cf2c0cf697e48c1386a25e68 2. Additionally, the files are attached.: ● 8.1.5.2.1. Script Sentinel 1 Flood ● 8.1.5.2.2. Var table _ CO2BIOP2v3 ● 8.1.5.2.3. Flood Inundation.tif ● 8.1.5.2.4. Waterlogging.tif

DOE's assessment	**Date:** 02/06/2025
The document "8.1.5.1.1. Report Forest Cover 2022 – 2023" results of the flood detection process, aligning with the PH's response. As reported in the MR (Section 16.2.1), the reference document uses the GEE script for flood-related forest loss assessment. The methodology (Sentinel-1 radar, Refined Lee filter) complies with BCR0002 requirements for transparent and monitoring. The results (88 ha forest loss in project areas, 37.7 ha in leakage areas) provided evidence of monitoring, addressing both project and leakage areas as required by BCR0002. The document confirms that the flood detection process was conducted in compliance with BCR0002, and the PH's provision of a corrected script link and datasets resolved the concern about the broken link. The CL 23 stands closed.	

CL ID	23	**Section no.**	16.3	**Date :** 14/05/2025
Description of CL				

In section 16.3 Leakages, the geospatial file (AREA_FUGAS_REDD.shp) for the BCR0002 leakage area (10,673.4 ha) has been provided, but the geospatial file for the BCR0004 leakage area (10,461 ha) is missing from the shared link titled "where the leakage area and respective supports are identified."

The PH is requested to share:

i) The missing geospatial file for the BCR0004 leakage area (10,461 ha), used to quantify the natural vegetation cover.

ii) Confirm that the BCR0004 leakage area calculation aligns with the methodology item 10.3 criteria for natural vegetation cover eligibility.

Project participant response	**Date : 24/05/2025**

1. The file containing the boundary of the leakage belt (**10,461 ha**) to define the natural coverages to be monitored is located in the Wetlands GDB.(Anexo:**Cinturón fugas Humedales.shp (ruta: 2. Anexos / 8.2. Humedales / 8.2.1. Geodatabase_Humedales / HUMEDALES CO2BIO P2 V3.gdb / Feature Datasets Area_De_fugas)**

2. To comply with criterion 10.3 of BCR 0004 in the initial validation, the definition of the leakage area encompasses all natural vegetation coverages linked to the wetland classification, within the mobility range of land-use change agents, as defined in section 2.3.1 Analysis of the causes and agents of deforestation and transformation of natural cover of the PDD. The 100-meter buffer around the project areas with BCR004 activities was delimited by a nearest neighbor analysis (spatial proximity) and the Tukey test (Section 3.2.1.3.1 Delimitation of the leakage area). The total area of this buffer or belt is 10,461 hectares (adjusted for post-registration changes), and within this zone, changes in the natural coverage associated with wetlands are monitored.

   For the monitoring of Change in the area with natural vegetation cover in the leakage area (LUCL), data from two shapefiles were used:

- The value of the area in natural vegetation cover in the leakage area at the beginning of the monitoring period (AL,1), recorded in "**Humedales_AF_Monitoreo_2020_2022_V2.shp**", was 4359.0 ha (Dispersed: 96.85 ha; Herbaceous: 3967.3 ha; Aquatic: 294.8 ha).
- For the area in natural vegetation cover in the leakage area at the end of the monitoring period (AL,2), data from the file "**Humedales_AF_Monitoreo_2022_2023_V3.shp**" indicate an area of 4306.5 ha (Dispersed: 96.85 ha; Herbaceous: 3914.7 ha; Aquatic: 294.8 ha).

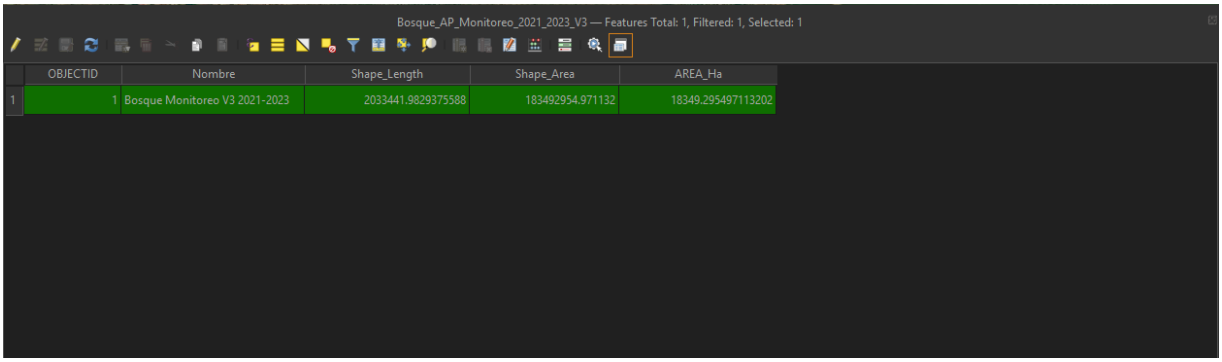
  Both data are found in the "superficie" (area) field of the corresponding attribute tables. In addition, section 16.3 (Leakage) of MR was updated with the relevant vector information.

Documentation provided by project participant	
1. Leakage Belt Wedlands: Anexxes (2. Anexos/ 8.2. Humedales / 8.2.1. Geodatabase_Humedales / HUMEDALES CO2BIO P2 V3.gdb). Feature Datasets Area_De_fugas. a. Humedales_AF_Monitoreo_2020_2022_V2.shp b. Humedales_AF_Monitoreo_2022_2023_V3.shp 2. PDD v2.1, secctions: ● 2.3.1 Analysis of the causes and agents of deforestation and transformation of natural cover ● 3.2.1.3.1 Delimitation of the leakage area	
DOE assessment	**Date:** 02/06/2025
The PH has provided the missing geospatial file for the BCR0004 leakage area (10,461 ha), addressing the first request. The leakage area was defined based on natural vegetation cover within the mobility range of land-use change agents, supported by PDD sections and spatial analysis (nearest neighbor, Tukey test), aligns with BCR0004 (Section 10.3 – Leakage), which requires monitoring of natural vegetation cover in the leakage belt. The provided data shows a decrease in natural vegetation cover (from 4,359.0 ha to 4,306.5 ha), indicating that leakage monitoring was conducted, with specific categories (Dispersed, Herbaceous, Aquatic) tracked as required. The update to Section 16.3 of the MR ensures transparency in reporting, as per BCR requirements. The response is satisfactory, and CL 24 stands closed.	

