JOINT VALIDATION & VERIFICATION REPORT

ORINOCO2

BCR-CO-635-14-006

Versa Expertos en Certificación |

Validation & Verification Report	
Project Title	*ORINOCO2*
Project ID	*BCR-CO-635-14-006*
Project holder	*Fundación Cataruben*
Project Type/Project activity	*REDD+; Activities that avoid land use change of natural savannahs*
Grouped project	*Yes, it is a grouped project*
Version number of the Project Document to which this report applies	*Project description version 2.4* *Monitoring report version 2.4* *11/09/2024*
Applied methodology	*BCR0002 GHG Emissions Reductions quantification. REDD+ Projects version 4.0, May 27, 2024.* *BCR0005 GHG Emission Reductions quantification. Activities that Prevent Land Use Change in Natural Savannas version 1.0, October 21, 2022.*
Project location	*Colombia, Orinoquia,* *Meta: Puerto Gaitán, Puerto López; San Martín; Mapiripán.* *Vichada: Puerto Carreño, La Primavera, Santa Rosalía, Cumaribo*
Project starting date	*Starting date of project activities* *(01/10/2018)*

Quantification period of GHG emissions reductions/removals	*Scheduled period for quantification of GHG emission reductions/removals.* *(01/10/2018 a 31/12/2027)*
Estimated total and mean annual amount of GHG emission reductions/removals	*Total amount of GHG emissions reductions/removals (01/10/2018 a 31/12/2027).* *REDD+ Activities: 854.654 tCO2e* *Natural savanna: 675.250 tCO2e* *Estimated average annual quantity of GHG emission reductions/removals (01/10/2018 a 31/12/2027).* *REDD+ Activities: 92.395 tCO2e/año* *Natural savanna: 73.000 tCO2e/año*
Monitoring period	*From 01-October-2018 to 31-December-2022*
Total amount of GHG emission reductions/removals	*Total amount of GHG emissions reductions/removals (01/10/2018 a 31/12/2022).* *REDD+ and savannas: 652.418 tCO2e* *Estimated average annual amount of GHG emission reductions/removals.* *REDD+ and savannas: 153.510 tCO2e*
Contribution to Sustainable Development Goals	*6, 13,15*
Special category, related to co-benefits	*Wax palm*
Version and date of issue	*Version 2.0* *10/10/2024*

Work carried out by	*Round 1* *Lead Auditor: Diana Rauchwerger* *Technical Expert: Beatriz Helena Villanueva* *Round 2* *Lead Auditor: Lucas Andrés Rivera Jaimes* *Technical Revisor: Joaquín Emilio Montealegre*
Approved by	CAMILO ANDRES MONTAÑA SALAMANCA Firmado digitalmente por CAMILO ANDRES MONTAÑA SALAMANCA Fecha: 2024.10.28 19:43:24 -05'00' *Camilo Andrés Montaña Salamanca*

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1 Executive summary

VERSA's audit team, following a process of evaluation of the project documentation for the first monitoring period from 01/01/2018 to 12/31/2022, carried out the validation and verification of the ORINOCO2 project. This process included the review of the Project Description Document (PDD) version 2.4 and the Monitoring Report (MR) version 2.4, as well as documentary supports, procedures and criteria of Biocarbon Standard 's GHG program, and the applicable legal regulations for Colombia. Similarly, the validation and verification audit process are limited to the VERSA-P-0179 agreement of October 19, 2023, made between VERSA and Cataruben Foundation, who is the project holder.

In addition, the ORINOCO2 project was validated and verified under the BCR standard in its version 3.4 of March 2024, in addition to the following methodologies and tools:

- *ISO 14064-2:2019 - Specification with project-level guidance for quantification, monitoring and reporting of greenhouse gas (GHG) emission reduction activities and enhancement of GHG removals.*
- *ISO 14064-3:2019 - Specification with guidance for the validation and verification of greenhouse gas (GHG) declarations.*
- *Methodological Document for the AFOLU Sector / BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects, version 4.0, May 27, 2024.*
- *Methodological Document for the AFOLU Sector / BCR0005 Quantification of GHG Emission Reductions and Removals - Activities that Avoid Land Use Change in Natural Savannah, version 1.0, October 21, 2022.*
- *Tool for demonstrating compliance with REDD+ safeguards, version 1.1, January 26, 2023.*
- *Sustainable Development Safeguards (SDSs), version 1.0, april, 2024*
- *Tool for determining contributions to meeting the Sustainable Development Goals (SDGs), version 2.0, March 1, 2022.*
- *Avoid Double Accounting (ADC) Tool, version 1.0, March 9, 2023.*
- *Monitoring, Reporting and Verification (MRV) Tool, version 1.0, February 13, 2023.*
- *Permanence and Risk Management Tool, version 1.0, March 7, 2023.*
- *Additionality and Baseline Tool, version 1.3, March 1, 2024.*
- *Greenhouse Gas Project Validation and Verification Manual, version 2.4, January 9, 2024.*

Fundación Cataruben is a non-profit organization dedicated to the conservation and sustainable management of natural resources in the Orinoco region of Colombia. Since its creation, Cataruben has worked to protect biodiversity and develop projects that promote the sustainable use of the territory. The Fundación Cataruben works closely with local communities, promoting management practices that integrate traditional and scientific knowledge. In this sense, Cataruben develops forest conservation projects, reforestation and ecological restoration, conservation of natural savannas, contributing to climate change mitigation and improving the livelihoods of rural communities.

Versa Auditors is a Colombian company specialized in the certification of products and services, standing out for its agility, independence and impartiality in its processes. Its team of auditors has experience in conformity assessment, ensuring that its clients' products and services comply with applicable standards and regulatory requirements. Versa Auditors operates under principles of transparency, confidentiality and objectivity, ensuring the satisfaction and confidence of its clients. In this sense, Versa Auditors offers GHG verification services and carbon neutral certification, contributing to sustainability and compliance with environmental standards in various sectors.

2 Objective, scope and criteria

VERSA's audit team, following a process of evaluation of the project documentation for the first monitoring period from 01/01/2018 to 12/31/2022, carried out the validation and verification of the REDD+ Orinoco2 CARBONO DEL ORINOCO project. This process included the review of the Project Description Document (PDD) version 2.3 and the Monitoring Report (MR) version 2.3, as well as documentary supports, procedures and criteria of Biocarbon Standard 's GHG program, and the applicable legal regulations for Colombia. Similarly, the validation and verification audit process are limited to the VERSA-P-0179 agreement of October 19, 2023, made between VERSA and Cataruben Foundation, who is the project holder.

In addition, the REDD+ Orinoco2 CARBONO DEL ORINOCO project was validated and verified under the BCR standard in its version 3.3 of March 2024, in addition to the following methodologies and tools:

- *ISO 14064-2:2019 - Specification with project-level guidance for quantification, monitoring and reporting of greenhouse gas (GHG) emission reduction activities and enhancement of GHG removals.*
- *ISO 14064-3:2019 - Specification with guidance for the validation and verification of greenhouse gas (GHG) declarations.*
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3 Validation and verification planning

3.1 Validation and verification plan

The validation and verification audit is an objective, systematic and documented process that evaluates a GHG (Greenhouse Gas) project based on its compliance with pre-established criteria. The objective is to demonstrate that the project complies with the requirements specified in the national standards and in the BCR's methodological documents. This process is based on the ISO 17029:2019 and ISO 14064-3:2019 standards, and includes the following stages to carry out the validation and verification:

1) Previous activities:

- *Definition of the type of service: Validation and Verification.*
- *Establishment of objectives, criteria and scope.*
- *Determination of the level of assurance (95%) and materiality (5%).*

2) Selection of equipment for validation and verification.

3) Planning of the validation and verification process, which includes:

- *Conducting strategic analysis and risk assessment.*

- *Development of an evidence collection and sampling plan.*
- *Creation of a specific validation and verification plan.*

4) Socialization of the audit plan and sampling with the client.

5) Execution of validation and verification activities, following the audit plan.

6) Collection of documentary and on-site evidence in accordance with the established sampling plan.

7) Evaluation of GHG-related claims.

8) Issuance of the final validation and verification report, together with the corresponding opinion.

This process is carried out in accordance with "PRO-108 GHG Validation and Verification", which regulates the GHG validation and verification procedure. Service planning included:

1. Strategic analysis and risk assessment: During November 2023, the audit team carried out an identification, control and assessment of inherent risks, with the aim of assessing possible sources of errors, omissions or distortions in the GHG project activities. The main inputs for this evaluation were the Project Document (PDD), the Monitoring Report (RM), the baseline Spreadsheets and the monitoring plan records.

2. Coordination of a site visit: Based on the risk assessment, it was considered necessary to corroborate in situ aspects such as GHG sources, sinks, project spatial boundaries, property and carbon rights, project implementation status, and data management. The evidence collection plan included documentary review, cross-referencing of secondary information, and the site visit, with interviews and tours.

3. Development of the audit plan: Consistent with the criteria, scope, objectives and level of assurance, the plan was prepared following the sampling plan. This included a detailed timeline of on-site audit activities, which took place from December 1 to 10, 2023. The evaluation allowed the review of qualitative and quantitative evidence to be addressed in an organized manner.

During the documentary review and site visit stages, the probability that the implementation of the project will achieve the GHG reductions projected and declared by the proponents was evaluated. This allowed to issue an independent opinion on the validation and verification of such reductions and to approve the baseline scenario for the monitoring period.

The validation and verification plan for the ORINOCO2 project was designed to comprehensively and systematically evaluate activities and reported results related to greenhouse gas (GHG) emission reductions. This plan was developed using the guidelines of ISO 14064-3 and the specific requirements of the BioCarbon Standard (BCR) V 3.4.

To initiate the verification activities, the VERSA audit team conducted a strategic analysis with the objective of identifying and assessing the inherent risks, control risks, detection risks, complexity and extent of the verification activities for the ORINOCO2 project. The sampling plan was carried out according to the inherent risks presented and the relevant mitigation actions. The risks identified are set out below:

Table 1. Risks evaluation

INHERENT RISKS	*PROBABILITY*	*IMPACT*	*RISK ASSESSMENT*	*RISK MANAGEMENT MEASURE*
The project does not explain and justify the baseline	*MEDIUM*	*HIGH*	*HIGH*	*Review of 100% of the reports and documents provided by the person responsible for the GHG project.* *Interviews with those involved to determine what is the scenario present in the territory; to confirm who are the actors responsible for generating deforestation or degradation and what are the practices that produce it.*
The project does not explain and justify additionality	*LOW*	*HIGH*	*MEDIUM*	*Review of 100% of the evidence provided by the project and interviews with at least 142 properties out of 149. Interviews that cannot be done in the field must be done virtually.* *Check:* *1. The actions we take to prevent deforestation must lead to a real reduction in carbon dioxide emissions.* *2. that something that would have happened in a* *anyway, for example restricted land use in the POT or EOT.* *3. Do not count as a reduction what is already in the national regulations or that is an obligation (Mas Bosques*

				overlaps of PES of the PES and BanCO2 programs and ECOPETROL as a financing entity) *Interviews with:* *CORMACARENA* *CORPORINOQUIA* *BIOCARBON overlaps project of the Ministry of Agriculture*
The project does not explain and justify the risks of permanence	*MEDIUM*	*HIGH*	*HIGH*	*It is necessary to verify that the beneficiaries' association contracts include that the delivery times of the economic benefits generated by the implementation of activities depend on the validation and verification times.* *Verify with interviews how effective the project's communication strategy is and evaluate how willing the beneficiaries are to implement the activities of the GHG project.*
The project does not explain and justify social and environmental safeguards	*LOW*	*HIGH*	*MEDIUM*	*The PDD and the RM did not find out how the project is aligned with the 15 social and environmental safeguards.* *Through interviews with the different actors involved, verify how the project's own activities are articulated with 15 safeguards of national interpretation. At a minimum, the following must be discussed: 142 properties of the beneficiaries (95% reasonable level according to the VERSA-CATARUBEN CONTRACT), ECOPETROL as a financing partner (1%), CORMACARENA, CORPORINOCO and BIOCARBONO (REDD+ program of the Ministry of Agriculture present in the Colombian Orinoquia) and Mas Bosques (PSA overlaps).*

The project does not explain and justify the processes to avoid double counting	*LOW*	*HIGH*	*MEDIUM*	*Interviews with: 142 beneficiaries' properties (95% reasonable level according to the VERSA-CATARUBEN contract), ECOPETROL as a financing partner (1%), CORMACARENA, CORPORINOCO and BIOCARBONO (REDD+ program of the Ministry of Agriculture present in the Colombian Orinoquia) and Mas Bosques (PSA overlaps).* *Review of other standards and programs, the project was not mentioned: PELIWAISI REDD+ UNUMA VICHADA COLCX-14-0018.*
Emission reductions estimates can be overestimated	*LOW*	*HIGH*	*MEDIUM*	*A 100% verification of the spreadsheets will be carried out.*
The procedures for the management of GDB are deficient and do not report the % of the error	*LOW*	*HIGH*	*MEDIUM*	*A 100% verification of the GDB will be carried out.*
The project does not meet the requirements of the BCR 0002 and BCR 0003 methodologies to determine the leakage area	*MEDIUM*	*HIGH*	*HIGH*	*Interview with the beneficiaries to establish the actual displacement of the project's leakage.*
The project fails to demonstrate that it is conservative in establishing the project's reference area	*LOW*	*HIGH*	*MEDIUM*	*Verify through interviews with those responsible for the project the criteria defined for the establishment of the project's reference area.*

Table 2. Control risk assessment

IDENTIFIED CONTROL RISK		
High	*It is likely that the control system will not prevent, detect or correct the material error and that this risk has a high probability of materializing during validation and/or verification.*	☐
Medium	*The audit team does not have sufficient confidence that the project's internal control system will prevent, detect or correct a material error with any probability of materializing during the audit.*	☐
Low	*The control system is well structured, documented, implemented and maintained, generating sufficient confidence in its ability to prevent, avoid or correct possible material errors.*	☒

***Schedule** and duration of **the** validation/verification activities:*

The detailed schedule for the validation and verification of the ORINOCO2 project extends from November 24, 2023, to July 5, 2024, with specific activities distributed in two moments, given the change in the audit team.:

First round:

- *November 24, 2023: Strategic planning and risk analysis.*
- *November 28, 2023: Development of audit plan.*
- *December 1 to 9, 2023: Field visit, interviews with owners and other stakeholders, plots sampling, project appraisal and closure of visit.*
- *December 13, 2023: Delivery of preliminary findings.*
- *January 13, 2024: Submission of responses to the findings by Fundación Cataruben.*
- *January 28, 2024: Review of findings (Round 1).*
- *February 13, 2024: Submission of responses to findings (Round 1).*

Second round (change of audit team):

- *April 15, 2024: Review of findings (Round 2).*
- *June 8, 2024: Submission of responses to findings (Round 2).*
- *June 11 to July 05, 2024: Validation and verification report drafting.*
- *July 08 to 12, 2024: Technical review of the report.*

July 15, 2024: Drafting of the final opinion.

3.2 Audit team

In order to avoid conflicts of interest in its conformity assessment activities, VERSA does not assign professionals who declare conflicts of interest, kinship relationships, affinity or any consulting activity linked to the services or participants of the project. In the event that a professional has been involved in any of these activities, he or she may not provide services to said organization for a minimum period of two years after the end of the activity. During the selection phase of the audit team, the professionals will sign the declaration of impartiality through the form "FOR-108 NCI Assignment (No Conflict of Interest)", ensuring the non-existence of conflicts of interest. The confidentiality terms are stipulated in the contract between VERSA and the members of the audit team.
To strengthen the impartiality of its services, the VERSA Quality Directorate has set up an Impartiality Committee as an advisory body to address issues related to the management of impartiality risks. This committee meets with key stakeholders, including customer representatives, GHG Program members, auditors, and community representatives, among others. This initiative aims to ensure trust and transparency in validation and verification services. Likewise, VERSA has a risk matrix that assesses the risks inherent in its validation and verification activities, and has adopted the appropriate measures to cover the legal liabilities arising from its operations in each of the scopes and geographical areas in which it operates.

The validation and verification team for the ORINOCO2 project was comprised of qualified professionals, each with significant experience in auditing greenhouse gas emission reduction projects. The first round of validation and verification included Diana Rauchwerger Londoño as Lead Auditor and Beatriz Helena Villanueva as Technical Expert. Diana Rauchwerger Londoño, experienced in forest carbon audits and certified in international standards such as ISO 14064, led the document review, audit planning, site visit and field data collection. Beatriz Helena Villanueva, an expert in GHG emissions monitoring and reporting techniques, assisted in the documentary review and participated in the site visit, conducting interviews and verifying the activities implemented in the field.

During the second round of validation and verification, Lucas Rivera Jaimes assumed the role of Lead Auditor, who, with experience in forest carbon projects and forest carbon audits, was in charge of reviewing the findings, preparing the validation and verification report, and the final evaluation of the project's compliance with the criteria established in the BCR Standard.

The activities carried out by the audit team included the review of all documentation provided by the project holder, verification of the implementation of field activities through visits and interviews, and the preparation and review of the validation and verification report to ensure the accuracy and consistency of the data reported in the first monitoring period (2018-2022).