CL ID	24	**Section no.**	13.2	**Date:** 14/05/2025
Description of CL				

Post–Post-Registration Changes: In Section 13.2.2.3 of the Monitoring Report (version 3.4), specifically under the "Project Areas Update" component in Table 33 (List of Changes Applied to This Follow-Up Period):

i) It is stated that the forest area in the project areas has been updated from 19,823.74 ha to 18,437.1 ha. However, the geospatial file (Bosque_AP_Monitoreo_2021_2023_V3.shp) indicates a forest area of 18,349.29 ha in its attribute table (as shown in the attached image). The PH is requested to clarify this discrepancy.



ii) The link previously shared for the Wetlands database is not working. (Wetlands (2. Annexes / 8. Geospatial / 8.2. Wetlands / 8.2.1. Geodatabase_Wetlands / WETLANDS CO2BIO P2 V3.gdb). The PH is requested to share a functional link to the Wetlands database.

Project participant response	**Date : 24/05/2024**

1. The area of **18437.1 ha** comes from the shapefile **Bosque_AP_Monitoreo_2020_2021_V2.shp**, located in (Annexes / 8. Geospatial / 8.1. REDD / 8.1.1. Geodatabase_REDD / REDD CO2BIO P2 V3.gdb / Area_de_Proyecto / Bosque_AP_Monitoreo_2020_2021_V2.shp) and registered in cell **F6 (AREDD+project, 1)** of the "**4. Monitoring_REDD+_2022-2023**" tab of Annex 7.Emissions_CO2BIO_P2_V3_English. This file represents the forest at the beginning of the current monitoring. (These areas are the result of adjusting the post-registration changes)

   On the other hand, the shapefile **Bosque_AP_Monitoreo_2021_2023_V3.shp**, with an area of **18347.7 ha**, corresponds to the area monitored at the end of the monitoring period and is found in cell **G6 (AREDD+project, 2)** of the same tab and document.

   The value of **Bosque_AP_Monitoreo_2021_2023_V3.shp** was modified in this round due to clarification 26. Where, conservatively, and to avoid overestimations, road and housing infrastructure zones were included as transformation, which increased the project's emissions in the current monitoring period and reduced the mitigation results.

2. The Wetlands Geodatabase is located at the following path: (Annexes / 8. Geospatial / 8.2. Wetland/ 8.2.1. Geodatabase_Humedales / HUMEDALES CO2BIO P2 V3.gdb)
   https://drive.google.com/drive/folders/185THbqSMhmsRc50GImtuOrQLZ4BQ4ESu

   The Area 52553.5 ha for wetlands, similar to the case of forests, is extracted from the shapefile Humedales_AP_Monitoreo_2020_2022_V2.shp (Annexes / 8. Geospatial / 8.2. Wetland/ 8.2.1. Geodatabase_Humedales / HUMEDALES CO2BIO P2 V3.gdb/ Area_de_Proyecto / Humedales_AP_Monitoreo_2020_2022_V2.shp). This area corresponds to the existing wetland area at the beginning of the current monitoring period and is recorded in cells **F6:F8 (19.1 Annual land use change in the project area, A1)** of the sheet "**5. Monitoring\Wetlands 2023**" of Annex 7 Emissions_CO2BIO_P2_V3_English.

   The shapefile Humedales_AP_Monitoreo_2022_2023_V3.shp, with an area of 52,312.0 ha, represents the end of the current monitoring period. This value is recorded in cell G6:G8 (**19.1 Annual land use change in the project area, A2**) of the same document. It is important to note that the value of the shapefile Humedales_AP_Monitoreo_2022_2023_V3.shp was modified during this round taking into the account the clarification of the 26th.

Documentation provided by project participant	
1. **GDB WEDLANDS:** https://drive.google.com/drive/folders/185THbqSMhmsRc50GImtuOrQLZ4BQ4ESu	
DOE assessment	**Date:** 02/06/2025

PH addressed the discrepancy by explaining that 18,437.1 ha represents the forest area at the start of the monitoring period, while 18,347.7 ha is the adjusted area at the end, reflecting the exclusion of non-eligible areas (roads and settlements). This explanation aligns with BCR0002 requirements for accurate reporting.

The PH provided a functional link to the Wetlands database, addressing the second request. The reported wetland areas (52,553.5 ha to 52,312.0 ha) are consistent with prior responses and BCR0004 requirements.

The conservative adjustment (exclusion of non-eligible areas) ensures compliance with BCR standards.

The PH has clarified the forest area discrepancy and provided a functional link to the Wetlands database, ensuring compliance with BCR0002 and BCR0004 requirements. The CL 25 is closed.

CL ID	25	**Section no.**		**Date :** 16/05/2025
Description of CL				

During the review of the Post-Registration changes for the current verification period, it was noted that out of 124 property plots within the project boundary, 3 plots contain urban settlements and roads across 33 of them. According to the BCR Standard and applicable methodologies (BCR0002 and BCR0004), areas such as urban settlements and roads are generally considered non-eligible for inclusion in carbon accounting, as they do not contribute to forest or wetland carbon stocks, GHG emission reductions, or removals.

1) The PH is requested to provide clarification of how the 3 property plots containing urban settlements and roads (spanning 33 plots) have been identified and delineated within the project boundary.

2) The PH is requested to confirm whether these non-eligible areas have been excluded from the carbon accounting (e.g., baseline calculations, GHG reductions/removals, and monitoring) for both forest (REDD+) and wetland components of the project. If not excluded, PH should provide a justification for their inclusion, supported by references to the BCR Standard or methodologies (BCR0002 and BCR0004).

Project participant response	**Date : 24/05/2025**

Due to the scale of the work, the minimum mappable area, and the inputs for the interpretation and classification of land cover (which defined the eligible project areas validated for activities BCR 0002 and BCR 0004), some areas corresponding to temporary roads and houses were included within the project areas, both in the baseline and in the areas to be monitored during the quantification period, without having been identified in previous verifications.

In this sense, considering that these artificialized areas are identified as project areas from the baseline, and conservatively to avoid any overestimation in the present monitoring period, they are counted as deforestation (for activities BCR0002) or land-use change (for Activities BCR0004). As follows.

Based on the visual interpretation of Sentinel-2 images (10 m/pixel), land-use conversion was identified in areas where the BCR0002 and BCR0004 methodologies are implemented. This transformation, due to the presence of infrastructure (housing, airstrips, and roads), was recorded in the REDD and Wetland geodatabases, within the Infrastructure Feature Dataset.

This Feature Dataset consists of three layers:

- **Puntos Infraestructura:** (point shapefile) Contains the precise location of settlements (housing), airstrips, departmental roads, and tertiary roads connecting properties.
- **Vía Area Proyecto:** (line shapefile) Represents the identified routes, with the attribute Tipo Vía specifying whether they are departmental or tertiary.
- **Infraestructura:** (polygon shapefile) Delimits the total area occupied by the infrastructure, generated from the previously mentioned points and lines.

Durante el actual periodo de monitoreo, la infraestructura vial y los asentamientos o casas identificadas fueron clasificados como áreas transformadas, excluyéndose así de las áreas de las actividades **BCR0002** y **BCR0004**.

- Esta transformacion de la cobertura se registró en la geodatabase, la cual reporta **18347,7 ha** de bosque. El mismo ajuste se encuentra en el anexo 7, hoja **4. Monitoring_REDD+_2022-2023**, celda **G6** (AREED+project, 2), del documento Emissions_CO2BIO_P2_V3_English.
- Un procedimiento similar se aplicó al componente de humedales. La geodatabase **Humedales / Área de Proyecto /Humedales_AP_Monitoreo_2022_2023_V3.shp** indica un total de **52312 ha**. Este valor fue actualizado en la hoja **5. Monitoring_Wetlands 2023** del mismo anexo, celdas **G6:G8** (19.1 Annual land use change in the project area, A2).During the current monitoring period, the road infrastructure and the identified settlements or houses were classified as transformed areas, thus being excluded from the areas of activities **BCR0002** and **BCR0004**.
- This transformation of the coverage was recorded in the geodatabase **REDD /Áreas de Proyecto /Bosque_AP_Monitoreo_2021_2023_V3.shp**, which reports **18347.7 ha** of forest. The same adjustment can be found in Annex **7 Emissions_CO2BIO_P2_V3_English, sheet 4. Monitoring_REDD+_2022-2023**, cell **G6** (AREED+project, 2)
- A similar procedure was applied to the wetland component. The geodatabase **Wetlands / Project Area /Wetlands_AP_Monitoring_2022_2023_V3.shp** indicates a total of **52312 ha**. This value was updated in sheet **5. Monitoring_Wetlands 2023** of the same annex, cells **G6:G8** (19.1 Annual land use change in

the project area, A2). As a result of this adjustment, the project's emission reduction results changed from 511,640 tCO2eq to 507,429 tCO2eq.
Documentation provided by project participant

DOE assessment	**Date:** 02/06/2025
PH explains that due to the scale of work and land cover classification, temporary roads and houses were included in the project areas (baseline and monitoring) but not identified in prior verifications. These areas were identified via visual interpretation of Sentinel-2 images (10 m/pixel) and recorded in the Infrastructure Feature Dataset (point, line, and polygon shapefiles: Puntos Infraestructura, Vía Area Proyecto, Infraestructura). The areas were classified as transformed (deforestation for BCR0002, land-use change for BCR0004) and excluded from the project areas, resulting in 18,347.7 ha for forests and 52,312.0 ha for wetlands, recorded in Annex 7. The mitigation results decreased from 511,640 tCO2eq to 507,429 tCO2eq. The VVB has accessed and reviewed the files as per the CL requirements and confirms that the PH's adjustments align with the BCR methodologies (BCR0002 and BCR0004), particularly in terms of project boundary delineation, exclusion of non-eligible areas, and conservative carbon accounting. As such, the response is sufficient, hence the CL is closed.	

CL ID	26	**Sección no.**	6	**Date :** 14/05/2025
Description of CL				
In Section 6 of the Monitoring Report, under Climate Change Adaptation, the project holder has provided supporting links to activities conducted during the 2022–2023 monitoring period. However, the progress achieved during this specific period is not clearly expressed as a percentage. The project holder is requested to clarify and update the progress percentage in accordance with the applicable criteria and compliance requirements				
Project participant response				**Date : 24/05/2025**

According to BCR standard criteria, adaptation actions should be derived from project activities. In this sense, the project activities that contribute to the implementation of adaptation actions are listed. The results of the monitoring period were incorporated according to these criteria in column 4 of table 10 climate change adaptation. The detailed progress of these activities is also described in section 13.1.1, "Progress of project activities".
Documentation provided by project participant
BCR_Monitoring Report CO2Bio P2_Verificacion3_V.1.2

DOE assessment	**Date:** 02/06/2025
VVB has reviewed the Project holder response regarding the clarification of progress under the Climate Change Adaptation section. The Project Participant has explained, in accordance with BCR standard criteria, adaptation actions are derived from broader project activities with supporting documents. They have clarified that the results for the 2022–2023 monitoring period have been incorporated into Column 4 of Table 10, hence this issue is successfully closed.	

CL ID	27	**Section no.**	PRR	**Date :** 30/06/2025
Description of CL				
The project holder is requested to clarify how uncertainty was assessed and addressed in the calculation of emission reductions or removals. PP is requested to provide supporting calculations, error propagation methods, or justification for the confidence in input data such as emission factors, land cover classification accuracy, or biomass estimates. The project proponent should provide a quantitative assessment of uncertainty for relevant parameters (eg. Emission Factors, Land cover classification accuracy, Biomass data) . This may include metrics such as standard deviations, confidence intervals, or relative error estimates, along with an explanation of how uncertainty was accounted for in the final emission reduction estimates.				
Project participant response				Date : 01/07/2025

In Section 13.1.4 of the Monitoring Report, the approach adopted by the project for uncertainty management is described in detail, in accordance with methodologies BCR0002 (Section 13.1) and BCR0004 (Section 15). These methodologies state that "uncertainty must be managed based on the accuracy of the maps used to estimate activity data, as well as through the application of discounts to emission factors."

During the current monitoring period, a rigorous approach was applied to manage uncertainty associated with both activity data and emission factors. This information was updated with auditable inputs and supporting evidence, as documented in the PDD: Section 3.5 Uncertainty Management, and in the Monitoring Report for Verification 3, specifically in: 13.1.4.1 Activity Data Uncertainty and 13.1.4.2 Uncertainty of Emission Factors, as detailed below:

Activity Data Uncertainty (Section 13.1.4.1 of the Monitoring Report)
For activity data, the maps used are required to have an accuracy greater than 90%. In the case of the REDD+ component, the area covered by natural forest for the year 2023 was modeled and validated using the QGIS plugin AcATaMa, specifically designed for this purpose. The validation process included the application of the AcATaMa Instructions, the Inventory Design and Classification Model Validation Procedure, and the Guide for Viable Area Verification (see folder 8. Geospatial).

The validation consisted of comparing the land cover classification results with a set of reference data, including in situ observations and high-resolution satellite imagery, or, if unavailable, imagery with higher resolution than those used to generate the original classification.