A table detailing the audit team and their type of involvement in the project is presented below:

Table 3.VERSA's audit team

Role/Qualification	Name	Type of involvement		
		Desk review	Site visit/Interviews	Reporting
Lead Auditor/ Sectoral Expert	Diana Rauchwerger Londoño	x	x	
Sectoral Expert	Beatriz Helena Villanueva	x	x	
Lead Auditor	Lucas Rivera Jaimes	x		x
Technical reviewer	Joaquín Emilio Montealegre	x		x
Approver	Camilo Montaña	x		x

Fuente: Presente reporte de validación y verificación.

The validation and verification team for the ORINOCO2 project complied with BCR's Anti-Corruption Policy, in accordance with BCR's Validation and Verification Manual, paragraph 8.2.4. All auditors and the technical reviewer and approver have signed a conflict-of-interest statement, ensuring that there does not seem to be any conflict that would prevent independent, impartial validation and verification services from being provided, in line with BCR Validation and Verification Manual version 2.4, paragraph 8.2.4.1.

In addition, Versa maintains the confidentiality of all information to which it had access during the process, in accordance with paragraph 8.2.4.2 of the BCR Validation and Verification Manual version 2.4. This implies not disclosing, transmitting or revealing to third parties any information related to GHG projects, ensuring that such information is only used for the development of this validation and verification process. Regarding compliance with the code of ethics and anti-bribery and corruption regulations, the audit team strictly adhered to the provisions of BCR's Code of Ethics and all applicable anti-corruption regulations, ensuring the integrity and transparency of all activities performed.

A description of the auditors, technical reviewer and final approver is listed in Table 71 of Annex 2.

3.3 Level of assurance and materiality

The validation and verification process for the ORINOCO2 project was conducted to provide a reasonable level of assurance of compliance with the criteria defined in the project scope. To establish materiality, the objectives, level of assurance, criteria and scope of validation/verification were considered. The materiality of the project was determined to be below 5%, implying that any individual or cumulative errors or omissions that could significantly affect the GHG statement and conclusions on GHG emission reductions/removals would be identified and corrected.

Table 04. Assurance's level

level of assurance	materiality	According to the Validation and Verification objectives
Reasonable	0.5% of total $tCO_2$and	☐
	1% of total $tCO_2$and	☐
	2% of total $tCO_2$and	☐
	5% of total $tCO_2$and	☒
Limited	5,1% - 10% total $tCO_2$and	☐

The evaluation included the review of 100% of the documentation provided, comparing the monitoring data with those described in the monitoring report (MR), its spreadsheets and cartographic annexes. The strata defined by the project were field verified to ensure that there were no significant changes or deviations from the baseline scenario described in the Project Description Document (PDD). The proposed mitigation actions were confirmed as authentic, effective, quantifiable, verifiable, transparent and with sustained impact over time for the current verification period.

VERSA's audit team confirmed that the project has consistent and transparent procedures to address omissions and/or errors in GHG reporting, considering a materiality threshold of less than 5%. This conclusion is based on the collection and evaluation of objective evidence, such as GHG project documents, monitoring report, spreadsheets, field interviews, data sources for the calculation of removals, cartographic supports and annexes for the implementation of BCR tools and criteria.

Therefore, it is ensured that the GHG mitigation project meets the criteria of the BCR standard and the Biocarbon Standard guidelines in its methodology for quantifying GHG emissions in REDD+ projects BCR0002 version 4.0 and BCR0005 version 1.0.

The validation and verification of the Orinoco2 Project was carried out with a comprehensive approach that guaranteed a 95% level of security Materiality criteria were established, setting a threshold of 5%, considering the potential impact of the project on the reduction of GHG emissions, the credibility of the carbon market, and the financial and environmental impact of the project.

3.4 Sampling plan

The sampling plan for the ORINOCO2 project was designed with the objective of guaranteeing a reasonable level of assurance and covering the full scope of validation and verification, considering the specific criteria of numeral 22 of the BCR Standard version 3.4. This plan includes a detailed description of the procedures and methodologies applied to select representative samples, ensuring the quality and type of evidence required, both qualitative and quantitative, to achieve the necessary level of assurance. The complete description of the sampling plan is as follows:

Assurance level: An assurance level of 95% was established for the validation and verification of the project, in line with the materiality criteria that consider a maximum allowable deviation of 5%.

Scope of validation and verification: The scope covers all activities reported in the Project Description Document (PDD) and Monitoring Report (MR), including baseline assessment, emission reductions, permanence of results, and project governance, as listed below:

- *Baseline and project GHG limits.*
- *Project activities.*
- *GHG sources and sinks.*
- *GHG types.*
- *Project areas.*
- *Quantification periods.*
- *Co-benefits assessment.*
- *Indicators related to SDGs.*
- *Monitoring plan and corresponding documentary support.*

Validation and verification criteria: The criteria applied include ISO 14064-3, the BCR standard version 3.4 and the specific methodological guidelines for REDD+ projects BCR0002 version 4.0 and for natural savannas BCR0005 version 1.0. These criteria ensure that project activities are additional, quantifiable, verifiable and sustainable.

Quality and type of evidence: Qualitative and quantitative evidence was collected and evaluated. Qualitative evidence included stakeholder interviews at two points during the audit; virtual and face-to-face audits were conducted in the first round and virtual-only interviews, field observations, and review of legal and administrative documents were conducted in the second round of the audit. Quantitative evidence included forest inventory

data, carbon estimates with official emission factors for the country from the NREF 2019, satellite images, project geo-database and statistical analysis on the reliability of the activity data.

Methodologies for determining representative samples: A non-statistical sampling approach and systematic sampling type was used to ensure that the samples selected were representative of the entire project.

GENERAL SAMPLING PLAN				
Parameters	Sampling Approach	Sampling Type	Population	Sample size
Review of 100% of the documentation provided by the project owner	Non-statistical	S	100 Documentation + Evidence	2 documents + 8 folders
Vegetation cover by period of analysis: historical and baseline			Baseline data	Data Ex ante and ex post sheets
Changes in carbon contents for each identified reservoir			Baseline data	
Compliance with the criteria defined for the V/V			DoP, MR + evidence provided by the person responsible for the initiative	DoP, MR + evidence provided by the person responsible for the initiative (not less than 95%)

Note: Types of Sampling: Random (A): Random selection of samples requires a tool that ensures a truly random selection, independent of the judgment or preferences of the sampler. This is important to ensure that all elements in the population have an equal opportunity to be sampled. Systematic (S): Taking samples randomly, starting from a point and then applying a systematic rule for the selection of the following samples (every 10th, after the first, etc.) Risk Based (BR): Random sampling based on a non-statistical selection of elements (random).

Table 5 below lists the detailed sampling plan carried out, together with the parameters identified, the evidence validated and verified, as well as compliance with environmental integrity;

Table 5. Detailed Sampling plan carried out for the ORINOCO2 project.

Parameter or Requirement	Sampling Plan	Evidence	Risks of potential errors, omissions, or misinterpretations	Cross Check Documentation (Annex 3)
Project Activities	Visits to specific points, interviews with key project stakeholders and corroboration of geographic information.	Verification of field activities, interviews and project geo-database.	none	1-2 10 -12 15 -17 21-27 29-32
Baseline	A review of 100% of the documented information provided by the project developer was carried out using systematic risk-based sampling.	Documentary assessment and field interviews to demonstrate net benefits to the atmosphere.	none	1-5 21 28 29-32
Additionality	Systematic risk-based sampling, reviewing 100% of the documented information and contrasting it with interviews and field observations.	Documentary assessment and field interviews to demonstrate net benefits to the atmosphere.	none	1-5 10-12 21 – 28 29-30
GHG emissions Reductions calculations	A review of 100% of the documented information provided by the project developer was carried out using systematic risk-based sampling.	Spreadsheets of calculation Methodologies used	Unreported methodological deviations Use of no actualized BCR methodologies	5 21-22 31-32
Emission Factor	A review of 100% of the documented information provided by the project	Assessment of Documents provided, and	ack of control and traceability of	5 21-22 31-32

Parameter or Requirement	*Sampling Plan*	*Evidence*	*Risks of potential errors, omissions, or misinterpretations*	*Cross Check Documentation (Annex 3)*
	developer, contrast with related scientific information. *Plot sampling of 20% of the plots for biomass emission factor in natural savanna.*	*plot sampling*	*the data and field methodologies used.*	
Permanence	*Review of 100% of the documented information, contrasting it with official geographic data, carrying out field visits in the first round of audits, and contrasting it with documentary information in the project's geographic database.*	*Coverage verification points and geographic review.*	*none*	*1-10* *17-19* *25-27*
Social and Environmental Safeguards, and REDD+ Safeguards	*Review of 100% of the documented information and comparison with field and virtual interviews.*	*Verification of documented information on compliance with Cancun safeguards and national interpretation.*	*none*	*6-12* *28*
Non-permanence and reversal risk assessment	*Review of 100% of the documented information, with a systematic risk-based sampling type.*	*Document review and field interviews.*	*none*	*6-12* *25-27*
Activities for demonstrate Cobeneficts	*Visits to specific points, interviews with key project stakeholders and corroboration of geographic information.*	*Verification of field activities, interviews and project geo-database.*	*none*	*16*

Parameter or Requirement	*Sampling Plan*	*Evidence*	*Risks of potential errors, omissions, or misinterpretations*	*Cross Check Documentation (Annex 3)*
Stakeholders	*Meetings with stakeholders and review of relevant documentation.*	*Interviews and visits with stakeholders.*	*none*	*10-12* *15*
Avoid Doble counting	*A review of 100% of the documented information provided by the project developer, contrast with related carbons standards information.*	*eview of the renare Platform Review of projects registered in different carbon standards*	*none*	*1-3*
Training and strengthening	*Interviews with people involved in the governance structure and project training.*	*Field verification and interviews.*	*none*	*1-5* *28*
Project communication and PQRS system	*Interviews with stakeholders and review of documented information on the PQRS system.*	*Interviews and documentary review.*	*none*	*6-12* *28*
Specific BCR program tools	*Review of 100% of the documented information, with a systematic risk-based sampling type.*	*Document review and confirmation.*	*None*	*1,2, 15, 16* *29-32*

Source: Present validation and verification report

Risks of errors, omissions or misinterpretations: Potential risks associated with errors, omissions or misinterpretations in the data collected were identified and assessed. Control measures were implemented to mitigate these risks, such as cross audits in two rounds by different audit teams, additional field verifications and internal technical review.

The sampling or evidence collection plan made it possible to evaluate the conformity of the documentation presented, including the control and assurance of the quality of the information and the management of risks associated with the audit. In conjunction with the project developer, strategic points were established for the on-site audit, considering factors such as accessibility, population density, implementation actions, and safety aspects.

In compliance with the BCR's Validation and Verification Manual, the implementation of the evidence collection plan made it possible to achieve a minimum assurance level of 95%. During the rounds of conclusions, the project proponent made necessary adjustments and clarifications in response to the observations of the audit team to ensure the required level of assurance. Based on the evaluation and treatment of the non-conformities observed during the audit, it is concluded that the analysis methods used in the sampling plan and in the audit plan continue to be representative. The evidence obtained is sufficient and appropriate to issue a conclusion regarding the validation and verification process.

4 Validation and verification procedures and means

4.1 Preliminary assessment

For the validation and verification planning process of the ORINOCO2 project, a comprehensive preliminary assessment was conducted to determine the sufficiency of information and establish the purpose and scope of validation and verification, as listed in section 2 of this verification report. This process included a strategic analysis, risk assessment and audit plan design. During this, the Project Description (PDO), Monitoring Report (MR) documents and the supports related to the first monitoring period were reviewed. This preliminary evaluation included the following aspects:

Project Document ***and Monitoring Report*** *Review: The Project Document was reviewed, including the methodology applied, tools used, modules, monitoring plan and quality assurance and control procedures.*

It was confirmed that the information used for the carbon estimates in the baseline described in the PDD and MR is aligned with the principles and practices of the BCR standard and current regulations. And aligned with the requirements established in the AFOLU Sector Methodological Documents

- *BCR0005 Quantification of GHG Emissions Reduction* ***activities that prevent land use change in natural savannas***
- *BCR0002 Quantification of Greenhouse Gas Emission Reductions from REDD+ Projects*

Additionally, a review of documents was carried out as additional inputs. These documents include BioCarbon's own documents, national legislation and those standards of auditing criteria.

Table 6. Reviewed documents

Document Title / Version	***Author***	***Organization***	***Document provider (if applicable)***
Law 2294/2023	*Congress of the Republic of Colombia*	*Congress of the Republic of Colombia*	*State Entity*
Law 2169/2021	*Congress of the Republic of Colombia*	*Congress of the Republic of Colombia*	*State Entity*
ISO 14064-2:2019	*Internacional Organización for Standarizatión*	*Internacional Organización for Standarizatión*	*State Entity*
ISO 14064-3:2019	*Internacional Organización for Standarizatión*	*Internacional Organización for Standarizatión*	*State Entity*
Decree 926 of 2017	*Ministry of Finance and Public Credit*	*Ministry of Finance and Public Credit*	*State Entity*
Resolution 1447 of 2018	*Ministry of Environment and Sustainable Development*	*Ministry of Environment and Sustainable Development*	*State Entity*
BIOCARBON CERT. 2024. BCR STANDARD. VERSION 3.4.	*Biocarbon Registry*	*Biocarbon Registry*	*Biocarbon Registry*

In this sense, some conclusions are provided:

Regulatory Compliance.
Compliance with the regulatory framework related to carbon management and applicable regulations was assessed, validating the regularity of project activities.

Documents supporting the project's land tenure and/or carbon rights were reviewed.

Information Quality Control.
The controls in place to ensure the quality of information and documentary control of the project were evaluated.

A review of other supporting documents, such as maps and spreadsheets annex to the PDD and RM, was conducted to ensure the accuracy and consistency of the information presented.

Based on the evidence gathered, it was concluded that the criteria defined for this verification were adequate and that the project activities were implemented consistently over time. The reported emissions and removals are significant, and the evidence provided is complete, correct, consistent, up-to-date and sufficient to support the reported greenhouse gas reductions and/or removals.

With which the audit team is prepared with respect to defining sufficient information to determine the purpose and scope of the validation/verification.

4.2 Document review

VERSA's audit teams conducted a 100% review of the next documents

N°	*Document Title / Version*	*Author*	*Organization*	*Document provider (if applicable)*
1	*Documento de Description del Proyecto (DdP) versión 2.4.*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
2	*Reporte de Monitoreo (RM) versión 2.4.*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
3	*Geodatabase del Proyecto para REDD y sabanas*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
4	*Anexo 1.2.1. Emisiones_Proyecto*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
5	*Factores de emisión* *Procedimientos y bibliografía* *Soportes de campo* *Análisis de datos* *Resultados de laboratorio*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*

6	*Cartas de intención*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
7	*Predios vinculados*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
8	*Matriz de Evaluación Ambiental y Socioeconomico/Medidas de Salvaguarda ORINOCO2*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
9	*Matriz de evaluación de aspectos socioeconómicos ORINOCO2*	*Fundación Cataruben*	*Fundación Cataruben, Febrero de 2024*	*Project Holder*
10	*Consultas a partes interesadas*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
11	*Consulta pública*	*Fundación Cataruben*	*Fundación Cataruben, Noviembre de 2023*	*Project Holder*
12	*Solicitud de exclusión*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
13	*Modelo Financiero ORINOCO2-VF*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
14	*Plan de monitoreo actividades de proyecto*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
15	*Plan de monitoreo salvaguardas*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
16	*Herramienta-ods-2023*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*

17	*Analisis y gestion de riesgos*	*Fundación Cataruben*	*Fundación Cataruben, Mayo de 2024*	*Project Holder*
18	*Radicado RENARE en Ministerio de Ambiente*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
19	*Control y Aseguramiento de la Calidad*	*Fundación Cataruben*	*Fundación Cataruben, Marzo de 2024*	*Project Holder*
20	*Additional documents*			
21	*PROPOSED REFERENCE LEVEL OF FOREST EMISSIONS FROM DEFORESTATION IN COLOMBIA FOR PAYMENT FOR REDD+ RESULTS UNDER THE CMNUCC2018-2022*	*MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT - ENVIRONMENT* *INSTITUTE OF HYDROLOGY, METEOROLOGY AND ENVIRONMENTAL STUDIES - IDEAM*	*MADS - IDEAM*	*NA*
22	*Proposal for Colombia's forest emissions reference level for the period 2023-2027 as a mechanism to qualify for payment for REDD+ results under the UNFCCC.*	*MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT - ENVIRONMENT* *INSTITUTE OF HYDROLOGY, METEOROLOGY AND ENVIRONMENTAL STUDIES - IDEAM*	*MADS - IDEAM*	*NA*

23	Soil carbon storage potential of acid soils of Colombia's Eastern High Plains2022	Glenn Hyman, Aracely Castro, Mayesse Da Silva,Miguel Arango, Jaime Bernal, Otoniel Pérez andIdupulapati Madhusudana Rao	International Center for Tropical Agriculture (CIAT) - Colombian Corporation forAgricultural Research (AGROSAVIA)	NA
24	NATURAL CARBON SINKS: A CASE STUDY IN MORICHALES OF THE HIGHLANDS COLOMBIANA2022	Daniela Orozco-Hueje, Diana Milena Barreto-Rojas, Juan Manuel Trujillo-González, Amanda Silva-Parra, Marlon Serrano-Gómez , Edgar Fernando Castillo-Monroy, Marco Aurelio Torres-Mora	Journal of Agricultural and Environmental Research	NA
25	Departmental Economic and Social Development Plan "Let's Make Meta Great" for the period 2020 – 2023	DEPARTMENTAL ASSEMBLY OF META	NA	NA
26	Comprehensive Regional Climate Change Plan for the Orinoquía 2018	Corporation for the Sustainable Development of the La Macarena Special Management Area (Cormacarena), Regional Autonomous Corporation of the Orinoquía (Corporinoquia), ECOPETROL and the International	NA	NA

		Center for Tropical Agriculture (CIAT)		
27	*INSTITUTIONAL ACTION PLAN 2020 - 2023 WE ARE LIFE, WE ARE META CORMACARENA*	*MINAMBIENTE*	*NA*	*NA*
28	*Cartilla Interpretación Nacional de Salvaguardas REDD+*	*MINAMBIENTE*	*NA*	*NA*
29	*BioCarbon Standard Version 3.4 June 28, 2024*	*BioCarbon Standard*	*BioCarbon Standard*	*NA*
30	*VALIDATION AND VERIFICATION MANUAL GREENHOUSE GAS PROJECTS Version 2.4 March 23, 2024*	*BioCarbon Standard*	*BioCarbon Standard*	*NA*
31	*BCR0002 GHG Emissions Reductions quantification. REDD+ Projects version 4.0, May 27, 2024.*	*BioCarbon Standard*	*BioCarbon Standard*	*NA*
32	BCR0005 GHG Emission Reductions quantification. Activities that Prevent Land Use Change in Natural Savannas version 1.0, October 21, 2022.	*BioCarbon Standard*	*BioCarbon Standard*	*NA*

From the review of the documents provided by the developer of the Project and contrasted with official information, it can be concluded that the project demonstrates full traceability of evidence and records, confirming that the Project Holder has provided 100% of the data used in the calculations

4.3 Interviews

During the validation and verification activities of the ORINOCO2 project, interviews were conducted with various relevant stakeholders. These interviews were conducted in accordance with the audit plan established for the first and second round of findings, and were conducted in person and by videoconference.

The interviews were designed to gather detailed information, validate and verify key aspects of the project, such as implementation of activities, governance, monitoring and perception of local communities and other stakeholders, based on the three-part model of the project, see Table 7. The aspects consulted included verification of activity data, assessment of additionality and permanence of project actions, compliance with social and environmental safeguards, and identification of potential risks and barriers.

In terms of results, the interviews provided an understanding of the project activities and confirmed the accuracy and veracity of the documented information. Aspects such as community commitment to project activities and the implementation of activities to reduce deforestation as well as savanna conservation were identified. In addition, the interviews helped to identify aspects gathered in the findings (see section 6 of this Validation and Verification Report) and to corroborate the project's compliance with the established criteria of the Validation and Verification Manual version 2.4.

The interviews addressed key aspects such as the effectiveness of the mitigation activities implemented, the perception of project benefits by the communities, conflict management and resolution, and transparency in project communication. The results confirmed that project activities are aligned with GHG emission reduction objectives and that adequate measures have been taken to ensure the permanence and sustainability of the project's positive impacts. It also highlighted the importance of continued support from local communities and other key stakeholders for the long-term success of the project.

These interviews were essential to validate the information presented in the Project Description Document (PDD) and Monitoring Report (MR), ensuring that all data and statements on project performance are accurate, verifiable and consistent with the criteria established in the BCR standard version 3.4 and applicable regulations.

Table 7. Stakeholders interviewed

Stakeholder type	Topics Covered
Fundación Cataruben Staff	Implementation of mitigation activities, monitoring and reporting of GHG emissions data, field coordination, conflict management and resolution, conservation strategies, reduction of deforestation and degradation, quality control procedures, evaluation of the effectiveness of implemented activities, integration of new technologies for monitoring, and risk assessment and mitigation measures.
Local communities	Participation in project activities, perceived socioeconomic benefits of the project, community conflict resolution mechanisms, project impact on livelihood improvement, perception of and compliance with social and environmental safeguards, access to resources and training provided, contribution to reduced deforestation, and perception of environmental and social co-benefits.
Ecopetrol	Voluntary allocation of resources (not related to 1%), social and environmental responsibility initiatives, collaboration and types of contributions to the project, impact of project activities on Ecopetrol's operations, integration of project activities with corporate voluntary sustainability strategies, evaluation of compliance with environmental and social standards.

Source: Present validation and verification report.

The interviews were based on the following basic questions, which gave rise to other specific questions of the ORINOCO2 Project.

Semi-structured interview

- *General*

1. Developer Perspective.

2. Knowledge of the carbon market (what is a carbon credit, climate change, etc.).

3. What benefits has the project brought to the community. You've benefited.

4. What they know about REDD+.

5. Have participated in the project activities.

6. How has the communication with the development company been. What communication channels are handled.

- *Safeguards:*

1. Know the channels to generate a PQR.

2. Know the percentages of profit distribution.

3. Know the results of the latest monitoring report. How much was sold. How much of the money was left.

4. Know how much money was spent on project activities.

5. Community spaces have been created to make decisions about what money should be spent on and on what activities.

6. How this money is coming to them.

7. How do you think the project supports the "Conservation of Forests and their biodiversity"

8. Communities: The prior consultation process has been carried out or someone from the Ministry of the Interior has come here.

9. Communities: Do you believe that the project is aligned with your customs and life plan?

- *SDG context*

1. What is the presence of the State in this area? Which state entities are present. And services are brought by the State to these areas.

2. How are the health posts.

3. How the issue of education in the area has been managed.

4. What is the issue of sanitation like?

5. What is the energy issue like in the area.

6. The flora and fauna in the area have been protected.

- *Questions to Authorities with interference in the project (Governor's Office, Mayor's Office, Foundations, Secretaries of Ethnic Affairs, representative of contiguous NNPs, Regional Autonomous Corporations, etc.).*

1. What is your perspective on the REDD+ projects that are being carried out in the region?

2. Accompaniment has been carried out in these territories.

3. Prior consultation processes have been carried out in this region or in the project.

4. What does the deforestation landscape look like in the region?

Conclusion: In general terms, the owners of the properties and the authorities involved in the project are fully aware of the specific aspects of the ORINOCO2 project. There are still issues to improve, but it is important to highlight that the project demonstrates support for communities and the reduction of GHG emissions.

Note: In annex 5 are the attendance lists for the group interviews carried out during the field visit.

4.4 On-site visit

During the validation and verification process of the ORINOCO2 project, several activities were carried out at the project site in December 2023 to assess the implementation and effectiveness of the reported activities. The field visit was designed to cover the specific characteristics of the project, the specifications of the BCR0002 version 4.0 and BCR0005 version 1.0 methodologies applied, the sectoral scope, the complexity of the information, data and parameters used by the project to report its results. In this sense, the schedule and activities carried out are detailed below:

12/1/2023 - Start of field visit.
The audit team started the field visit with an opening meeting to establish the objectives and scope of the audit. This meeting included the presentation of the audit team, a review of the schedule and planned activities, and confirmation of the logistics and resources necessary for the execution of the visit.

12/1/2023 - Opening meeting and start of the field visit
The opening meeting was held with the project representatives, where the objectives of the audit were discussed, doubts were clarified and the procedures to be followed during the visit were defined. This meeting was essential to align expectations and ensure the cooperation of all parties involved.

12/2/2023 to 12/8/2023 - Field visit: Interview of owners and others involved in the project
During this week, interviews were conducted with landowners, project partners, space was sought for a meeting with representatives of the Corporación Autónoma Regional de la Orinoquia, which could not take place, and other key stakeholders. In this sense, the interviews were focused on:

- *Activities Implementation: Verification of the implementation of project, conservation and monitoring activities as reported in the project documentation, specifically; project description document and monitoring report.*
- *Monitoring and data reporting: Evaluation of the methods and procedures used for monitoring and reporting data on GHG emissions and other environmental variables.*
- *Governance and community participation: Analysis of the governance structure of the project and the participation of local communities in project activities.*
- *Regulatory compliance: Verification of compliance with local and national environmental regulations, such as Resolution 1447 of 2018.*
- *Social and environmental benefits: Assessment of social and environmental benefits generated by the project, including perception and acceptance by local communities.*

12/9/2023 - Project appraisal and closing of field visit
The first audit team held a debriefing and closing meeting with the project representatives. During this meeting, the preliminary findings of the field visit were presented, possible areas for improvement were discussed and the next steps of the validation and verification process were clarified. This session was fundamental to ensure transparency and continued collaboration between all parties involved, for the next stages of the resolution of the findings that were sent after this phase of the field visit.

4.5 Clarification, corrective and forward actions request

The validation and verification process for the ORINOCO2 project included the identification and resolution of thirty-eight (38) findings that required clarification, corrective actions and future recommendations. These findings were addressed to ensure compliance with the requirements of the BCR Standard version 3.4, methodologies BCR0002 version 4.0, BCR0005 version 1.0 and validation and verification manual version 2.4.

Regarding the contribution of the project to the sustainable development goals, Non-Conformity 26 was found, regarding the lack of clarity of the description of the activities and the SDG Tool. However, this finding was solved in its entirety.

Regarding the consultation of stakeholders, Non-Conformities 2, 4 and 25 were found, referring to the lack of knowledge of the stakeholders and/or participants of the project. However, this finding was solved in its entirety.

With regard to compliance with national legislation, Non-Conformity 18 was found, regarding the lack of explanation of compliance with environmental and social safeguards. However, this finding was solved in its entirety.

In this order of ideas, the process of resolution of findings identified by the validation and verification team is described below;

4.5.1 Clarification requests (CLs)

During the validation and verification process, a total of 2 clarification requests (CLs) were issued. These requests addressed issues related to clarity in data presentation and methodological procedures. The main points of clarification included:

- *Data Accuracy: Clarification on the accuracy and sources of data used in the baseline and mitigation calculations.*
- *Methodology Applied: Detailed explanation of the application of the methodology and tools used in the project.*
- *Additionality Criteria: Justification and additional documentation on the additionality of project activities.*

Of these requests, 1 was successfully closed after receiving the required information in the first and second round of findings, and 1 was left as a future recommendation (FAR) for subsequent project reviews for further verification.

4.5.2 Corrective actions request (CARs)

A total of 31 corrective action requests (CARs) were identified during the audit. These requests focused on correcting inconsistencies or deviations in project implementation in accordance with the established validation and verification criteria. The main issues addressed included:

- *Methodological Compliance: Necessary adjustments to align project activities with BCR methodology and other applicable regulations.*
- *Monitoring and Reporting Data: Corrections to monitoring and reporting procedures to ensure completeness and accuracy of GHG emissions data.*
- *Carbon Rights Ownership: Documentation and verification of project carbon rights ownership.*

Of the 31 CARs issued, 30 were successfully closed after implementation of the necessary corrective actions, and 1 was also flagged as a future recommendation (FAR) for continued follow-up.

4.5.3 Forward action request (FARs)

Two requests for future recommendations (FARs) were identified during the validation and verification process, each from a CAR and a CL. These recommendations address findings that require continued attention in future project verifications. Key issues included:

- *Monitoring Improvements: Suggestions for improving monitoring procedures and data collection in future phases of the project.*

- *Information Management: Recommendations to optimize the management and storage of information to facilitate future audits and verifications, as well as contractual compliance to ensure the permanence of the project.*

In this order of ideas, during the validation and verification process of the ORINOCO2 project, a total of 38 requests were issued and managed, divided into 7 CLs, 31 CARs, of which 2 of them were managed as FARs. Therefore, the requests were effectively addressed, ensuring that the project complies with the quality standards and GHG mitigation criteria established by the BCR Standard version 3.4 and these results can be consulted in Annex 2.

5 Validation findings

VERSA's audit team identified certain aspects that the proponent of the GHG project solved in its entirety in 2 ROUNDS of response by the auditor and its description is as follows:

CAR: Corrective Action Request

The VERSA team identified 28 Corrective Action Requests (CARs), related to non-compliance with the requirements of the standards and the BioCarbon Registry program. The CARs identified are derived from:

- *Material misstatement: material errors affecting the decision of the intended user of the GHG inventory or project (ISO 14064-3:2019).*
- *Situations that influenced the ability of the project or inventory to achieve actual, measurable and verifiable GHG emissions quantification, reduction and/or removal.*

- *Any situation of risk that GHG emissions, reductions and/or removals cannot be monitored and/or calculated.*

The list of corrective action requirements identified by VERSA's audit team and their response by the project manager can be consulted in greater detail in Annex 2 of this document, respectively.

CL: Clarification Request

After performing this evaluation, four clarification requests (CLs) were identified, which were resolved in their entirety, due to the responses provided by the Project proponent. These were comprehensive and duly supported with evidence to address the CLs raised. The relevant adjustments were included in both the Project Document (PD), Monitoring Report (MR), evidence and relevant annexes. The list of clarification requests identified and their response by the project manager can be found in more detail in Annex 2.

FAR: Future Action Request

During the stage carried out by the audit team for this validation and retroactive verification process, a total of 28 corrective action requests (CAR), 4 requests for clarification (CL) and 0 requests for future action (FAR) were identified, all of which were satisfactorily closed

5.1 Project description

The project description was assessed in accordance with the applicable validation requirements established by the BCR standard version 3.4. To conduct this assessment, multiple critical aspects of the project were considered.

In this sense the general description of the orinoco2 describe the project objectives and activities, and Include the following in the description:

(a) ***A brief description of the existing scenario prior to the implementation of the project activities:*** *"The project is located in the region known as the Colombian high plains. This area is considered one of the country's main agricultural regions. However, this scenario, which drives Colombia's agricultural development, also represents a challenge in generating low-carbon and socially and environmentally positive production/conservation models. The main causes of deforestation, forest degradation, and land-use change in the region are the expansion of the agricultural frontier and fires of natural or anthropogenic origin. The main agents are communities and natural events"*

(b) ***Details of how the project activities will result in GHG emission reductions/removals:*** *"In this sense, ORINOCO2 implements forest conservation activities and promotes the sustainable use of savannas. Based on this, the project's activities were designed to reduce pressure on forests through management actions that lower the risks of forest fires, as well as sustainable production actions in the savannas that prevent land-use changes. Additionally, economic benefits derived from the sale of carbon certificates are provided as incentives to the project participants, resources that serve for conservation and activity execution, resulting in emission reductions in the project areas, thus closing the project's sustainability cycle"*

(c) ***The special category(ies) to which the project is proposed to apply, with a brief description of the criteria by which the project demonstrates compliance.*** *"Given the nature of the project's activities focused on conserving areas of biological importance such as riparian forests and natural savannas, as well as*

the inclusion of multiple private property owners, the project includes environmental and social co-benefits aligned with the Wax Palm category of the BCR (BioCarbon Registry) standard"

(d) ***A brief summary of how the project activities will contribute to the achievement of the Sustainable Development Goals.*** *" the project's activities contribute to Sustainable Development Goals (SDGs) 6 Clean Water and Sanitation, 13 Climate Action, and 15 Life on Land, this is demonstrated by using the SDG tool Developed by BCR, ensuring that the project activities contribute to those SDGs ".*

(e) ***An average estimate of emission reductions/removals attributable to the project activities.***

- ***REDD+ Activities***

Total = 854.654 tCO2e
Annual average = 92,395 tCO2e/year

- ***Activities that avoid the transformation of natural savannas:***

Total = 675.250 tCO2e
Annual average = 73,000 tCO2e/year

Which the review of the Project Description Document (PDD) version 2.4. It is confirmed that the information is true and comes correctly from the project document and its annexes, thus the field audit and the cross-review of the information confirms this conclusion, therefore the project description is well founded, supported and meets the necessary requirements.

5.2 *Project type and eligibility*

The field audit has validated that the scope of the project aligns with the requirements of the BCR standard. It is confirmed that the project activities limit the greenhouse gases specified in the Kyoto Protocol, including carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). In addition, the audit verifies that methodologies developed or approved by BioCarbon are used, applicable to GHG and REDD+ removal activities, ensuring that emission reductions and/or removals are quantifiable and correctly implemented.

Likewise, it is established that the project activities in the AFOLU sector are considered in accordance with the provisions of the BCR standard, which implies that Activities in the AFOLU sector, different from REDD+ and REDD+ Activities that occur in the areas of savannas and natural vegetation in the Colombian Orinoquia.

Below the explain of how the project description was assessed, in accordance with the applicable validation requirements, is developed.

Table 8. Project type and eligibility

Eligibility criteria	*Evaluation by validation body*
Scope of the BCR Standard	*a. It was verified that the following greenhouse gasses, included in the Kyoto Protocol: Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_2O).* ***CO_2**: as result of changes of above ground Biomasass, Belowground Biomass, Dead wood and leaf litter, SOC, Combustiin of woody biomass.* *CH_4 and N_2O: As a result of combustion of woody biomass* *b. The projects use a methodology developed or approved by BioCarbon, applicable to GHG removal activities and REDD+ activities (AFOLU Sector).* *The project uses BCR 0005 and BCR 0005 in its development and quantification of GHG emission reduction.* *c. Quantifiable GHG emission reductions and/or removals generated through implementation of GHG removal activities and/or REDD+ activities (AFOLU Sector).* *The project quantifies the emissions reduction trough implementations of activities that reduces the land use in natural savanna, Activities that reduce deforestation, and Activities that reduces Forest degradation.*

Eligibility criteria	*Evaluation by validation body*
Project type	a. *Activities in the AFOLU sector, different from REDD+* *The project quantifies the emissions reduction trough implementations of activities that reduces the land use in natural savanna.* b. *REDD+ Activities* *The project quantifies the emissions reduction trough implementations of activities that reduces deforestation, and Activities that reduces Forest degradation*
Project activity(es)	It was verified that the Project developer implements activities that reduce land use change in natural savannahs, as well as activities that reduce deforestation and forest degradation. The specific interventions for each of the activities were designed based on a detailed analysis of causes and agents for each type of activity detailed in section 2.3. Project Activists. Likewise, the interventions include the participation of the communities in their design and implementation. All this was validated and verified by the audit team based on the audit implementation plan
Project scale (if applicable)	N/A. It does not apply to this type of projects, in accordance with criterion 10.3 "Project scale" of the standard BCR V3.4

To assess whether the information submitted by the GHG project holder complies with the conditions set out in BCR Standard version 3.4 and in the validation and verification manual version 2.4, several detailed and documented steps were carried out.