For the year evaluated, AcATaMa generated a confusion matrix that enabled the calculation of evaluation metrics such as Overall Accuracy. The natural forest cover map for 2023 achieved an accuracy of 96.0%, exceeding the minimum required threshold.

For the wetlands component, a confusion matrix was also used, specifically designed for the 2023 land cover map. The computer-assisted interpretation was compared with in situ observations and high-resolution satellite imagery from sensors such as WorldView 2 (spatial resolution: 0.30 m/pixel) and Sentinel 2 (spatial resolution: 10 m/pixel). The accuracy achieved was 98.8%.

Emission Factor Uncertainty (Section 13.1.4.2 of the Monitoring Report)
For emission factors, the same values that were validated and used in previous verifications were applied. These values have an estimated uncertainty of less than 10%. They were calculated in accordance with the applied methodology and are still considered valid, as there have been no contextual changes that would affect their representativeness.

The procedures and information related to emission factor uncertainty, in accordance with both the BCR0002 and BCR0004 methodologies, are described and updated in the PDD (CO2Bio Project 2, Version 2.1), Section 3.5, and are again annexed as technical support in order to strengthen the traceability and methodological consistency of the document. These procedures include statistical validation of data sources and the application of conservative adjustments to the values used, ensuring the robustness and reliability of the emission reduction estimates.

Documentation provided by project participant

PDD Co2BIo Proyecto 2 V2.1

- 2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / PDD Co2BIo Proyecto 2 V2.1 (Section 3.5)
- 2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / 9.1.1 Anexos DP / 12. Emisiones / Humedales / 1.CALCULOS
- 2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / 9.1.1 Anexos DP / 12. Emisiones / Humedales / 2.DATOS CAMPO
- 2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / 9.1.1 Anexos DP / 12. Emisiones / Humedales / 3.LABORATORIO
- 2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / 9.1.1 Anexos DP / 12. Emisiones / REDD+ / 1.FORMATOS ODK
- 2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / 9.1.1 Anexos DP / 12. Emisiones / REDD+ / 2. DATOS BIOMASA
- 2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / 9.1.1 Anexos DP / 12. Emisiones / REDD+ / 3. Ubicación y registro fotográfico de la parcelas CO2BIO

Monitoring Report

REDD+:

- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.1. Geodatabase_REDD+ / Diccionario Datos cartográficos GDB REDD CO2BIO P2 V3 / Pag. GDB REDD CO2BIO P2 - REDD CO2BIO P2 V3.gdb - Observaciones_Insitu: Puntos_Validacion_AcATaMa; Puntos_REDD_ODK y SET_Puntos_verificacion_OVV.
- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.1. Geodatabase_REDD+ / REDD CO2BIO P2 V3.gdb
- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.2. AcATaMa / 8.1.2.1. Información Geográfica
- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.2. AcATaMa / 8.1.2.2. Validación del Modelo BNB 2023 a partir de datos de campo - AcATaMa
- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.2. AcATaMa / 8.1.2.3. validacion Acatama BnB2023 CO2BIO P2-Results
- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.3. Procedimientos / GOG-01 Guía para verificación de áreas viables.docx
- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.3. Procedimientos / GOG-26. Instructivo AcATaMa.docx

- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.3. Procedimientos / Validación del Modelo de Clasificación a partir de datos de campo

- 2. Anexos / 8. Geoespacial / 8.1. REDD / 8.1.3. Procedimientos / ProcedimientoAcatama.png

Wetlands:

- 2. Anexos / 8. Geoespacial / 8.2. Humedales / 8.2.1. Geodatabase_Humedales / Diccionario Datos cartográficos GDB HUMEDALES CO2BIO P2 V3 / Pag. GDB HUMEDALES CO2BIO P2 - HUMEDALES CO2BIO P2 V3.gdb - Validación_MatrizConfusion: Puntos_validación y Puntos_Humedaes_ODK.

- 2. Anexos / 8. Geoespacial / 8.2. Humedales / 8.2.1. Geodatabase_Humedales / HUMEDALES CO2BIO P2 V3.gdb

- 2. Anexos / 8. Geoespacial / 8.2. Humedales / 8.2.2. Procedimientos / 8.2.2.1. FC-GOG-29. INSTRUCTIVO INTERPRETACIÓN DE CLC- ESCALA 100.000

- 2. Anexos / 8. Geoespacial / 8.2. Humedales / 8.2.2. Procedimientos / FC-GOF-09 Control de Calidad de La Interpretación de CLC 2023 - CO2BIO P2 V3-2.xlsx - Hoja1

- 2. Anexos / 8. Geoespacial / 8.2. Humedales / 8.2.2. Procedimientos / FC-GOG-23. Matriz de Confusion

- 2. Anexos / 8. Geoespacial / 8.2. Humedales / 8.2.3. Matriz Validacion Coberturas / Validación del Modelo de Clasificación a partir de datos de campo en humedales

- 2. Anexos / 8. Geoespacial / 8.2. Humedales / 8.2.3. Matriz Validacion Coberturas / Matriz de validacion CLC 2023

DOE assessment	Date: 11/07/2025

PH has satisfactorily addressed the clarification by providing a quantitative uncertainty assessment aligned with Section 13.1.4 of the Monitoring Report and Section 3.5 of the PDD. Earthood confirms that:

- Activity Data Uncertainty was managed using confusion matrix-based validation of land cover maps generated via the AcATaMa tool for REDD+ and through high-resolution imagery for wetlands. Achieved classification accuracies (96.0% for REDD+ and 98.8% for wetlands) exceed the required threshold of 90%.

- Emission Factor Uncertainty was addressed through use of emission factors with less than 10% uncertainty, consistent with previously validated values and supported by statistical justification and conservative adjustments.

- Supporting documentation and annexed data files were reviewed, including field verification records, GIS procedures, and laboratory/ODK datasets. Based on this assessment, the verification team concludes that the project applied a transparent and methodologically consistent approach to uncertainty management, in line with the requirements of ISO 14064-3:2019, BCR Standard v3.4 (Section 22.3), and the relevant methodologies (BCR0002 and BCR0004).

Clarification closed. No further action required.

CL ID	27	Section no.		Date : 30/06/2025
Description of CL				
The project holder is requested to provide a detailed account of the percentage deduction applied in accordance with the "Permanence and Risk Management" tool, as required under the BCR Standard for AFOLU projects with a clear justification for how each of the relevant risk categories: social, environmental, and financial risk were identified, evaluated, and addressed within the framework of the tool. In addition, the project proponent is requested to provide a comprehensive evaluation of the risk assessment and management process implemented for the project. This evaluation should demonstrate the identification of potential risks associated with the project's activities, an assessment of their likelihood and potential impact, and a description of the specific measures undertaken to mitigate or manage these risks effectively. The project holder should detail the methodology and procedural steps followed in the application of the "Risk and Permanence" tool, including the approach used to quantify long-term risks to the permanence of emission reductions or removals. The response should clearly establish that the tool was applied in full alignment with the relevant methodological guidance and standards, and should provide a rationale for the adequacy and justification of the resulting risk buffer or any other safeguard measures employed.				

Project participant response	Date : 01/07/2025
In compliance with the criteria established in the BCR tool, version 1.1 of the "Risk and Permanence Management" tool, dated March 19, 2024, was used up until May 2025. However, following the release of the updated version 2.0 on June 3, 2025, the reversal risk analyses were revised accordingly. Based on this update, the CO2Bio Project 2 has implemented various strategies to ensure the permanence of project activities and benefits. As a result of the assessment of the five risk categories (legal/tenure, environmental, financial/operational, governance/political, and social/stakeholder), the project obtained a final weighted average score of 1.13, which corresponds to a low-risk level. This justifies a 10% contribution to the buffer pool, in line with the standard's guidelines (scores ≤ 2.5). This outcome demonstrates effective risk management, supported by clear legal structures, low exposure to natural disturbances, financial and operational stability, and strong relationships with stakeholders. All of these actions are aligned with REDD+ Safeguards. The analyses are detailed in the corresponding sections of the PDD: Section 3.6 Leakage and Non-Permanence and Section 7 Risk Management, as well as in the Monitoring Report for Verification 3, specifically in Sections 13.1.3 Leakage and Non-Permanence Risk Management and 11.6.1 F13 Environmental and Territorial Management.	
Documentation provided by project participant	
2. Anexos / 9. Post-Registration Changes to the Project / PDD ACTUALIZADO / 9.1. Project Design Document Update / 9.1.1 Anexos DP / 10. Gestión del riesgo / Aneex 1. BCR_risk-and-permanence 2. Annexes / 3. Safeguards Compliance / Safeguard F / F13 - Ordenamiento ambiental y territorial / Aneex 1. BCR_risk-and-permanence	
DOE assessment	Date: 11/07/2025
PH has revised the risk assessment in line with the updated BCR Risk and Permanence Tool v1.1 (March 2025). The DOE confirms that: The project assessed all five mandatory risk categories (legal/tenure, environmental, financial/operational, governance/political, and social/stakeholder) and obtained a weighted risk score of 1.13, corresponding to low-risk classification. A 10% buffer deduction was applied appropriately based on tool guidance for scores ≤ 2.5. The methodology used was consistent with BCR v3.4, including structured scoring matrices and justification for all risk assumptions. Supporting documentation was provided through the PDD, Monitoring Report and detailed Annex 1 Risk Tool Application File. The risk mitigation strategies outlined: such as tenure security, stakeholder engagement, ecological restoration, and adaptive project design are considered robust. Evidence of internal quality control, legal safeguards, and operational resilience was verified. Clarification closed. Risk buffer application and justifications are methodologically acceptable.	

Table 3. CAR from this validation

CAR ID	01	**Section no.**		**Date :** 21/03/2025
Description of CL				
In section 1.3 of the monitoring report, the start date is outlined as May 6, 2016, and the completion date is December 31, 2045, which results in a total duration of 29 years and 7 months. However, PH has stated the total duration as 30 years. PH is requested to make the necessary corrections in accordance with the standard and methodology.				
Project participant response				**Date : 31/03/2025**
After reviewing Section 1.3 of the monitoring report and the official project documentation, we confirm that the total project duration is **30 years**, as established in its original design. To ensure consistency with the applicable standard and methodology, we will adjust the end date in the monitoring report, so that it correctly reflects the total duration of **30 years**. This update will ensure alignment with the approved project documentation and previously reported information. It should be noted that, according to the version of the standard used at the time of the project design development (**Certification and Registration Program for GHG Mitigation Initiatives and other Greenhouse Gas Projects - Version 3.0; May 13, 2021**), it is specified that for REDD+ projects the quantification periods for emission reductions or removals GHGs must be a **minimum of 30 years and a maximum of 60 years**.				
Documentation provided by project participant				
DOE assessment				**Date:** DD/MM/YYYY

The VVB has reviewed the original project documentation, wherein the project completion date is clearly stated as 31 December 2045. The Project Holder cannot disregard or modify information presented in the original approved document. The VVB requests the Project Holder to clarify the reason for the inconsistency between the Project Document (PD) and the Monitoring Report (MR) regarding the stated project completion date.#OPEN
Project participant response **Date : 31/03/2025**
Due to the identified inconsistency, the guidelines specified in section 27 of the BCR standard will be used: According to section 27 of the Biocarbon Standard version 3.4. "Registered project proponents must demonstrate continuous project improvement, with the highest quality, as well as up-to-date and real information. The project proponent must identify any suggested or implemented modifications to the way in which the GHG project is carried out, operated or monitored. Finally, the project proponent must follow the guidelines contained in section 14.5 of the "Standard Operation Procedures: Changes after the GHG Project validation". Below are the applicable criteria and requirements in accordance with the BCR Standard, taking into account the changes that have occurred in the current monitoring period. **Section 14.5.2 Permanent changes** **Section 14.5.2.1. Corrections:** Here the correction is related to the end date of the accreditation period. Before December 31, 2045, now May 5, 2046. This correction is also mentioned in CL No 6.
Documentation provided by project participant
DOE assessment
The VVB has reviewed Section 1.3 and confirmed that the start date is aligned with the Project Description and BCR standard. Therefore, this issue is considered closed.