First, a thorough review of the documentation provided, including the Project Description Document (PDD) and the Monitoring Report, was conducted. This review focused on verifying that the project owner has clearly identified the scope, project type, project activities and project scale, in accordance with the requirements of BCR Standard version 3.4.

Regarding project activities, it was assessed that the PDD and the Monitoring Report describe in detail the specific actions implemented, such as restoration of degraded areas, protection of existing forests, and training and participation of local communities in sustainable land management practices. These activities were compared to the requirements of the BCR Standard to ensure compliance.

Finally, the assessment included interviews with project managers and other stakeholders to corroborate the documented information and ensure that all project activities and categorizations are aligned with the criteria of the BCR Standard version 3.4. In conclusion, the steps carried out for the assessment confirmed that the ORINOCO2 project complies with the established conditions, adequately identifying its scope, type, activities and scale, thus ensuring its eligibility and compliance with validation and verification requirements

5.3 Grouped project (if applicable)

To assess compliance with the requirements and conditions for developing a clustered project in accordance with the BCR standard version 3.4 and the methodologies BCR0002 version 4.0 and BCR0005 version 1.1, a systematic analysis of the documentation provided was conducted, specifically the information contained in Section 13 of the Project Document V2.4, referencing the detailed information in the PDD v2.4, in the following sections:

- *Section 3.3: Baseline Scenario Identification and Additionality*
- *Section 3.2.1.2: Reference Region and Baseline Estimation*
- *Section 2.3.1: Analysis of Causes and Agents of Deforestation and Transformation of Natural Savanna Covers.*

For this purpose, it was ensured that the project document includes relevant information regarding the project's expansion areas. In this regard, the project proponent describes the expansion area for each project activity in Section 13 of PDD v2.4. These areas correspond to the validated reference region for each activity, ensuring uniformity and compatibility with the reference scenario and additionality characteristics of each project activity.

The project proponent also provides a proper description of how to comply with the BCR requirements and methodologies in their most updated versions.

In Section 13 of the Monitoring Report V2.4, it was confirmed that for this specific verification (2018-2022), no new areas were included since it was conducted in conjunction with the initial validation of the project. However, it was noted that the project expects to incorporate additional areas over the next two years for subsequent verifications.

5.4 Other GHG program

First, it is confirmed that neither the project nor its areas have participated in other programs based on the primary information provided by the project proponent, corroborated

through a review of the GHG program records such as ColCX, Gold Standard, Puro Earth, Global Carbon Council, Cercarbono Clean Development Mechanism, Plan Vivo, Climate action reserve, MDL (United Nations) and VERRA; verified by audit team. No records of attempted registration or rejection by other programs were found, which corroborates the exclusivity of its registration under BCR Standard . This confirms that the project areas are not and have not been part of other climate change mitigation projects. Similarly, it is verified that the project has not been registered and therefore has not been rejected by other certification programs.

Once this has been confirmed, and considering that the project falls within the AFOLU sector, an evaluation and verification of non-overlap between the project areas and other projects is conducted. The cartographic information for each carbon project in the area was downloaded directly from the respective standard's website. This information was organized, Then, the "Intersect" algorithm was applied between the project areas and the zones defined by each carbon standard. The result confirm that the project area does not overlap with any other project area in the region

In addition, the project proponent was requested to perform and detail this analysis in the Project Document V2.4, Section 14 Other GHG Programs, related to Section 15.2: Review of Other Carbon Programs. The analysis. All relevant information from this analysis is duly included in the annex to the project document1.4.4.3 DataBase, provided by the project proponent.

5.5 Quantification of GHG emission reductions and removals

To evaluate the quantification of GHG emission reductions and removals of the ORINOCO2 project, we followed the procedures established in accordance with the applicable requirements of the methodology used and the validation and verification manual version 2.4.

First, a thorough review of the Project Description Document (PDD) and the Monitoring Report was conducted to understand the methods and data used in the quantification of emission reductions. This review included verification of the mathematical formulas applied, the accuracy of the activity data, emission factors, and the sources of information used to ensure their validity and reliability.

Next, the applied methodology was examined, ensuring that it was aligned with the norms established by the BCR Standard version 3.4. This involved assessing the consistency and transparency in the application of quantification methods, as well as the adequacy of the tools and models used to estimate GHG reductions. It was verified that the methodology was appropriate for the type of project and its specific context.

Subsequently, interviews were conducted with project managers and specialized technicians to clarify technical aspects of the quantification and resolve any ambiguities in the reported

data. These interviews provided additional information and validated the understanding of the processes and procedures implemented in the project.

An assessment of the uncertainty associated with the emission reduction estimates was also performed as required by the BCR Standard version 3.4. This included the analysis of measurement error margins and the application of conservative approaches to ensure that reported reductions were not overestimated. The assumptions and emission factors used were reviewed and compared to the national reference level.

In addition, compliance with the monitoring plan described in the PDD was verified, ensuring that the monitoring activities were carried out as planned and that the data collected were representative and accurate. Field records and periodic monitoring reports were reviewed to confirm the consistency and accuracy of the reported emissions data.

Finally, the reported emission reductions were compared to the baseline established for the project. This step served to ensure that the GHG reductions were additional and directly attributable to project activities, meeting the additionality criteria established by the standard in its version 3.4.

5.5.1 Start date and quantification period

The ORINOCO2 project has an official start date set as October 1, 2018. This date marks the beginning of group activities aimed at generating emission reductions in the project areas. During the validation process, the evidence provided by the project holder was reviewed, including letters of intent sent by participating landowners during 2018, demonstrating their commitment to reducing deforestation, forest degradation, and land use change in natural savannas. This documentation is found in anexx " 2.1. PROPERTY DOCUMENTS" of the PDD and was reviewed to ensure consistency and adequate support for the declared start date.

The project areas correspond to qualified land within private properties, where landowners act as the primary agents of both transformation and conservation, protecting forests against wildfires. Thus, the intention of the landowners to preserve these areas and integrate them into a mitigation project was considered an essential step to generate the change envisioned by the project. This commitment was verified during the audit process through the review of the annex 6.5.1.2.2 "Property Implementation Plans" and supported planning records.

The start date of October 1, 2018, was established as the moment when participants began structuring property implementation plans, focusing on reducing wildfire risks, conserving natural forest, and implementing sustainable productive practices to conserve the ecosystems. During the validation, meeting records, service contracts, and related documentation were reviewed, confirming the preparation and initial execution of practical activities following the letters of intent. This process led to the conclusion that the declared start date accurately reflects the beginning of mitigation actions within the project.

Upon reviewing the documents and records presented, it was determined that the evidence provides a solid justification and complies with the criteria set forth in the BCR standard and the BCR0002 and BCR0005 methodologies. The specific mitigation actions that began after structuring the implementation plans and letters of intent ensure that the activity start requirements, established in the Validation and Verification Manual (VVM), are met.

Next, the expected quantification period was evaluated, which runs from October 1, 2018 to December 31, 2022. This period was corroborated by reviewing monitoring records, ensuring that GHG emissions and removals data were collected continuously and systematically during this time interval.

Additionally, project operational time was examined, which is defined as the period during which the project is operational and generating GHG emission reductions. The useful life of the project was also evaluated, which refers to the total period during which the project is expected to continue to generate environmental benefits and GHG reductions. The ORINOCO2 + project has a projected lifespan of 40 years (2018 to 2058), aligned with long-term sustainability objectives and requirements of the BCR standard for Afolu and REDD+ Projects.

Finally, these aspects were confirmed through interviews with project managers and other key stakeholders, who provided additional information to validate the accuracy of the data presented.

The audit has validated that the project has an effective start date of 1 October 2018, at which point group activities began to generate emission reductions in the project areas. This aspect is supported by the letters of intent sent by the project participants during 2018, and Property Implementation Plans. Demonstrating a clear and documented commitment to carry out the necessary actions to mitigate the environmental impact on the properties participants in the project.

5.5.2 Application of the selected methodology and tools

5.5.2.1 Title and Reference

The ORINOCO2 project used two different methodologies to address the different types of ecosystems present in the project area. For forests, the methodology "Quantification of Greenhouse Gas Emission Reductions from REDD+ Projects" was applied, identified by reference BCR0002, version 4.0,. For natural savannas, the methodology entitled "Quantification of Greenhouse Gas Emission Reductions in Natural Savannas", identified by reference BCR0005, version 1.1. Both methodologies and their associated tools were validated and confirmed as valid at the time of submission of the project registration.

In this regard, it was verified that the project holder applied both methodologies, including all the parameters and data referred to by each methodology. The assessment of the application of the methodologies was performed in accordance with the applicable validation

requirements, ensuring that the guidelines and procedures established by the BCR standard version 3.4 were followed.

Additionally, the desk review included confirmation that the specific versions of the methodologies used were the most recent and valid at the date of submission of the project registration. Emission quantification procedures, reduction calculations and monitoring tools were reviewed to ensure that they were aligned with the methodological requirements of each of the methodologies.

Finally, the implementation of the specific tools and parameters indicated in both methodologies was evaluated. This assessment included verification of activity data, emission factors and other parameters used in the GHG reduction calculations for both forests and natural savannas. It was ensured that all data and tools were applied correctly and in accordance with the corresponding methodological guidelines.

The Project Description contains complete information about the project activities, project start date, project crediting period, project scale, project location, project boundary, baseline scenario, additionality and monitoring. The Project Description was designed to conform to the Standard BCR v.3.4 (June 2024). BCR 0002 Methodology and the Methodological Document Sector AFOLU / BCR 0005 Quantification of the Reduction of GHG Emissions and Removals.

Table 9. Used Tools

Tool	*PDD Section*	*Assessment*
BCR Guidelines: Baseline and Additionality V 1.3 March 1, 2024	*3.3. Identification of the Baseline Scenario and Additionality*	*The development of section 3.3 was reviewed. and compared with the information and guidelines of the tool. The correct use by the project is validated and verified.*
BCR Tool: Permanence and Risk Management V1.1 19 March 2024	*7. Risk management*	*The development of section 7 was reviewed and compared with the information and guidelines of the tool. The correct use by the project is validated and verified.*
BCR Tool	*8. Sustainable Development Safeguards*	*The development of section 8 was reviewed and compared with the information and guidelines of the tool. The correct use by the project is validated and verified.*

BCR Tool: Sustainable Development Goals V 1.0 13 July 2023	10. Sustainable development goals	The development of section 10 was reviewed and compared with the information and guidelines of the tool. The correct use by the project is validated and verified.
BCR Tool To Demonstrate Compliance With The Redd+ Safeguards Version 1.	11. REDD+ Safeguards	The development of section 11 was reviewed and compared with the information and guidelines of the tool. The correct use by the project is validated and verified.
BCR Tool: Avoidance of Double-Counting V2.0 7 February 2024	15. Double counting avoidance	The development of section 15 was reviewed and compared with the information and guidelines of the tool. The correct use by the project is validated and verified.
BCR Tool: Monitoring, Reporting and Verification V1.0 February 13, 2023	16. Monitoring plan	The development of section 16 was reviewed and compared with the information and guidelines of the tool. The correct use by the project is validated and verified.

5.5.2.2 Applicability

In order to evaluate the compliance of the ORINOCO2 project with all the applicability conditions of the methodologies and tools used to quantify GHG emission reductions and removals, the following steps were carried out.

First, the applicability conditions of BCR0002 version 4.0 and BCR0005 version 1.1 were identified. Second, the compliance with these conditions was compared against the justification and evidence provided by the project proponent in the PDD and its annexes. Finally, a conclusion was drawn for each applicability condition. In this sense, a conformity assessment was conducted for each applicability criterion. See Table 5 for further details.

Table 10. Compliance Assessment with project applicability conditions under BCR0002 version 4.0 and BCR0005 version 1.1 methodologies.

Methodology	Applicability Condition	Conclusion
BCR0002 V4.0	The areas within the geographical boundaries of the project correspond to the forest category according to the national definition of forest for	**Complies**. An eligibility analysis was performed in accordance with BCR0002 V34.0 methodology numeral 8.1 (see

Methodology	Applicability Condition	Conclusion
	the Clean Development Mechanism (CDM) at the beginning of project activities and 10 years prior to the project start date.	*project description document version 2.4, Section 3.7.1.1).*
BCR0002 V4.0	*The causes of deforestation can include, among others: expansion of the agricultural frontier, mining, timber extraction and infrastructure expansion.*	***Complies**. The main causes identified are the expansion of the agricultural frontier and fires (see project description document version 2.4, Section 2.3.6 and Section 2.3.7).*
BCR0002 V4.0	*The causes of forest degradation identified may include: selective logging, firewood extraction, forest fires, grazing in forest areas, expansion of the agricultural frontier, and illicit crops.*	***Complies**. Causes include the expansion of the agricultural frontier and fires (see project description document version 2.4, Section 2.3.6 and Section 2.3.7).*
BCR0002 V4.0	*No reduction in deforestation or degradation is expected to occur in the absence of the project.*	***Complies**. The baseline and additionality analysis evidences the continuation of deforestation and degradation without the project (see project description document version 2.4, Section 3.3).*
BCR0002 V4.0	*Carbon stocks in soil organic matter, litter and dead wood may decrease or remain stable in areas within the project boundaries.*	***Complies**. Carbon stocks decrease according to the baseline scenario (see project description document version 2.4, Section 3.2.2).*
BCR0002 V4.0	*The quantification of GHGs other than CO_2 should be included in the quantification caused by forest fires (if applicable) during the monitoring period.*	***Complies**. The quantification of CH_4 and N_2O emissions caused by forest fires during monitoring is contemplated (see project description document version 2.4, Section 3.2.2).*
BCR0005 V1.0	*The areas within the geographical limits of the project correspond to natural savannahs.*	***Complies**. An analysis was conducted for the delimitation of eligible areas of the natural savanna ecosystem (see project description document version 2.4, Section 3.7.1.2).*
BCR0005 V1.0	*Project activities avoid land use change in natural savannas.*	***Complies**. Activities avoid land use change through sustainable practices and conservation (see project description document version 2.4, Section 2.3.8.1).*
BCR0005 V1.0	*Project activities include biodiversity conservation actions that integrate efforts to preserve, restore and/or manage and sustainably use the savannas.*	***Complies**. Activities include preservation, restoration and sustainable management of savannas (see project description document version 2.4, Section 2.3.8.1).*
BCR0005 V1.0	*The causes of land use changes identified may include, among others: expansion of the agricultural*	*Complies. The main cause identified is the expansion of the agricultural frontier (see*

Methodology	*Applicability Condition*	*Conclusion*
	frontier, mining, extraction and loss of vegetation cover.	*project description document version 2.4, Section 2.3 / Section 2.3.7).*
BCR0005 V1.0	*Carbon stocks in soil organic matter litter and dead wood may decrease or remain stable in areas within the project boundary.*	***Complies**. A decrease in carbon stocks is expected according to the baseline scenario (see project description document version 2.4, Section 3.2.2).*
BCR0005 V1.0	*The amount of nitrogen-fixing species used in project activities is not significant, so GHG emissions from denitrification can be considered insignificant.*	***Complies**. GHG emissions from denitrification are negligible due to dispersed planting of native species (see project description document version 2.4, Section 3.7.1.2).*

Source: Present validation and verification report, based on project description document version 2.4.

On the other hand, it was validated that the project proponent, in the quantification of emissions within the PDD Version 2.4, in the following sections:

- *Section 3: Quantification of GHG Emissions Reduction*
- *Section 3.1: Quantification Methodology*
- *Section 3.1.1: Applicability Conditions of the Methodology*
- *Section 3.1.2: Methodology Deviations*
- *Section 3.2: Project Boundaries, Sources, and GHGs*
- *Section 3.2.1: Spatial Limits of the Project*
- *Section 3.2.2: Carbon Reservoirs and GHG Sources*
- *Section 3.2.3: Time Limits and Analysis Periods*
- *Section 3.4: Uncertainty Management*
- *Section 3.5.1: Leakage*
- *Section 3.6: Mitigation Results*
- *Section 3.6.1: Eligible Areas within the GHG Project Boundaries*
- *Section 3.6.2: Stratification*
- *Section 3.6.3: Emission/Removal Reductions in the Baseline Scenario*
- *Section 3.6.4: Emission/Removal Reductions in the Project Scenario*

Strictly followed the guidelines established in BCR 0002 Version 4.0 and BCR 0005 Version 1.0 methodologies.