• *Annex 3. Documentation review*

S.No	*Document Title / Version*	*Author*	*Organization*	*Document provider (if applicable)*
1	BCR_Monitoring-Report Version 2.2	Fundación Cataruben	Fundación Cataruben	NA
2	Quantification Of GHG Emission Reduction In REDD+ Projects (BCR0002) . Version 3.1. September 15, 2022.	Biocarbon Standard	Biocarbon Standard	Biocarbon Standard
3	BCR0004 Quantification of GHG Emission Reduction and Removal. Version 2.0 23 June 2022.	Biocarbon Standard	Biocarbon Standard	Biocarbon Standard
4	KML Files (Geospatial Data) Geodatabase_REDD > REDD CO2BIO P2 V3.gdb > Area_de_Proyecto > Bosque_AP_Monitoreo_2020_2021_V2.shp	Fundación Cataruben	Fundación Cataruben	NA
5	BCR Standard V3.4	Biocarbon Standard	Biocarbon Standard	NA
6	ISO 14064-3:2019	International Organization for Standardization	International Organization for Standardization	International Organization for Standardization
7	ISO 14064-2:2019	International Organization	International Organization	International Organization

		for Standardization	for Standardization	for Standardization
8	SDG Tool Version 1.0 Of June 27, 2023	Biocarbon Standard	Biocarbon Standard	Biocarbon Standard
9	Biocarbon Standard Greenhouse Gas (GHG) Program	Biocarbon Standard	Biocarbon Standard	Biocarbon Standard
10	Records Of Communication with Ecosystem Managers	Fundación Cataruben	Fundación Cataruben	NA
11	Project Social Media Channels (Instagram, Facebook, Youtube)	Fundación Cataruben	Fundación Cataruben	NA
12	PQRS System (Complaints and Requests Tracking)	Fundación Cataruben	Fundación Cataruben	NA
13	Videos, Presentations, Posts, And Posters (Awareness Materials)	Fundación Cataruben	Fundación Cataruben	NA
14	Activity Report G.1	Fundación Cataruben	Fundación Cataruben	NA
15	Compatibility Matrix	Fundación Cataruben	Fundación Cataruben	NA
16	RENARE Webpage and Documents	Fundación Cataruben	Fundación Cataruben	NA
17	Carbon Emission Certificates	Fundación Cataruben	Fundación Cataruben	NA
18	Management Reports	Fundación Cataruben	Fundación Cataruben	NA
19	Account Statements	Fundación Cataruben	Fundación Cataruben	NA
20	Sirap	Fundación Cataruben	Fundación Cataruben	NA
21	Governance Statergy	Fundación Cataruben	Fundación Cataruben	NA
22	Training Records on Alternative Water Solutions	Fundación Cataruben	Fundación Cataruben	NA
23	Training Records On REDD+ Safeguards	Fundación Cataruben	Fundación Cataruben	NA
24	Non-Timber Forest Products	Fundación Cataruben	Fundación Cataruben	NA
25	Training Records on Carbon Monitoring	Fundación Cataruben	Fundación Cataruben	NA
26	Training Records on Community Management of Illegal Logging Threats	Fundación Cataruben	Fundación Cataruben	NA

27	Training Records on the Importance of Wetlands and Meliponiculture	Fundación Cataruben	Fundación Cataruben	NA
28	Training Records on Biodiversity+Carbon+Water Forum 2023	Fundación Cataruben	Fundación Cataruben	NA
29	Training Records On Biodiversity and Climate Change	Fundación Cataruben	Fundación Cataruben	NA
30	Resolución Número St- 0003 De 05 Ene 2022	Fundación Cataruben	Fundación Cataruben	NA
31	Management Report on The Delivery of Economic Benefits – CO_2Bio P2	Fundación Cataruben	Fundación Cataruben	NA
32	Bioacoustic Monitoring Report	Fundación Cataruben	Fundación Cataruben	NA
33	Reports On Monitoring High Conservation Values	Fundación Cataruben	Fundación Cataruben	NA
34	Non-Forest Conversion Maps	Fundación Cataruben	Fundación Cataruben	NA
35	Certificado Cormacarena	Fundación Cataruben	Fundación Cataruben	NA
36	Linkage Agreement to CO_2	Fundación Cataruben	Fundación Cataruben	NA
37	Leak Identifcation and Evalution	Fundación Cataruben	Fundación Cataruben	NA
38	Leak Analysis Doc	Fundación Cataruben	Fundación Cataruben	NA
39	Sampling And Audit Plans	Earthood	Earthood	NA
40	PDD version 2.1.	Fundación Cataruben	Fundación Cataruben	NA
41	BCR Rules And Guidelines	Biocarbon Standard	Biocarbon Standard	NA
42	Site Visits, Interviews	Earthood	Earthood	NA
43	124 Properties Contracts	Fundación Cataruben	Fundación Cataruben	NA
44	GHG Emission Calculation	Fundación Cataruben	Fundación Cataruben	NA
45	Different Registries Webpages	-	-	NA
46	Activities Report SDG6.1.1	Fundación Cataruben	Fundación Cataruben	NA
47	Report On the Monitoring of High Conservation Values	Fundación Cataruben	Fundación Cataruben	NA

48	Reports Of Women Owners In Management Position	Fundación Cataruben	Fundación Cataruben	NA
49	Co-Benefit Plan	Fundación Cataruben	Fundación Cataruben	NA
50	Filing Of the Right to Petition	Fundación Cataruben	Fundación Cataruben	NA
51	Emission Sources	Fundación Cataruben	Fundación Cataruben	NA
52	Basis Data	Fundación Cataruben	Fundación Cataruben	NA
53	Capacity Building	Fundación Cataruben	Fundación Cataruben	NA
54	Procedure FC-GPP_026	Fundación Cataruben	Fundación Cataruben	NA
55	Meeting Records with Stakeholder	Fundación Cataruben	Fundación Cataruben	NA
56	Co- Benefits Monitoring Plan	Fundación Cataruben	Fundación Cataruben	NA
57	Governance Statergy Progress Report	Fundación Cataruben	Fundación Cataruben	NA
58	Government Strategy Version	Fundación Cataruben	Fundación Cataruben	NA
59	Report On Heat Spot Monitoring	Fundación Cataruben	Fundación Cataruben	NA
60	Monitorng Of Property Implementation Plans	Fundación Cataruben	Fundación Cataruben	NA
61	Sustainable Production Practices	Fundación Cataruben	Fundación Cataruben	NA
62	Monitoring Of High Conservative Values	Fundación Cataruben	Fundación Cataruben	NA
63	Water Management Program Progress Report	Fundación Cataruben	Fundación Cataruben	NA
64	Water Management Program- Co2bio Project 2	Fundación Cataruben	Fundación Cataruben	NA
65	Validación del Modelo BNB 2003 a partir de datos de campo & AcATaMa files CO2BIO Vector files, Raster files	Fundación Cataruben	Fundación Cataruben	N/A

• *Annex 4. Abbreviations*

Abbreviations	*Full texts*
AFOLU	Agriculture, Forestry, and Other Land Use
BCR	Biocarbon Standard
UNFCC	United Nations Framework Convention on Climate Change
PD	Project document
MR	Monitoring Report
GHG	Greenhouse Gas
ERR	Emission reduction and removals
CO_2	Carbon dioxide
CL	Clarification request
CAR	Corrective action request
PH	Project Holder
SOP	Standard Operating Procedure
TR	Technical Reviewer
TA	Technical Area Expert
VVB	Validation/Verification Body
BE	Baseline emissions
PE	Project emission