Additionally, for the development of the PDD V2.4, Section 3.3: Identification of the Baseline Scenario and Additionality, the project proponent complied with the criteria set forth in Section 10 of the BCR 0002 methodology and Section 8 of the BCR 0005 methodology, correctly using the BCR Baseline and Additionality Tool V.1.3. Conducting an independent analysis for each methodology.

Therefore, it is concluded that the project meets all the conditions of applicability and use of tools for each of the methodologies.

Finally, the project proponent was requested to establish the baseline and additionality scenario for each methodology applied in Section 3.3 of the Project Document Version 2.4. Additionally, an analysis was requested regarding the relevance of combining the BCR002 and BCR005 methodologies within the same project scenario, as well as their compatibility with the baseline, additionality, leakage, and other relevant elements. This analysis was developed by the project proponent in Section 2.5 of the PDD.

The audit team reviewed and evaluated the analysis and supporting evidence, concluding that the project correctly identifies and delineates the activities and boundaries for each methodology. It was determined that both methodologies are applicable together without overlap and that they do not negatively affect additionality, leakage, or emissions. Therefore, it is concluded that the use of both methodologies in the development of the project is pertinent.

5.5.2.3 Methodology deviations (if applicable)

It was confirmed that the ORINOCO2 project does not present a methodological deviation in the emission quantification processes.

5.5.3 Project boundary, sources and GHGs

During the validation and verifications process of the ORINOCO2 project, a thorough review was conducted to assess compliance with requirements related to project boundaries, including the identification of selected sources and gases. This evaluation was based on a review of documentation provided by the project holder, along with observations made during the on-site visit to project areas in the departments of Meta and Vichada.

The documentation evaluated included geospatial data that clearly defined the project boundaries and the scope of the managed areas, along with records of carbon inventories and other technical studies supporting the identification of emission sources and carbon reservoirs within the project area. These documents, were thoroughly reviewed to verify the accuracy of the geographical delimitation and consistency with the applied methodologies (BCR0002 and BCR0005). Additionally, satellite data were assessed to corroborate the location and extent of the areas included in the project.

specifically, the following sections were reviewed:

- *3.2 Project boundaries, sources and GHGs*
- *3.2.1. Spatial limits of the project*
- *3.2.1.1. Project area*
- *3.2.1.2 Reference Region for Baseline Estimation*
- *3.2.1.3 Leakage area*
- *3.2.2. Carbon reservoirs and GHG sources*

The geographic information described was compared with the information developed in the annexes and BCR 0005 and BCR0002 methodologies:

- *1.1.1. GDB savvanas*
- *1.1.2 GDB REDD+*

During the on-site visit, the following aspects were reviewed:

On-site verification of the boundaries defined in the project maps using GPS devices and comparison with available geospatial data.
Interviews with landowners to confirm their understanding and acceptance of the established boundaries on their properties.
Direct observation of the terrain conditions and conservation activities implemented to ensure consistency with the intervention areas declared in the PDD.

This review and contrast focused on confirming that the geographic boundaries of the project were clearly defined and included all relevant areas for GHG mitigation activities. It was verified that the delineation of project areas was based on accurate and up-to-date geospatial data, ensuring that all areas subject to conservation and reforestation activities were adequately included.

In addition, during the desk review and field visit, the project boundaries were corroborated using Geographic Information Systems (GIS) tools and comparison with the maps and descriptions provided in the project documentation and related GDB annex. This on-site verification confirmed the accuracy of the geographic delimitation and the correct identification of the intervention areas.

Next, the sources of emissions and greenhouse gases (GHG) selected by the project were evaluated. This analysis included a review of the emission quantification processes for each identified source, such as deforestation, forest degradation and land use change in natural savannas. It was verified that all relevant gases, including CO_2, CH_4 and N_2O, were included in the quantification of emissions, and that the methods used for their estimation were consistent with the methodological requirements.

The selected carbon pools were also reviewed, ensuring that all key ecosystem components such as aboveground biomass, belowground biomass, litter, dead wood and soil organic carbon were considered in the analysis. This review was based on technical documentation and field data collected during the visit, confirming that the selected reservoirs were representative and appropriate for the project context.

Finally, the assessment also included confirmation that the project boundaries, selected sources and gases considered were in compliance with the applicable validation requirements as specified in the validation and verification manual version 2.4. Also, it was verified that the project boundaries were justified based on scientific and technical criteria, and that the selection of sources and reservoirs followed the methodological guidelines.

Table 11. Reservoirs and sources component Forests.

Type	Source or Reservoir	GHG	Included (YES/NO/ Optional)	Justification
Reservoir	Aerial biomass	CO_2	YES	The change in carbon content in this reservoir is significant according to the IPCC and is highly affected by the loss of natural cover; land use change and temperature increase (FAO. 2017, Kauffman et al. 2016). Likewise, the loss of forest cover and CO2 release can have a considerable impact on the global C balance (Brown et al., 1996). Thus, it is considered as a relevant reservoir for the quantification of emissions in the baseline and monitoring scenario of the project.
Reservoir	Subterranean Biomass	CO_2	YES	The change in carbon content in this reservoir is significant according to the IPCC and can be significantly affected by changes in land use (Kauffman et al. 2016). In addition, official information applicable to the project is available.
Reservoir	Deadwood and leaf litter	CO_2	YES	Carbon content is expected to decrease in the baseline scenario. However, based on the availability of official data applicable to the project, only the dead wood pool is considered for the emissions estimate.
Reservoir	Soil organic carbon	CO_2	YES	The change in carbon content in this reservoir is significant according to the IPCC, and it is susceptible to considerable carbon losses in the baseline scenario. Therefore, its inclusion in REDD+ projects is recommended (Yepes et. al, 2011). In addition, there is official information applicable to the project.
Source	Woody biomass combustion	CO_2	NO	According to BCR0002 V4.0 methodology, CO2 emissions due to woody biomass combustion are not quantified.
		CH_4	YES	In the event of fire events in the tree component (woody biomass combustion) during the monitoring period, the affected area will be identified and CH4 emissions will be quantified.

Type	Source or Reservoir	GHG	Included (YES/NO/ Optional)	Justification
		N_2O	YES	In the event of fire events in the tree component (woody biomass combustion) during the monitoring period, the affected area will be identified and CH_4 emissions will be quantified.

source: Fundación Cataruben, 2024.

Table 12 Reservoirs and sources Savannas component

Type	Source or Reservoir	GHG	Included (YES/NO/ Optional)	Justification
Reservoir	Aerial biomass	CO_2	YES	The change in carbon content in this reservoir is significant according to the IPCC and is highly affected by natural cover loss, land use change and temperature increase (Bond-Lamberty et al., 2018, FAO. 2017, Kauffman et al. 2016). Therefore, it is considered relevant for the quantification of GHG emissions in the scenario with and without project.
Reservoir	Subterranean Biomass	CO_2	YES	The change in carbon content in this reservoir is significant according to the IPCC.
Reservoir	Soil organic carbon	CO_2	YES	It is contemplated, as it is one of the main carbon reservoirs in savanna ecosystems, in addition it can be highly affected by the loss of natural cover, land use change and temperature increase (Bond-Lamberty et al., FAO. 2017, Kauffman et al. 2016).
Reservoir	Necromass and Leaf Litter	CO_2	NO	Conservatively excluded. While carbon contents in this reservoir may decrease in the baseline scenario, no official local or regional data applicable to the project are available.
Source	Woody biomass combustion	CO_2	NO	According to BCR0002 V4.0 methodology, CO_2 emissions due to woody biomass combustion are not quantified.
		CH_4	YES	In the event of fire events in the tree component (woody biomass combustion) during the

Type	Source or Reservoir	GHG	Included (YES/NO/ Optional)	Justification
				monitoring period, the affected area will be identified and CH4 emissions will be quantified. It is not considered in savanna burns.
		N_2O	YES	In the event of fire events in the tree component (woody biomass combustion) during the monitoring period, the affected area will be identified and CH4 emissions will be quantified.

Source: Fundación Cataruben, 2024.

The process of evaluating the project boundaries and the selection of sources and gases was conducted in accordance with the established validation criteria. The review of documentation, along with field verification, led to the conclusion that the project boundaries are adequately defined and supported by verifiable evidence. This ensures that the project complies with the applicable requirements of the BCR standard, and the methodologies (BCR 0005 and BCR 0002) used for quantifying GHG reductions.

5.5.3.1 Eligible areas in the GHG project boundaries (for AFOLU projects)

To assess the compliance of the areas within the geographic boundaries of the Orinoco REDD+ project2 with the land cover and land use categories, it was ensured that the requirements established in the BCR Standard version 3.4 and the applied methodologies BCR0002 version 4.0 (section 8.1) and BCR0005 version 1.0 (section 7.1.1) were met. First, an analysis of the project's REDD+ eligible areas was carried out. Given that these areas correspond to stable forests located within the boundaries of the properties for a period of at least ten years prior to the start date of the project. The definition of forest adopted by Colombia and used by the Forest and Carbon Monitoring System (SMByC) was used as a reference. According to this definition, forest is considered to be land occupied mainly by trees, which may contain shrubs, palms, guaduas, herbs and lianas, and which has a tree cover with a minimum canopy density of 30%, a minimum in situ canopy height of 5 meters at the time of identification, and a minimum area of one hectare.

To identify the forests present on the properties, the project generated a classification process through the Google Earth Engine (GEE) platform using Landsat constellation images, which have a spatial resolution of 30 meters per pixel and a revisit time of 16 days. Forest maps for the years 2008 and 2018 were generated using image collections from Landsat 5, 7 and 8 satellites using the GEE platform. During the construction of the mosaics, the incumbent established filters for each year, obtaining 20 scenes for the year 2008 and 28

scenes for the year 2018. This information search process ensured the selection of images free of environmental noise such as clouds or distortions, guaranteeing optimal conditions for digital processing. In case of clouds, the project performed a masking to eliminate them, including their shadows, thus ensuring a clear representation of the earth's surface.

Once the different satellite images were obtained, the project merged them to create a mosaic on which the analysis was carried out. Forest classification using Digital Image Processing (DIP) required training samples verified by field observations, high-resolution imagery (WorldView 2, GeoEyes, Planet) and visual interpretation. The Random Forest algorithm was used by the project to classify forest and non-forest mosaics from the training samples. This supervised learning technique generated multiple decision trees on a training dataset, the results of which were combined to obtain a single, more robust model.

Subsequently, to ensure the thematic quality of the products generated, the project implemented a supervised review and adjustment process through visual interpretation. The project owner through the Procedure carried out this process for Computer-Aided Interpretation (PIAO), complemented by the use of the "Imagery" module of ArcGIS Pro v3.2 software. These measures improved the results of the classifications obtained in GEE, ensuring greater accuracy and reliability in the thematic quality of the products. Finally, after review and supervised adjustment by the project manager, the model was validated for each year using the AcATaMa add-on in QGIS software, which is a measure to verify the consistency and accuracy of the classification. It is worth noting that the AcATaMa add-on is a development of the Forest and Carbon Monitoring System (SMByC), which is part of IDEAM.

Regarding the eligible areas of natural savannas, the project owner evidenced that the geographical limits of the project corresponded to the savanna biome, specifically to the Llanos Ecoregion, according to the WWF classification. The project developer using land cover maps from 2012 and 2018, at a scale of 1, carried out the identification of these areas:100,000. This was the product of an inter-institutional work led by IDEAM and in which various institutions of the National Environmental System (SINA) participated, as well as the Agustín Codazzi Geographic Institute (IGAC) and National Natural Parks (PNN), consolidating as national cartography. According to section 7.1.1 of methodology BCR0005 version 1.0, coverages identified as grasslands and shrublands are considered savannas. It was verified that the savanna areas were maintained in these categories from five years prior to the project start date until the beginning of project activities, as shown in multitemporal satellite images provided by the project developer.

The conformity evaluation is detailed below:

1 Evaluation of Compliance with the Areas within the Project's Geographic Boundaries According to the Land Cover/Use Categories (BCR Standard, BCR0002, BCR0005)

The evaluation of compliance concerning the land cover and use categories within the geographic boundaries of the Orinoco2 project has been conducted in accordance with the BCR0002 and BCR0005 methodologies, as well as the requirements set by the BCR Standard. The analysis was carried out using specific geospatial inputs described in Annex 1.1 GDB, which include satellite products and classification models.

The project utilized satellite images from Landsat 8 (years 2022 and 2018) and Landsat 5 (year 2008) to identify and validate the eligible areas within the project boundaries, by calculating the Normalized Difference Vegetation Index (NDVI) and classifying forest and non-forest areas (BNB) using the Google Earth Engine (GEE) platform. These inputs allow for precise determination of land use and cover areas, as required by section 9.1 of the BCR0002 methodology.

For the analysis of natural savanna cover, in accordance with the BCR0005 methodology, section 7.1.1, Sentinel-2 images from 2022 were used, combined with Computer-Assisted Photo Interpretation (PIAO) techniques, enabling the identification of land use covers. The cover results were validated using field control points and through the generation of a confusion matrix, which showed an overall accuracy of 95.85% and a Kappa index of 93.65%. These results reflect a high level of accuracy in the land cover classification, meeting the requirements of both methodologies.

2 Analysis of the Relevance of the Cartographic Sources and Methods Used

The use of cartographic sources and the methods applied in the Orinoco2 project are highly relevant to ensure the veracity and accuracy of the information, especially in REDD+ projects where accuracy in land cover classification is critical for validation and monitoring.

The satellite images used, specifically Landsat 8 and Sentinel-2, are widely recognized and used in international projects for monitoring land cover changes, making them reliable, high-resolution sources for vegetation and land use analysis. The use of the Google Earth Engine (GEE) platform for processing these images ensures efficient and accurate integration of satellite data, with the capability to handle large volumes of geospatial data.

The use of the AcATaMa tool for validating the BNB (Forest/Non-Forest) models is a robust technique that supports the consistency of the analyses. This tool allows for validation of the classification results through models designed to ensure data accuracy and coherence. The procedures described in the annexes, such as Annex 1.1.2.2 AcATaMa, clearly document the methodology used, reinforcing the transparency and reproducibility of the analysis.

Additionally, the use of the confusion matrix to validate the classified layers provides an additional quality control mechanism regarding the interpretation of CLC with satellite images, ensuring that the classification of land covers is correctly assigned, with an accuracy level close to 96%. This validation methodology is a standard for supervised land use change classification, determining the accuracy and quality of the results.

3 Evaluation of Eligibility Analysis Results According to BCR0002 and BCR0005 Methodologies

Spatial Resolution Applicable to Project Areas

The eligibility analysis conducted under the BCR0002 and BCR0005 methodologies is based on spatial resolutions appropriate for the project's objectives. For identifying eligible areas under BCR0002, Landsat 8 and Landsat 5 images were used, with a spatial resolution of 30 meters, sufficient to detect land cover changes at the landscape scale, using supervised classification in GEE. For identifying BCR0005 eligible areas, national land cover inputs from Corine Land Cover at a 1:100,000 scale, adapted for Colombia by IDEAM, were used. For monitoring and classifying the savannas, Sentinel-2 images with a spatial resolution of 10 meters were employed, providing a higher level of detail to identify specific characteristics of natural savannas and other land covers.

Sources of Information to Corroborate Interpretations and Classifications

The sources of information used include satellite data from Landsat 5 and Landsat 8, both internationally recognized and widely accepted for monitoring forest covers and land use. These data were corroborated with field control points and complemented with models validated by the AcATaMa tool, ensuring that interpretations and classifications are accurate and verifiable.

Additionally, the classifications were verified through field control points, further reinforcing the reliability of the satellite images and ensuring that the classification accurately reflects the field conditions. This procedure is clearly documented in the annexes, such as Annex 1.1.2.3 Procedures – GGP-05, demonstrating the transparency and accuracy of the process.

Analysis of the Accuracy of the Interpretation Processes of the Layers Used

The eligibility analysis results were highly accurate under both methodologies. For the interpretation process of forest and non-forest areas under BCR0002, accuracy levels reached 0.96 (2008), 0.95 (2018), and 0.94 (2022), indicating that the layers used for land cover classification meet high-quality standards.

Under the BCR0005 methodology, the confusion matrix generated to validate savanna coverages for the year 2022 showed an overall accuracy of 95.85% and a Kappa index of 93.65%, reflecting a high level of reliability in the interpretation and classification of the satellite images used. These results ensure that the eligible areas for the project have been correctly identified and validated according to the established methodological standards.

In conclusion, the Orinoco2 project complies with the criteria established in the BCR0002 and BCR0005 methodologies for the identification and monitoring of eligible areas, using reliable satellite data sources and robust validation methods. The geospatial tools and classification methods implemented have provided accurate and consistent results,

confirmed by accuracy analyses and field validation, ensuring that the interpretations and classifications of land cover and use are reliable and aligned with the BCR Standard requirements.

5.5.4 Baseline or reference scenario

To assess the baseline scenario identified for the ORINOCO2 project, the applicable validation requirements related to the establishment of the baseline scenario according to and the applied methodologies BCR0002 version 4.0 (section 9) and BCR0005 version 1.1 (section 8) and the validation and verification manual version 2.4 (sections 7, 9.1 and 9.2) were followed. Documentary review was carried out to ensure that assumptions, methods, parameters, data sources and emission factors were applied in a transparent manner, adequately justified and supported by sufficient evidence, as well as the step-by-step indicated by each of the methodologies indicated for the establishment of the baseline scenario.