SDG	Sustainable development goals

• *Annex 5. Site visit documentation*

Forest:

ID PROPERTY	PROPERTY	AREA Predio Ha	VEREDA	MUNICIPALITY	DEPARTMENT	COMPONENT	REDD Monitoreo V3 (2021-2023) Ha	WETLAND Monitoreo V3 (2022-2023) Ha	LATITUD	LONGITUD	STRATIFICATION REDD	FOREST PLOTS	STRATIFICATION WETLANDS	PLOTS AND SAMPLING POINTS WETLANDS	Random Numbers
CO2P2-0107	NOME NOME	1125.57	SUNI	HATO COROZ	CASANARE	REDD + HUMEDA	266.0	70.3	06° 12' 1.83" N	071° 26' 4.39" W	Forest		Herbaceous		
CO2P2-0114	CANTACLARO	1378.00	SAN NICOLAS	HATO COROZ	CASANARE	REDD + HUMEDA	157.9	730.3	06° 05' 35.65" N	071° 23' 3.21" W	Forest		Herbaceous		
CO2P2-0058	LA CIEGA, LOS	1340.56	EL LORO	TRINIDAD	CASANARE	REDD	1008.6	0	05° 11' 26.23" N	070° 51' 8.18" W	Forest		No Wetlands		0.308206073
CO2P2-0092	YOPITOS	767.21	SAN TEODOR	PUERTO CARR	VICHADA	REDD	125.5	0	04° 57' 7.67" N	070° 26' 42.42" W	Forest		No Wetlands		0.048926919
Buffer:															
CO2P2-0085	CANAGUAY	332.04	CENTRO GAIT	PAZ DE ARIPO	CASANARE	REDD	125.8	0	05° 31' 14.22" N	071° 01' 34.11" W	Forest		No Wetlands		0.56658405
CO2P2-0089	EL TAUTACO	100.35	PALMARITO	SAN LUIS DE	CASANARE	REDD	78.6	0	05° 18' 55.29" N	071° 39' 2.77" W	Forest		No Wetlands		0.484692246

Wetland:

ID PROPERTY	PROPERTY	AREA Predio Ha	VEREDA	MUNICIPALITY	DEPARTMENT	COMPONENT	REDD Monitoreo V3 (2021-2023) Ha	WETLAND Monitoreo V3 (2022-2023) Ha	LATITUD	LONGITUD	STRATIFICATION REDD	FOREST PLOTS	STRATIFICATION WETLANDS	PLOTS AND SAMPLING POINTS WETLANDS	Random Numbers
CO2P2-0005	LLANO LINDO	616.63	EL CAFE	HATO COROZ	CASANARE	HUMEDALES	0.0	615.1	06° 08' 41.01" N	070° 56' 18.77" W	No Forest		Herbaceous		0.019807922
CO2P2-0050	RNSC VALLED	293.81	PORVENIR DE	TRINIDAD	CASANARE	HUMEDALES	0.0	217.8	05° 18' 48.61" N	070° 50' 20.42" W	No Forest		Herbaceous		0.998637409
CO2P2-0010	EL BORINQUE	1449.99	PAVANAY	SANTA ROSAL	VICHADA	HUMEDALES	0.0	408.3	05° 05' 18.52" N	070° 42' 14.9" W	No Forest		Herbaceous		0.508974262
CO2P2-0001	LOS AZULEJOS	400.09	LA LADERA	SANTA ROSAL	VICHADA	HUMEDALES	0.0	399.6	05° 00' 14.54" N	070° 41' 15.68" W	No Forest		Herbaceous		0.070816207
Buffer															
CO2P2-0072	CURIMAGUA	680.51	LOS MORICHE	PAZ DE ARIPO	CASANARE	HUMEDALES	0.0	484.4	05° 53' 0.98" N	070° 45' 13.19" W	No Forest		Herbaceous	Twelve (12)	0.342346901
CO2P2-0044	COROCORO	784.30	EL DESIERTO	PAZ DE ARIPO	CASANARE	HUMEDALES	0.0	713.1	05° 48' 40.22" N	070° 45' 36.48" W	No Forest		Herbaceous - Dispersed		0.301706344

Figure 1 Sampled plots for Forest and Wetland

Earthood

~~CDM.F.56W~~. Attendance Audit

Project number (ESPL internal): BCR.VER.24.22

~~GHG~~UNFCCC project number : **PCR-CO-635-141-002**

Date/s of audit : **10/2/2025**

Site visit number : **Third Verification**

Attendance Audit				
First Name	Surname	Affiliation	Signature	
			Opening meeting	Closing meeting
			DD/MM/YYYY	DD/MM/YYYY
Ludy	Perez	Líder Jurídico	10/02/2025.	10/02/2025
Marcela	Sánchez	Líder Fidelización	10/02/2025.	10/02/2025.
Sara	Rodríguez	Líder iniciativa	10/02/25	10/02/25.
Benilda	Granados	Gestor Jurídico	10/02/202	10/02/25.
Paola	Acevedo	Gestor Geoespacial	10/02/2025	10/02/25
Felipe	Ciwamia	Líder Geoespacial	10/02/2025	10/02/2025
Jhoan	Martinez	Gerente Geoespacial	10/02/2025	10/02/2025.
Laura	Rojas	Gestor Incentivos Económicos	10/02/2025	10/02/2025
Daniel	Ospina	Líder de Iniciativa.	10/02/2025	10/02/2025.

Figure 2 Attendance sheet

Project title: CO2 Bio
Scope of work: Third Verification Biocarbon

S.No.	Name
1.	CO2 Bio
2.	Biocarbon
3.	Project participants: Cataruben The stakeholders Involved are: Cantaclaro – Property owner

Key stakeholder groups

Stakeholder	Importance of the stakeholder for the progress of the project
Julio Fernandes	High

Stakeholder Interaction

Date: 12/2/2025

Questions	Comments
Kindly confirm your identity and the role in this project activity.	Property owner of Cantaclaro
Were you involved in the stakeholder consultation process, if yes, how, and when were you invited to the consultation?	Yes. He entered the project because another property owner let him know about the existence of the projet.
What was discussed during the consultation. Did the project developer explain the non-technical summary in local language?	They explained about the project and the results of conservation and the carbon market.
Did you raise any concerns during the consultation, if yes, was it resolved.	Yes. He raised concerns about the carbon market but they all addressed by Cataruben. He raised questions about the time they receive the values coming from the commercialization from the credits.
Have the stakeholder been clearly explained about the project costs, risks, and benefits?	Yes.
Do you have any concerns/grievances about the current project? Also, have you received any from the community members.	No.
How were stakeholders informed for the current site visit? How PP confirmed their availability?	He was told by a telephone call. Every month they have virtual calls and one of these virtual call they explained about the visit as well and how the verifications works. Training to use their recources. Legal training. Governance.
How are you supporting the project?	Monitoring activities. Fires ceasefires systems. Control the entrance of people in the area.
Additional comments, if any	They created two houses to host volunteer tourists in the region after the project. He expects to grow this type of tourism. Expect the project to continue.