In Section 3.3 of the Project Design Document (PDD), the project holder identifies credible scenarios for both forested areas and natural savannas. Regarding forest lands, the analysis confirms that despite national legislation prohibiting deforestation, such as Law 99 of 1993 and Decree 1791 of 1996, deforestation and forest degradation remain widespread in the project area. This is demonstrated through spatial analyses and the deforestation strategy presented by the Colombian government. The analysis verifies that the pre-project land-use scenario, involving continued deforestation and degradation, is a probable and credible baseline scenario.

In the case of natural savannas, the project identifies that agricultural expansion, particularly for crops like rice, maize, and palm, represents a significant risk of land-use change. The inclusion of the project area within Colombia's agricultural frontier, as emphasized by the National Development Plan and Resolution 128 of the Ministry of Agriculture, strengthens the likelihood that the conversion of savannas into agricultural lands is a probable alternative scenario.

Below are the steps taken to assess the assumptions, methods, data, and factors involved in identifying the baseline scenario, focusing on transparency, justification, uncertainty management, and compliance with national and sectoral policies.

a. *Identification of Assumptions, Methods, and Data Sources*
   The baseline scenario analysis was based on clearly defined assumptions and methods, supported by verified data sources.

For BCR0002, the key assumption was that deforestation and forest degradation in the Orinoquía high plains would continue due to the expansion of the agricultural frontier and the need for landowners to exploit natural resources for subsistence. This assumption was justified using historical deforestation data from sources like IDEAM, validated through

spatial analyses and satellite imagery, documented in Table 14 of the DPD and the project's GDB.

For BCR0005, the baseline scenario of converting natural savannas to agricultural land was supported by records from the Ministry of Agriculture, DANE, and IDEAM, showing an increase in transforming savannas into crops like palm, rice, and corn.

b. Uncertainty Management and Use of Prudential Assumptions

Uncertainty was managed by using official sources to identify deforestation rates, forest degradation, and land-use change in natural savannas, always applying prudential assumptions.

c. Consideration of National Policies and Sectoral Circumstances

The baseline scenario analysis included a review of relevant national and sectoral policies. For BCR0002, Law 99 of 1993 and Decree 1791 of 1996 were considered, prohibiting land-use change in forest areas without authorization. However, spatial analysis shows that deforestation remains common in the region.

For BCR0005, provisions from the National Development Plan and Resolution 128 of the Ministry of Agriculture were considered, allowing the conversion of savannas within the agricultural frontier.

Additionally, Resolution 1447, Article 41, was considered for baseline establishment.

d. Consistency in Baseline Scenario Identification and Emission Factors
The procedures used were consistent with emission factors, activity data, and GHG emission projections, using the BioCarbon Baseline and Additionality Tool V.1.3. Data from national sources ensured credibility and conformity with national and regional conditions, accurately reflecting current trends.

e. Data Quality Assurance According to ISO 14064-2
Rigorous procedures were implemented to ensure data quality in line with ISO 14064-2, including cross-verification with forest inventories from IDEAM and multitemporal analyses using official sources to validate deforestation projections. Quality controls were also established for GHG emission data, detailed in Section 16.3 of DPD V2.4.

In addition, during the assessment of the baseline scenario, multiple sources of information were used and crosschecks of data used by the project owner and official country information were performed. This process ensured that the baseline scenario identified was relevant, adequately justified and aligned with national accounting. The documents reviewed included their geo database; land cover maps, satellite imagery and historical land use records, providing a compendium of information for the identification of the baseline scenario.

In accordance with section 11.2 of the BioCarbon Standard version 3.4, it was corroborated that the project complies with its baseline establishment criteria, as well as its re-validation period or baseline update to be carried out every 10 years.

In conclusion, the analysis performed is aligned with the criteria established in paragraphs 10 of the BCR 0002 methodology and 8 of the BCR 0005 methodology, in accordance with the guidelines set forth in the Baseline and Additionality Tool V.1.3. The baseline scenario analysis conducted for the BCR0002 and BCR0005 methodologies was evaluated and meets the applicable validation requirements. The assumptions, methods, and data used are properly justified and supported by solid documentary evidence, including references to national laws and sectoral policies. The uncertainty management was appropriate, using conservative assumptions. Consequently, the evidence used to determine the baseline scenarios is relevant and properly justified.

5.5.5 *5.5.4.1 Reference Region for Baseline Estimation*

The auditor has reviewed the delineation of the reference region for estimating land-use changes in natural savannas, as well as deforestation and forest degradation in vegetation and natural covers (grasslands, shrublands, and forests) that could occur in the project area in the baseline scenario. The similarity between the reference regions and the project area in terms of access, drivers of land-use change, land-use categories, landscape configurations, environmental and socioeconomic conditions, and local/regional context has been assessed. Below is the evaluation of the process based on the provided information.

I. *Similarity in access: The auditor confirms that both the project area and the both reference regions have developed or developing road infrastructure. This road network facilitates human access to different parts of the territory, similarly influencing deforestation and coverage transformation. Access to natural areas for activities like livestock and agriculture results in changes in land cover and loss of natural space. The provided cartographic information (Annex 1. Emissions/1.1.Gdb/1.1.1.sabanas and 1.1.2.REDD. Feature Dataset Biophysical Surroundings/Vias.shp) supports this statement, and it is concluded that access is comparable in both territories.*
II. *Drivers of change: It is confirmed that both the project area and the reference regions share similar environmental conditions (climate, relief, soil type, and water resources), influencing drivers of change such as deforestation and soil degradation. Socioeconomic pressures, like population growth and demand for natural resources, are comparable in both regions, affecting the expansion of the agricultural frontier similarly. The information provided in Annex 1.Ediciones/1.1.Gdb/1.1.1.sabanas and 1.1.2.REDD (DriversChange/Aptitud.shp) is consistent with methodological requirements.*
III. *Land uses: The auditor validates that both the reference regions and the project areas share similar geographical and environmental characteristics, the territory covered by natural vegetation, intended for agroforestry, silvopastoral systems, and primary forest conservation. Details regarding land use and capacity are well-described in the*

biophysical context (Section 2.3.2.1.2) and supported by cartographic information (Annex 1. Emissions/1.1.Gdb/1.1.1.sabanas and 1.1.2.REDD).

IV. *Land use category: The reference region and the project area share similar geographical and environmental characteristics. Land-use categories are clearly described, and the provided cartographic data (Annex 1. Emissions/1.1.Gdb/1.1.1.sabanas and 1.1.2.REDD) are consistent with the applicable data and methodology.*

V. *Land use categories and/or changes in land use:The auditor validates that land-use conflict identification is consistent with the local and regional conditions described in the biophysical context (Section 2.3.2.1.2), supported by cartographic data (Annex 1. Emissions/1.1.Gdb/1.1.1.sabanas and 1.1.2.REDD).*

VI. *Landscape configuration: It is concluded that both the project area and the reference region have a flat topography with similar environmental conditions influencing vegetation distribution and landscape configuration. The presence of conservation figures, such as RUNAP categories, promotes the creation of biological corridors and key wildlife habitats. This is reflected in the types of ecosystems present in both territories and is consistent with the methodology and cartographic data provided.*

VII. *Environmental conditions: The auditor validates that climatic conditions, such as precipitation, temperature, and seasonality, are similar in the project area and the reference region. These climatic factors influence vegetation distribution and species life cycles. The cartographic information (Annex 1. Emissions/1.1.Gdb/1.1.1.sabanas and 1.1.2.REDD) and the description of the biophysical context in Section 2.3.2.1.2 support the similarity of these conditions.*

VIII. *Socioeconomic conditions: The predominant economic conditions in the reference region are similar to those in the project area, with livestock, agricultural, and silvopastoral systems being prevalent. These conditions are clearly described in the social and economic contexts (Sections 2.3.2.2 and 2.3.2.3), reinforcing the validity of the selected reference regions.*

Additionally, the project owner ensured compliance with the criteria for establishing each reference region according to the guidelines of each methodology. Below is the evaluation of the process based on the provided information.

Table 12.1 evaluation of the process

Literal/methodology	*Criterion*	*Compliance*	*Documentation/References*

a (BCR0002)	The reference region must include the project area	Comply. The auditor confirms that 100% of the project area is within the reference region, according to the visualization of vector information in Annex 1.Emissions/1.1.Gdb/1.1.2.REDD+/Feature dataset Project area. The procedure used to compare the layers of the reference region and the project area is appropriate, ensuring that the entire project area is contained within the reference region.	Annex 1.Emissions/1.1.Gdb/1.1.2.REDD+/Feature dataset Project area
b (BCR0002)	The reference region must be larger than the project area	Comply. The reference region is 7.3 times larger than the project area (225,995 ha vs. 30,718.3 ha). While the methodology allows for a ratio of up to 10 times the project area, this proportion is sufficient to capture the mobility of agents that may access the project area. The ratio calculation is clear and precise, and is well documented in the information provided.	Calculation based on provided data, 225,995 ha vs. 30,718.3 ha
c (BCR0002)	Physical conditions must be at least 80% similar between the reference region and the project area	Comply. The similarity analysis conducted using the Similarity Search tool shows a 94% coherence between the project areas and the reference region. Key physical variables such as vegetation (98%), soils (84%), slope (100%), temperature (88%), and precipitation (88%) are similar in both areas. This exceeds the 80% similarity threshold required by the methodology, ensuring that physical conditions are comparable. This evaluation is supported by the results in Table 23.1 and the information in Annex 1.1.2.5 "Similarity Analysis".	Annex 1.1.2.5 Similarity Analysis, Table 23.1

d (BCR0002)	Socioeconomic and land-use conditions must be similar between the reference region and the project area	Comply. The auditor verifies that both the reference region and the project area are located in the departments of Meta and Vichada, which share similar socioeconomic and land-use characteristics. The primary economic activities (livestock and agriculture) and the overall territorial context are consistent across both areas, allowing for a suitable comparison between deforestation trends and land use. This information is cited in section 2.3.2.1 Territorial context.	Section 2.3.2.1 Territorial context
e (BCR0002)	Differences in land tenure should not affect deforestation and degradation drivers	Comply. The auditor confirms that both the reference region and the project area consist solely of privately-owned land, excluding collective ownership areas such as Indigenous Reservations or Peasant Reserve Zones. This ensures that there are no significant differences in tenure that could affect deforestation and degradation dynamics. Cartographic information is stored in the Feature Dataset Biophysical Environment and the land tenure database related to the municipal resource informality index from SIPRA.	Feature Dataset Biophysical Environment, SIPRA land tenure database
f (BCR0002)	The deforestation and degradation agents identified in the reference region can access the project area	Comply. The auditor confirms that deforestation and degradation agents can access both the project area and the reference region. Both areas are located within the "Sabanas de los Llanos" ecoregion, within the Orinoquía biome. Clear accessibility criteria, including slope and proximity to roads, are applied according to IDEAM guidelines. The relevant cartographic data is available in Feature Dataset Orinoquia Biome.shp and Sabanas Ecoregion.shp.	Feature Dataset Orinoquia Biome.shp, Sabanas Ecoregion.shp

g (BCR0002)	The project area is of interest to the agents identified in the previous criterion	Comply. Since land tenure is similar (privately-owned properties) and access conditions (road networks and soil characteristics) are comparable, deforestation and degradation agents have interest in both the reference region and the project area. The relevant geographic information is available in the Feature Dataset Biophysical Environment, which includes access routes and edaphoclimatic conditions.	Feature Dataset Biophysical Environment (access routes and conditions)
h (BCR0002)	The reference region must not include special management areas or areas within the geographic boundaries of other GHG projects	Comply. The auditor confirms that all special management areas, such as protected areas or existing GHG projects, have been excluded from the reference region. The cartography used for this exclusion is found in the Feature Dataset RReferencia, ensuring compliance with this criterion.	Feature Dataset RReferencia
i (BCR0002)	The reference region must exclude areas with restricted access for deforestation and degradation agents	Comply. Areas with restricted access, such as zones with slopes greater than 15° and conservation areas under RUNAP, have been excluded from the reference region. This exclusion follows IDEAM criteria for defining restricted access, ensuring that the identified agents cannot operate in these areas. Cartographic information is available in the Feature Dataset Restricted Access, which includes vector information on collective territories and natural spaces.	Feature Dataset Restricted Access (collective territories, natural spaces)
j (BCR0002)	The reference region must include the leakage area	Comply. The auditor confirms that the reference region includes all leakage areas, ensuring that impacts outside the project boundaries are monitored correctly. The cartography and	Feature Dataset Arealeakage

		geographic information on leakage areas are stored in the Feature Dataset Arealeakage, allowing proper monitoring of emissions and leakage.	
a (BCR0005)	The reference region and the project area must be part of the same ecoregion	Comply. The auditor confirms that both the reference region and the project area are located within the "Sabanas de los Llanos" ecoregion in the Orinoquía biome, ensuring geographical coherence between the areas. The relevant information is found in the Feature Dataset Biome Ecoregion, where the ecoregion and biome vector files are included.	Feature Dataset Biome Ecoregion, savanna ecoregion shapefiles
b (BCR0005)	The drivers of land-use change identified in the reference region can access the project area	Comply. The land-use change agents identified in the reference region, primarily private landowners, have similar access and economic interests in the project area. Soil characteristics and access routes facilitate the operation of these agents in both areas. The vector information is documented in Drivers of Change within the Feature Dataset.	Drivers of Change Feature Dataset
c (BCR0005)	The project area is of interest to the agents identified in literal b	Comply. Since land tenure is similar (privately-owned properties), the agents identified in literal b (private landowners) have a common interest in both territories, ensuring that deforestation and degradation trends observed in the reference region are applicable to the project area. This information is available in the Feature Dataset Biophysical Environment.	Feature Dataset Biophysical Environment

d (BCR0005)	The figures of land tenure and land-use rights in the reference region are similar to the project areas	Comply. Land tenure in both areas is consistent, as it includes only privately-owned properties, excluding collective ownership areas. This ensures that land-use and tenure dynamics are comparable. The relevant cartography is available in the Feature Dataset Land Tenure.	Feature Dataset Land Tenure

The auditor concludes that the selected reference regions for estimating is appropriate and complies with the methodological guidelines. The similarities in access, drivers of change, land uses, land-use categories, landscape configuration, environmental, and socioeconomic conditions between the project areas and the reference regions are sufficient to ensure comparability of baseline scenarios. The provided documentation and cartographic data meet the requirements for delineating and assessing the reference regions, ensuring a solid foundation for estimating emissions and reductions within the project. The analysis of the literals according to the BCR0002 and BCR0005 methodologies confirms that the selection of the reference region complies with the methodological requirements. The physical, socioeconomic, similarities between the reference regions and the project areas provide a solid foundation for baseline. The documentation and geospatial data used are consistent and meet the established standards, ensuring that the reference regions are representative and applicable for the project's activities.

5.5.6 *Additionality*

To evaluate the additionality of the ORINOCO2 project, the criteria established in the BCR0002 methodology version 4.0, paragraph 9, and BCR0005 methodology version 1.0, paragraph 8, as well as the BCR additionality tool version 1.3 were followed. This analysis is performed after establishing the baseline scenarios. First, the barriers faced lands scenarios for each methodology are identified and it is demonstrated how these barriers do not affect at least one of the alternative options to the project.

The barrier analysis conducted eliminates scenarios where local barriers, such as financial and institutional limitations, prevent sustainable management of forests and savannas without project intervention. Therefore, the continuation of deforestation and the transformation of savannas becomes the baseline scenario for the BCR 0002 and BCR 0005 methodologies.

A common practice analysis further consolidates the project's additionality. As highlighted in the analysis, activities such as sustainable cattle ranching, silvopastoral systems, and forest governance on private lands in the Orinoquía region are not widespread. In the geographic region of the Altillanura, practices that reduce deforestation and prevent land-

use change in natural savannas are still in their early stages, with few examples of successful implementation. The evidence presented in Sections 3.6.6.1 and 3.6.6.2 of the PDD, evaluated and validated by the audit team, confirms that the proposed activities are not part of common practice, thus meeting the additionality requirements.

In order to comply with Article 37 of Resolution 1447 of 2018, an analysis of compliance with the additionality criteria established in said article was performed. According to the article, those emission reductions or GHG removals that would not have occurred in the absence of the project and that generate a net benefit to the atmosphere with respect to the baseline are considered additional. It is also verified that the areas linked to the project are not subject to biotic component compensation commitments or payment for environmental services schemes, as evidenced in the cartographic base provided by the project owner in its geo database.

In addition, it is confirmed that none of the areas linked to the project are within payment for environmental services schemes, and that the project is not subject to compensation commitments for the biotic component. Also, the project demonstrates that without the availability of investment capital and the income generated by the sale of verified carbon certificates (VCCs), the project activities would not be financially viable. A financial model provided by the project owner, which includes macroeconomic projections, investment items, costs and expenses, and the inventory of VCCs, supports this analysis.

In conclusion, compliance with the guidelines for determining additionality according to the BCR standard has been validated. The arguments and the relevance of the information sources provided by the project proponent were verified. Therefore, it is determined that the two project activities meet the additionality criteria and are considered additional under the applied methodologies.

5.5.6.1 project activities

The evaluation of the activities proposed for implementation in the project (section 2.3.8.1 "Design of Project Activities" of the PDD version 2.4) strategically addresses both direct and indirect factors. Based on document review, contrasting with the information in section 2.3.1 "Analysis of causes and agents of deforestation and transformation of natural savanna covers," the following evaluation was conducted:

Focus on Direct Factors: The activities aimed at mitigating the expansion of the agricultural frontier are essential for reducing deforestation, degradation, and land-use change in natural savannas. Efficient land use and improving productivity without expanding agricultural areas are key strategies. To achieve this, farm planning and defining the baseline of the properties are fundamental tools that allow for resource optimization without the need for deforestation.

Regarding timber extraction, sustainable forest management and the creation of economic incentives for forest conservation are proposed, offering viable alternatives to reduce pressure on forest resources. Activities such as promoting dendro-energy banks, using eco-efficient stoves, and land-use planning not only improve resource management but also contribute to sustainable use.

The activities are also designed to combat grassland degradation and fires (natural or human-caused) through ecosystem rehabilitation and the introduction of more resilient fire management practices. These actions help maintain ecological balance and prevent the transformation of natural savannas.

Focus on Indirect Factors: At the structural level, the activities address underlying factors such as the lack of knowledge about sustainable practices. Strengthening technical capacities through training programs and technical assistance provides landowners with the necessary tools to adopt forest conservation and sustainable production practices in natural savannas. This is key to changing traditional patterns of land-use change, deforestation, and forest degradation.

Additionally, activities focused on innovative economic dynamics aim to shift traditional economic incentives that drive agricultural expansion. By promoting sustainable economic alternatives, such as ecotourism or biodiversity conservation, rural communities' income sources are diversified without resorting to deforestation, contributing to the economic stability of these areas.

Conclusion: The proposed implementation activities present a comprehensive approach to addressing deforestation, tackling both its direct and indirect causes, as well as the structural factors that perpetuate it. By combining strategies that improve productive practices with the creation of economic incentives and the strengthening of local knowledge, the project has the potential to transform the relationship between communities and the natural ecosystems in the region.

5.5.6.2 Independence of the project activities

The activities proposed by the project owner, detailed in Table 19 Project Activity Design, are structured to meet the reporting and monitoring standards established by the BCR0002 and BCR0005 methodologies. Each activity has an independent report supported by clear and specific indicators, with an appropriate evaluation frequency to ensure rigorous monitoring of its effectiveness in controlling deforestation and land-use changes in the savannas.

The Monitoring Plan, along with the established indicators and monitoring frequencies, is documented in Annex 6.1 Monitoring Plan of Project Activities. This plan ensures that each intervention is monitored according to its relevance to the project and its impact on the natural ecosystems of the Colombian Orinoquía.

Clarity and Focus of Activities

Each activity has been assigned a specific ID, providing clarity about its focus, which allows identification of whether the activity is oriented towards:

- *The overall development of the project with general activities, or*
- *The fulfillment of a specific methodology, such as REDD+ or the preservation of savannas, under the BCR0002 and BCR0005 methodologies.*

This distinction is crucial as it simplifies the monitoring and evaluation process, ensuring that each intervention aligns with the established objectives and addresses the corresponding conservation needs. The use of these identifiers enables precise traceability of progress in each component, facilitating accountability and tracking of advancements towards ecosystem conservation.

Final Conclusion

The described activities and their monitoring system comply with the requirements of the BCR0002 and BCR0005 methodologies, providing a clear and effective framework to assess their effectiveness in controlling deforestation and land-use changes in the savannas. The implementation of an independent reporting system per activity, supported by specific indicators and a well-defined monitoring plan, ensures the alignment of interventions with conservation objectives. Furthermore, the use of identifiers for each activity enhances clarity in the evaluation process, ensuring that specific conservation needs are effectively addressed.

5.5.7 Conservative approach and uncertainty management

To evaluate how the GHG project holder applied the uncertainty management mechanisms in the quantification of the baseline and mitigation results, the guidelines of methodologies BCR0002 version 4.0 and BCR0005 version 1.0 were followed, as well as the guidelines of the validation and verification manual version 2.4.

First, the accuracy of the maps used to estimate the activity data was reviewed. According to the guidelines of the aforementioned methodologies, uncertainty management is determined by the accuracy of these maps and the application of discounts in the emission factors. For the REDD+ component, the project holder used non-forest forest maps of national origin, which were validated through AcATaMa, a QGIS add-on designed specifically for this purpose by IDEAM. The validation of the non-forest forest maps for the years 2005, 2018 and 2022 was performed by comparing the results of the classifications with a reference dataset, including in situ observations and high-resolution images. The accuracy results achieved were 96% for the year 2008, 95% for the year 2018 and 94% for the year 2022, meeting the requirement of an accuracy higher than 90%.

For the savanna's component, the 2012 and 2018 land cover maps from the national land cover maps were used. Validation of the 2022 land cover map was also performed with AcATaMa, obtaining an accuracy of 98%. The computer-assisted interpretation was contrasted with in situ observations, recorded on documentary supports and high-resolution images from sensors such as WorldView 2 and Sentinel 2.

For emission factors, the methodologies accept an uncertainty of 10%. If the uncertainty exceeds this value, the lower value of the 95% confidence interval must be applied. In the case of savannas, the uncertainty was estimated according to formula 15 of the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities", ensuring that the emission factors used are consistent and adequately justified.;

$$\mu_{\Delta C} = \frac{t_{VAL}\ x\ \sqrt{\sum_{i=1}^{M} W_i^2 x \frac{S_i^2}{n_i}}}{b_{TREE}}$$

Where:

$\mu_{\Delta C}$	*Uncertainty in ΔC_{ARB}*
t_{VAL}	*Two-tailed t-student value for a 90% confidence level and degrees of freedom equal to n-M, where n is the total number of sample plots within the biomass estimation strata and M is the total number of biomass estimation strata.*
S_i^2	*Variance in biomass per hectare in stratum i; $(t\ d.m.ha^{-1})^2$*
W_i	*Ratio between the area of stratum i and the sum of the areas of the biomass estimation strata (meaning, $W_i = A_i / A$)*
n_i	*Number of sample plots in stratum i*
b_{TREE}	*Average biomass per hectare in stratum i; $t\ d.m.ha^{-1}$*

In addition, it was verified that the data and parameters used to estimate the reduction or removal of GHG emissions were consistent with the country's official reference level emission factors, activity data, GHG emissions projection and other parameters used to build the national GHG inventory and the national reference scenario, in line with Article 41 of Resolution 1447 of 2018. This consistency ensures that the results obtained are comparable and reliable, and that it is not necessary to apply the percentages defined for the discount factor in uncertainty management.

Finally, it was verified that procedures were implemented to ensure data quality under ISO 14064-2 and the requirements of BCR0002 version 4.0 and BCR0005 version 1.0 methodologies applied. These procedures include the validation of classification models and the use of digital image processing tools, ensuring the accuracy and reliability of the data used.

5.5.8 Leakage and non- permanence

Regarding the evaluation of the application of leakage and non-permanence risk, the methodological criteria established in the BCR0002 version 4.0 (section 8.4), BCR0005 version 1.0 (section 7.1.4) and the BCR guide "Permanence and Risk Management" version 1.1 were followed. In this regard, it was verified that the ORINOCO2 project included all areas of forest, grasslands and shrublands within the range of mobility of agents of deforestation, degradation for natural forests and land use change for natural savannas. Likewise, restricted access areas were excluded, such as properties in collective territories and those indicated in Article 329 of Decree Law 2811 of 1974.

In this sense, the leakage area was defined by a buffer of 1 km distance from the edge of the properties and boundaries of the eligible areas. These are monitored in this first period to quantify any increase in emissions outside the project area, which will then be subtracted from the project results according to the criteria of the applied methodologies.

Regarding the permanence of project activities, it was verified that the project holder follows the conditions established in the methodologies BCR0002 version 4.0 (section 8.4), BCR0005 version 1.0 (section 7.1.4) and the BCR guide "Permanence and Risk Management" version 1.1 applied.

Ensuring Conditions for Delimiting the Leakage Belt

BCR0002 Methodology (Forests):
For this component, the leakage belt was established based on the following factors: Forest: The leakage area was defined as the area within the leakage belt that corresponds to the forest category according to Colombia's forest definition, ensuring compliance with the criterion.

- ***Mobility of Deforestation Agents:** The project owner identified the agents responsible for deforestation, such as landowners who exploit natural resources for income and/or subsistence, and who may also prevent or exacerbate natural-origin forest fires. These agents have limited mobility, but their capacity to cause deforestation can extend to areas near the project since deforestation is driven by subsistence rather than commercial purposes. Spatial analysis determined that leakage areas should be within the mobility range of these agents, allowing for the identification of potential areas where deforestation and forest degradation could*

spread. The owner used a spatial proximity analysis (close neighbors), based on Global Forest Change data (2008-2018), to identify and delimit these areas.

- ***Exclusion of Restricted Access Areas**: To ensure that the leakage belt reflects on-the-ground reality, areas with restricted access were excluded in accordance with Section 9.2(g) of BCR0002 V4.0. Exclusion areas with different land tenure forms were considered, noting that agents are private landowners; hence, areas of collective communities and special management areas such as RUNAP (National Registry of Protected Areas) were excluded. This information was corroborated within the project's GDB (Emissions/1.1.Gdb/1.1.2. REDD+/Feature dataset). This exclusion is key to ensuring that the leakage belt aligns with the agents who could realistically mobilize deforestation outside the project area.*
- ***Delimitation Criteria:** As a result, a 1 km leakage belt was established around the project properties, with a total area of 157,172.3 ha, corresponding to 420% of the REDD+ project area. This percentage reflects the extent and magnitude of the leakage area based on the mobility of the identified agents, ensuring that the leakage areas are properly delimited.*

BCR0005 Methodology (Savannas):
For the savannas component, the leakage belt was determined based on the following:

- ***Mobility of Land-Use Change Drivers:** In the case of savannas, the main drivers of land-use change are landowners or agents who convert savannas into agricultural land, such as for palm cultivation or livestock farming. The analyses identified grasslands and shrublands vulnerable to this conversion, and, similar to the forest component, a spatial proximity analysis was used to determine the territories to which these agents could move.*
- ***Leakage Belt Delimitation:** The leakage belt for the savannas was established with a 1 km range around the properties, similar to forests, as the agents' mobility is similar, and it is unlikely that a private landowner would shift productive activities in savannas to distant areas outside their property. The monitored savanna areas were delimited, excluding those with restricted access or under environmental regulation that prevents their conversion. The total area of the leakage belt for savannas was 119,661.9 ha, equivalent to 126% of the savanna component area, ensuring that potential land-use change displacements by agents were accounted for.*

Thus, monitoring was carried out for the natural forest and savanna components using satellite Digital Image Processing (DIP), with annual reports of cover changes. For forests, the project holder used the non-forest forest map generated by the SMByC, complemented with supervised classifications using Google Earth Engine, as indicated in section 5.5.4 of this report. In that sense, the project holder took forest samples to represent the spectral signature and generate a map of the forest, calculating the accuracy and uncertainty of the classifications with the AcATaMa add-on of QGIS.

For savannas, monitoring was carried out by the project holder using the Computer Aided Visual Interpretation (PIAO) method, using freely available high resolution satellite imagery such as Sentinel 2A and 2B. In areas of difficult identification, high-resolution images from the Maxar constellation were used. Model accuracy and uncertainty were also calculated using the AcATaMa complement validation matrices. This approach ensures that leakage areas are accurately monitored and based on solid technical evidence.

In conclusion, for both methodologies (BCR0002 and BCR0005), consistent criteria were applied to delimit the leakage belt, ensuring that these areas align with the mobility of deforestation and land-use change drivers. The spatial analyses ensured that the real mobility range of agents responsible for emissions was considered, and areas with restricted access or legal protection were excluded, in accordance with the methodological criteria of the applied methodologies.

- ***Leakage Risk Evaluation***

The project owner defined the leakage belt for each activity, established the monitoring mechanism, and quantified emissions from the leakage areas according to each methodology. Finally, in Section 3.5 of PDD V2.4, "Leakage and Non-Permanence," the measures to reduce leakage risk were described, including an early warning system and knowledge management with the identified agents.

- **Description of Project Activity Permanence Guarantee**

The permanence of project activities was ensured through risk identification and the adoption of mitigation measures, as established in the monitoring tool designed by the project owner ("Risk Analysis and Management"). This tool integrates risks and their management, complying with BCR0002 v.4.0 Section 14.4 and BCR0002 Section 13.1.3, and in alignment with the BCR Tool "Permanence and Risk Management," Section 2 (Risk) and Section 3 (Leakage and Permanence).

In summary, the project owner identifies risks, establishes relevant measures, and implements a follow-up plan. Measures such as long-term agreements with project participants, fire mitigation activities, a comprehensive knowledge management plan, and the establishment of a governance strategy are included to ensure rigorous monitoring. Risks like low engagement in project activities are identified for monitoring through implementation plans designed with each participating landowner.

Finally, the tools annexed to the PDD, including Annex 6.1 (Monitoring Plan), Annex 6.4 (Risk Management), and Annex 6.2 (Safeguard Monitoring), allow for the evaluation of the permanence of project activities during each monitoring and verification period.

5.6 Monitoring plan

To evaluate the monitoring plan description of the Orinoco2 project, a thorough review of the project documentation for each methodology (see Table 13) was conducted, in accordance with applicable validation requirements, as specified in sections 9.1, 10.2, and 10.3 of the Validation and Verification Manual, version 2.3. The evaluation process of the monitoring plan included a detailed review of the components in Table 13, as well as the methodologies BCR0002 version 4.0 and BCR0005 version 1.0, to ensure the quality and accuracy of the data collected.

First, it was validated that the monitoring plan included the necessary data and information to estimate GHG reductions or removals during the quantification period for both methodologies. This involved the collection of activity data and emission factors consistent with the methodological requirements of BCR0002 version 4.0 and BCR0005 version 1.1. Additionally, supplemental information was reviewed to determine the baseline scenario for each methodology, ensuring that the assumptions and methods were transparent and properly justified.

The monitoring plan in section 16 of the Project Document (PD) also specifies all potential emissions outside the project boundaries attributable to GHG project activities (leakage) independently for each methodology. The quantification of leakage was detailed through the definition of a 1 km buffer from the project boundaries, monitoring forest, shrubland, and grassland areas using satellite imagery and digital image processing techniques.

Regarding the assessment of the environmental and social effects of the project activities, information was included on potential impacts and the mitigation measures adopted.

Methods were also defined for the periodic calculation of GHG reductions or removals and leakage, strictly following the guidelines of the methodologies and using Geographic Information Systems (GIS) tools and remote monitoring platforms such as Google Earth Engine and the AcATaMa plugin for QGIS.

The plan assigns clear roles and responsibilities for monitoring and reporting on the variables relevant to the calculation of reductions or removals. Procedures were established to evaluate the project's contribution to the Sustainable Development Goals (SDGs), setting criteria and indicators related to sustainable development and the additional benefits of the project. For the co-benefits of the special category, specific monitoring procedures were described, as well as the defined criteria and indicators to demonstrate additional benefits and measure co-benefits.

Table 13. Criteria for compliance with the monitoring plan summary

Meth.	criteria	Documentation Reviewed and Evaluated	Compliance Description	
BCR 0002	a) description of the methods defined for the periodic calculation of GHG reductions or removals and leaks;		Project document V.2.4: - Section 16.1.1.REDD+ area monitoring procedure - Section 16.1.3 Emissions monitoring procedure of the project - Section 16.1.3.1. Deforestation - Section 16.1.3.2. Degradation Excel tool for monitoring the quantification of emissions, which relates all the formulas and variables defined in the BCR 0002	Follow the guidelines and requirements established in Section 14 of BCR 0002.