Figure 3 Sample of one stakeholder interaction record

Figure 4 Site visit photograph

Date	Hours	Name of team member	Activity details	Comments
10/02/2025	08:00 to 17:00 (Local time)	Olto Jimenez Castellanos and Max Almeida	**Opening Meeting**: Introduction, scope and objective of work, roles and responsibilities of audit team, resources required, and timetable of the onsite audit including venue for closing meeting and any concerns from PP.	
			Project Activity (Technology, Location and Implementation)	
			Choice and applicability of baseline methodology(ies)	
			Project boundary and emission sources included in the project boundary.	
			Baseline identification	
			Additionality of the project activity (Baseline alternatives, carbon consideration, identified barriers, Common Practice analysis)	
			Parameter fixed Ex-ante and Baseline emissions, Project emissions and Leakage calculation	
			Review of evidence and supporting documents	
			Monitoring plan (QA/QC procedures, responsibility of implementation of monitoring plan, data recording & storage procedures)	
			Start date of the project activity, Crediting period, monitoring period	
			Local Stakeholder Consultation process, feedbacks, interviews with local stakeholders, SDG Contributions, AFOLU safeguards	
			Management and operational system: Documentation, allocation of responsibilities, qualification and	

			training, data recording &archiving, internal audit and management review and emergency procedures.	
			Verification assessment: compliance of monitoring procedures followed at project site with PD and monitoring methodology.	
			Review of monitored data and relevant document in accordance with registered monitoring plan and applied monitoring methodology.	
11/02/2025	04:00 to 18:00 (Local time)	Olto Jimenez Castellanos and Max Almeida	Visit to yopal property-Nome Nome and Interview of ecosystem managers	
			Visit to Property Cantaclaro, Hato Corozal municipality. Interview with ecosystem manager	
12/02/2025	05:00 to 19:00 (Local time)	Olto Jimenez Castellanos and Max Almeida	Visit to llano Lindo property, Harto Corozal ,interview with ecosystem manager and visit to project site	
13/02/2025	05:00 to 18:00 (Local Time)	Olto Jimenez Castellanos and Max Almeida	Visit to property Saint Andrew, Trinidad municipality.	
			Visit to San Andreas site, Interview with ecosystem managers and visit to project areas	
			Visit to Property La ciega los caracoles, Trinidad municipality and interview with ecosystem managers	
14/02/2025	05:00 to 18:00 (Local Time)	Olto Jimenez Castellanos and Max Almeida	Visit to property The boringue, Santa Rosalia Municipality, Visit to project area and interviews with project manager	
			Visit to property, Los azulejos. Visit to project site and interview with ecosystem managers	
			Visit to property Yopitos, Puerto Carreno Municipality, Visit to project site and interview with ecosystem managers	
15/02/2025	05:00 to 18:00 (Local Time)		Compilation of the site visit observations by Auditor/s (CARs/CLs)	
			Closing Meeting: Discussion on the audit findings to the client and agreement on the issues raised and agreement on timelines.	

Figure 5 Audit plan schedule

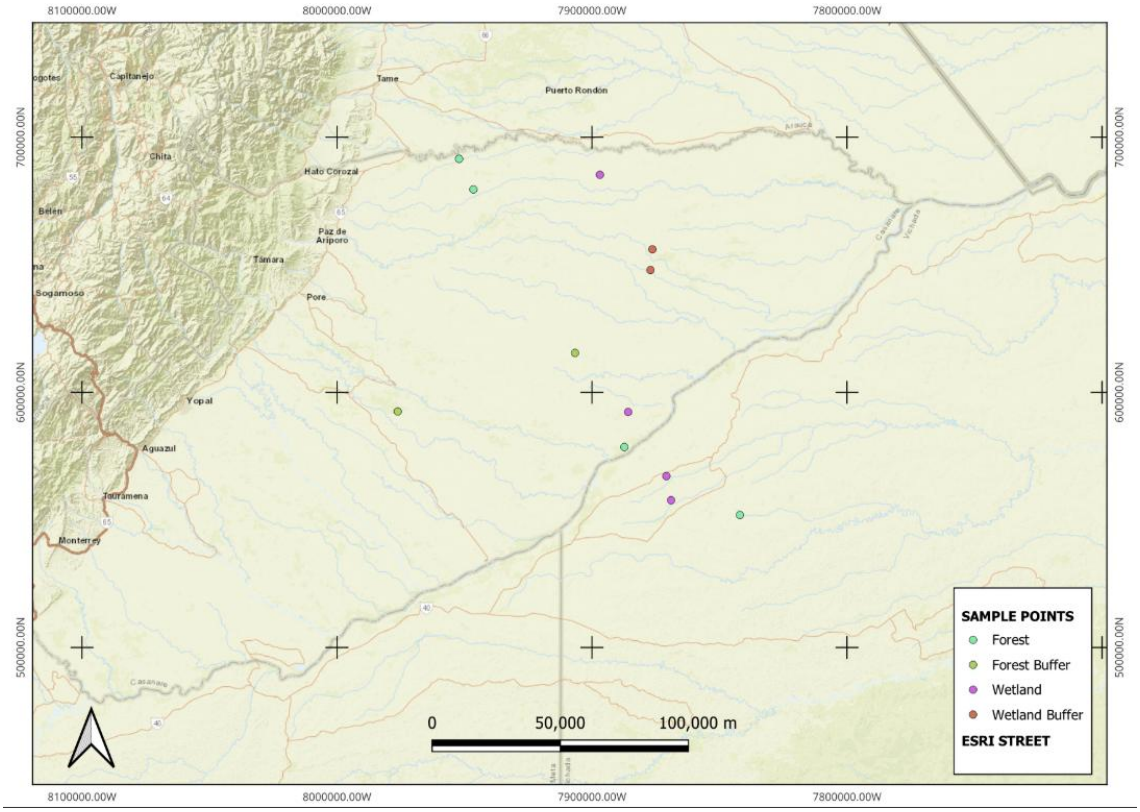


Figure 6Sample plot for visit

NOTE: This format shall be completed following the instructions included. However, it is important to highlight that these instructions are complementary to the BCR STANDARD, and the BioCarbon Validation & Verification Manual, in which more information on each section can be found