Meth.	criteria	Documentation Reviewed and Evaluated	**Compliance Description**
	b) the assignment of roles and responsibilities to monitor and report the variables relevant to the calculation of reductions or eliminations;	Project document V.2.4: - Sección 16.3. Quality control and quality assurance procedures - Seccion 16.4 Information Processing review - Site visit (cataruben offices)	Section 16.4 of the PDD specifies the responsibilities of the monitoring team, including specific roles for data collection, analysis and reporting. Communication and coordination protocols between the different stakeholders involved in the project are defined, ensuring efficient and effective management of monitoring activities. The project owner has a complete operational structure that allows monitoring and reporting the relevant variables for the calculation of the project's emissions reductions, among others: -Project Director -Spatial Analysis Unit -Emissions Quantification Unit -Project activities implementation unit -Governance Unit

Meth.	*criteria*	*Documentation Reviewed and Evaluated*	***Compliance Description***
			-SDG Safeguards and Co-benefits Unit *-Biodiversity Area* *In each area or unit there are qualified and competent personnel with particular responsibility for each area.* *Besides is an entity certified with the ISO 9001 and ISO 140001 standards. Which reinforces its commitment to quality*
	c) procedures related to the evaluation of the project's contribution to the Sustainable Development Goals (SDGs);	*- Project document Section 10 Sustainable Development goals* *- Sustainable Development Safeguards (SDSs Tool), Version 1.0 from April 2024 and (ii) the SDG Tool (2023),*	*The project owner describes the correct use of the tool defined by the standard and consequently determines what contributes to sustainable development goals 6, 13 and 15. Using the tools Sustainable Development Safeguards (SDSs Tool), Version 1.0 from April 2024 and (ii) the SDG Tool (2023*

Meth.	*criteria*	*Documentation Reviewed and Evaluated*	***Compliance Description***
	d) criteria and indicators related to the project's contribution to sustainable development objectives;	*- Project document Section 16 Monitoring plan* *- Project document Section 10 Sustainable Development goals* *- Sustainable Development Safeguards (SDSs Tool), Version 1.0 from April 2024 and (ii) the SDG Tool (2023)*	*The project owner, based on the analysis of project activities, establishes the indicators to monitor in each verification. Using the Sustainable Development Safeguards (SDSs Tool), Version 1.0 from April 2024 and (ii) the SDG Tool (2023)* *In sections 10.1, 10.2 and 10.3, of the PDD establish the indicators to monitor*
	e) procedures associated with the monitoring of co-benefits of the special category, as appropriate;	*- Project document Section 16.2 Monitoring the execution of project activities and co-benefits-* *- Excel Document Annex 6.1. Project Activities*	*The project owner defines extra actions to demonstrate the generation of co-benefits from the Wax Palm category. These Actions are integrated into the monitoring tool for the implementation of activities. Which is a comprehensive tool for managing project activities but which is internally delimited and indicates the activities of the BCR 0002 methodology, BCR 0005 Methodology as well as the extra actions to opt for the Palma de Cera category. For each one, it defines relevant criteria and indicators in accordance with the BCR standard.*

Meth.	*criteria*		*Documentation Reviewed and Evaluated*	***Compliance Description***	
		Monitoring Plan			
BCR 0005	*a) description of the methods defined for the periodic calculation of GHG reductions or removals and leaks;*			*Project document V.2.4:* *- Sección 16.1.3. Emissions monitoring procedure of the project* *- Section 16.1.3 Emissions monitoring procedure of the project* *- Section 16.1.3.3. Natural savannas* *Excel tool for monitoring the quantification of emissions, which relates all the formulas and variables*	*Follow the guidelines and requirements established in Section 13 of BCR 0005*

Meth.	*criteria*	*Documentation Reviewed and Evaluated*	***Compliance Description***	
			defined in the BCR 0002	
	b) the assignment of roles and responsibilities to monitor and report the variables relevant to the calculation of reductions or eliminations;	*Project document V.2.4:* *- Sección 16.3. Quality control and quality assurance procedures* *- Seccion 16.4 Information Processing review* *- Site visit (cataruben offices)*	*The project owner has a complete operational structure that allows monitoring and reporting the relevant variables for the calculation of the project's emissions reductions, among others:* *-Project Director* *-Spatial Analysis Unit* *-Emissions Quantification Unit* *-Project activities implementation unit* *-Governance Unit* *-SDG Safeguards and Co-benefits Unit* *-Biodiversity Area* *In each area or unit there are qualified and competent personnel with particular responsibility for each area.*	

Meth.	*criteria*	*Documentation Reviewed and Evaluated*	***Compliance Description***	
			Besides is an entity certified with the ISO 9001 and ISO 140001 standards. Which reinforces its commitment to quality	
	c) procedures related to the evaluation of the project's contribution to the Sustainable Development Goals (SDGs);		*- Project document Section 10 Sustainable Development goals* *- Sustainable Development Safeguards (SDSs Tool), Version 1.0 from April 2024 and (ii) the SDG Tool (2023),*	*The project owner describes the correct use of the tool defined by the standard and consequently determines what contributes to sustainable development goals 6, 13 and 15. Using the tools Sustainable Development Safeguards (SDSs Tool), Version 1.0 from April 2024 and (ii) the SDG Tool (2023*

Meth.	criteria	Documentation Reviewed and Evaluated	Compliance Description
	d) criteria and indicators related to the project's contribution to sustainable development objectives;	- Project document Section 16 Monitoring plan - Project document Section 10 Sustainable Development goals - Sustainable Development Safeguards (SDSs Tool), Version 1.0 from April 2024 and (ii) the SDG Tool (2023)	The criteria and indicators used to measure the project's contribution to sustainable development objectives are presented in Section 10, 12 and 16.2 of the PDD. These include biodiversity, social welfare and local economic development indicators. Data collection and analysis methodologies are detailed for each indicator, ensuring a comprehensive assessment of the project's impact.
	e) procedures associated with the monitoring of co-benefits of the special category, as appropriate;	- Project document Section 16.2 Monitoring the execution of project activities and co-benefits- - Excel Document Annex 6.1. Project Activities Monitoring Plan	The project owner defines extra actions to demonstrate the generation of co-benefits from the Wax Palm category. These Actions are integrated into the monitoring tool for the implementation of activities. Which is a comprehensive tool for managing project activities but which is internally delimited and indicates the activities of the BCR 0002 methodology, BCR 0005 Methodology as well as the extra actions to opt for the Palma de Cera category. For each one it defines relevant

Meth.	*criteria*	*Documentation Reviewed and Evaluated*	***Compliance Description***
			criteria and indicators in accordance with the BRC standard.

Source: Present validation and verification report.

The project proponent uses integrated tools to monitor the project comprehensively, following the BCR standard guidelines.

- *Section 16.1.1. REDD+ Area Monitoring Procedure: describes the procedures for emissions monitoring according to methodology BCR0002.*
- *Section 16.1.2. Monitoring Procedure for Natural Savanna Areas: details the procedures for emissions monitoring according to methodology BCR0005.*
- *Annex 1.1 GDB REDD+ AND SAVANNAS: contains geographic data and analyses related to the BCR0005 methodology.*
- ***Annex 1.2.1 EMISSIONS_PROJECT / SHEET 4. EMISSIONS MONITORING:** includes specific sheets for calculating emissions for each applied methodology.*
- ***Annex 6.1. Project Activities Monitoring Plan:** documents the activities developed by the project, clearly identifying the activities associated with methodologies BCR0002 and BCR0005, as well as additional actions to demonstrate co-benefits of the "wax palm" category. Each activity is identified with its respective indicators.*
- ***Annex 6.2. Safeguard Monitoring Plan**: details compliance with safeguards in accordance with the requirements of the Sectoral Methodological Document AFOLU "Quantification of GHG Emission Reduction REDD+ Projects BCR002", version 4.0, and the tool for Demonstrating Compliance with REDD+ Safeguards, version 1.1.*
- ***Annex 6.3. SDGs TOOL-2023.XLSX:** describes the project activities that contribute to SDGs 6, 13, and 15, with their respective indicators and tracking plans.*
- ***Annex 6.4. Risk Analysis and Management**: details the project risk analysis based on sections 7 (Risk Management) and 3.5 (Leakage and Non-Permanence).*
- ***Annex 5.1.1. Environmental Impact Assessment:** describes the environmental impact assessment, identifies potential negative impacts, and establishes mitigation measures.*

- ***Annex 5.1.2. Socioeconomic Impact Assessment:*** *documents the socioeconomic impact assessment, identifying risks and setting out mitigation measures.*

The audit team, after reviewing the procedures and documentation, validates that the activities, boundaries, emission quantification procedures, leakage, and impacts for each applied methodology are clearly defined.

Additionally, the project proponent's application of the Monitoring, Reporting, and Verification Tool, version 1.0, was evaluated, including:

- ***Identification of the monitoring periods:*** *detailed in section 16 of the monitoring plan and in Table 65 of the project document v2.4, which establishes a project duration of 40 years with 2-year monitoring intervals, except for the first period of 4.25 years (from 10/01/2018 to 12/31/2022).*
- ***Conservative approach and uncertainty management:*** *described and applied throughout section 3 of the project document and evaluated in section 5.5.6 of the VVR.*
- ***Monitoring plan and processes:*** *detailed in section 16 of the project document.*
- ***Methodological documents:*** *the project proponent follows the monitoring plan guidelines of methodologies BCR0002 version 4.0 and BCR0005 version 1.1.*

In conclusion, it was confirmed that the monitoring plan complies with the requirements of each applied methodology, the Monitoring, Reporting, and Verification Tool, and the BCR standard. The criteria and parameters are integrated within relevant tracking tools that allow for monitoring and delimitation of both methodologies, thereby ensuring the integrity of the overall project.

5.7 Compliance with Laws, Statutes and Other Regulatory Frameworks

During the planning, implementation and monitoring process of the ORINOCO2 project, an assessment of compliance with all relevant laws, statutes and regulatory frameworks at the local, regional and national levels was conducted. This assessment included regulations related to GHG mitigation activities, as well as laws related to the protection of human and indigenous peoples' rights, in accordance with international regulations such as the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous and Tribal Peoples.

To ensure ongoing compliance, the project has implemented a documented system (Document Management System) to identify and continuously access relevant legislation and regulations. This system, called Procedure GJP-14 Legal Requirements Management, establishes parameters for effective compliance management within the project areas and activities. Likewise, the information is rigorously controlled and updated in a matrix of legal regulations, ensuring that all applicable regulations are followed and periodically reviewed.

Specifically, the project adheres to a number of key regulatory provisions. For example, under Decree 2811 of 1974, which dictates the National Code of Renewable Natural Resources and Environmental Protection. Law 164 of 1994, which ratifies the United Nations Framework Convention on Climate Change, has also been complied with, with the project aimed at reducing CO2 equivalent emissions during the 2018-2027 quantification period and with regard to this 2018-2022 monitoring period.

In addition, the National Policy for the Integrated Management of Biodiversity and its ecosystem services of 1996 has been incorporated through the monitoring of threatened species and conservation actions. Conpes 2834 of 1996, which seeks the sustainable use of forests, is reflected in the conservation activities of 33,9609 hectares of forest on private land linked to the project. Compliance with Law 629 of 2000, which approves the Kyoto Protocol in Colombia, is evidenced in the management of GHG emissions reductions, and the implementation of activities to prevent and control forest fires is aligned with the 2002 National Forest Fire Prevention and Control Plan.

Regarding the 2016 National Climate Change Policy, the project has adopted strategies to manage climate change, including forest fire prevention and biodiversity monitoring. Decree 298 of 2016, which establishes the National Climate Change System (SISCLIMA), has also been complied with, with the project contributing to GHG mitigation targets.

Finally, Law 2169 of 2021, which establishes goals to achieve carbon neutrality, and Resolution 849 of 2022, which regulates the Integrated Territorial Climate Change Management Plans (PIGCCT), have been integrated into the project activities. Table 14 below shows how the project ORINOCO2 are in compliance with the project's regulatory provisions.;

Table 14 Project regulatory provisions.

Area	*Norm or Law*	*Characteristics*	*Compliment*
APPLICABLE CLIMATE CHANGE LEGISLATION	*Decreto 2811 de 1974 - Protección del medio ambiente*	*Whereby the National Code of Renewable Natural Resources and Environmental Protection is enacted.*	*Fundación Cataruben, in compliance with Decree 2811, which covers integrated environmental management, has adopted a proactive and committed approach to the conservation of forest and natural savannah ecosystems as an integral part of the ORINOCO2 project, recognizing the fundamental importance of conserving the natural resources present in the areas linked to the project. It is committed to implementing effective measures to preserve biodiversity, soil quality,*

Area	Norm or Law	Characteristics	Compliment
			water and other elements that make up the local ecosystems.
	Ley 164 de 1994 - Cambio Climático	United Nations Framework Convention on Climate Change By means of which the commitment to adopt measures to reduce GHG emissions into the atmosphere is ratified.	The main objective of the ORINOCO2 project is to carry out activities aimed at achieving the goal of reducing deforestation and forest degradation, as well as preventing the transformation of land use in natural savannas. This initiative proposes to achieve a significant reduction of 1,695,656 tons of CO2 equivalent during the period 2018-2027. The execution of these activities is aligned with the principles of Law 164 of 1994, reaffirming our commitment to the regulations and standards established for environmental preservation and sustainable management of natural resources.
	Política Nacional para la Gestión Integral de la Biodiversidad y sus servicios ecosistémicos de 1996	To prevent and control the accelerated loss and transformation of biodiversity, as well as to reduce and mitigate the negative effects this generates on the quality of life.	The implementation of monitoring of globally threatened species and the promotion of actions for their conservation within the framework of the project are concrete manifestations of prevention against the accelerated loss of biodiversity, attributable to the same economic dynamics of the territory.

Area	Norm or Law	Characteristics	Compliment
	Política de Bosques- Conpes 2834 de 1996	Its general objective is to achieve the sustainable use of forests in order to conserve them, consolidate the incorporation of the forestry sector into the national economy and contribute to improving the quality of life of the population.	With the implementation of the ORINOCO2 project, conservation activities are carried out in the forest areas identified in each of the private properties formally linked to the project, representing 33,960.9 hectares, to contribute in a joint effort to the preservation of these areas and their biodiversity between the project owner and the Ecosystem Manager.
	Ley 629 de 2000 - Aprobación Protocolo de Kyoto en Colombia	Greenhouse gas quantification and reduction, climate change mitigation strategies	The ORINOCO2 project seeks to reduce emissions by 1,695,656 tCO2e and thus join efforts through the purchase of carbon credits generated by climate change mitigation projects, in compliance with Law 629 of 2000.
	Plan Nacional de Prevención, Control de Incendios Forestales y Restauración de Áreas Afectadas de 2002	Strengthen the global response to the threat of climate change by keeping the global temperature increase this century well below 2 degrees Celsius above pre-industrial levels, and continue efforts to limit further the temperature increase to 1.5 degrees Celsius. In addition, the agreement aims to enhance the ability of countries to cope with the impacts of climate change and to ensure that funding flows are consistent with a low level of greenhouse gas (GHG) emissions and a climate-resilient pathway.	The implementation of the ORINOCO2 project includes key activities aimed at strengthening the knowledge of private landowners. One of the important focuses of this strengthening is the prevention of forest fires (controlled burning practices, firebreaks, proper waste management), through these actions, we seek to contribute significantly to the protection of the forests and savannas conserved within the framework of the project.

Area	Norm or Law	Characteristics	Compliment
	Política Nacional de Cambio Climático de 2016	Strategies and actions to manage knowledge about climate change and its potential consequences on communities, biodiversity, ecosystem services and the country's economy.	Within the framework of project implementation, strategies aimed at managing climate change are proposed. These include forest fire prevention, hot spot monitoring, implementation of landscape management tools, biodiversity monitoring, and actions to restore degraded ecosystems. All of these actions are coherently aligned with the national climate change policy.
	Decreto 298 de 2016- Sistema Nacional de Cambio Climático- SISCLIMA	Establish the National Climate Change System SISCLIMA, in order to coordinate, articulate, formulate, follow up and evaluate policies, regulations, strategies, plans, programs, projects, actions and measures for adaptation to climate change and mitigation of greenhouse gases. Whose intersectoral and transversal nature implies the necessary participation and co-responsibility of national, departmental, municipal or district public entities, as well as private and non-profit entities.	The related regulations establish criteria for the management of climate change projects that not only have an impact on the environment, but also on social and economic aspects related to the people who represent the direct actors in the implementation of the project, with a common objective of mitigating Greenhouse Gases. The ORINOCO2 project is aligned to this requirement and contributes to this objective, implementing actions for the conservation of forests and savannahs in private properties in the departments of Meta and Vichada.
	Decreto 926 de 2017- Impuesto al Carbono	Whereby the heading of Part 5 is amended and Title 5 is added to Part 5 of Part 5 of Book 1 of Decree 1625 of 2016 Sole Regulatory Decree on Tax Matters and Title 11 of Part 2 of Book 2 of Decree 1076 of 2015 Sole Regulatory Decree of the Environment and Sustainable Development	The national carbon tax was created by Article 221 of Law 1819 of 2016 (Structural Tax Reform) in response to the country's need for economic instruments to incentivize compliance with Greenhouse Gas (GHG) mitigation goals at the national level. The ORINOCO2 project is aligned with this legal requirement, as it seeks to contribute to climate change through 147 private properties

Area	Norm or Law	Characteristics	Compliment
		Sector, to regulate paragraph 3 of Article 221 and paragraph 2 of Article 222 of Law 1819 of 2016.	where activities will be carried out to contribute to compliance with the objectives of reducing the effects of Greenhouse Gases (GHG). Thus, it opens the possibility that all persons who must cause the carbon tax can offset it as permitted by law.
	Decreto 298 de 2016 - Sistema Nacional de Cambio Climático	Whereby the organization and operation of the National Climate Change System is established and other provisions are enacted.	The ORINOCO2 project is aligned with the provisions of the national climate change system (Sisclima) and guarantees compliance with the national climate change policy through the active and effective participation of civil society.
	Ley 1844 de 2017- Acuerdo de París	Adopts the Paris agreement in Colombia for all countries that are party to it.	In accordance with the goals established for the reduction of emissions, the non-deforestation of 179,212.3 hectares contractually linked to the project, the empowerment of associated communities, the impact on SDG 6 and 15 show a clear alignment with the Paris agreement.
	Ley 1447 de 2018- Sistema de Monitoreo, reporte y verificación de las acciones de mitigación a nivel nacional	Regulate the System for Monitoring, Reporting and Verification of mitigation actions at the national level, in relation to the Accounting System for the Reduction and Removal of Greenhouse Gas Emissions and the National Registry for the Reduction of Greenhouse Gas Emissions (GHG). This includes the National Registry of Programs and Projects of actions for the Reduction of Emissions from Deforestation and Forest	ORINOCO2 is a project that seeks to mitigate the effects of Greenhouse Gas (GHG) emissions through the development of activities to contribute to the objectives and commitments on climate change. This joint work is done with private landowners and Ecopetrol as a strategic ally, the reference scenario are the offsets measured in tons of CO2e that would be produced during the monitoring period. The project is aligned with the provisions of Law 1447, since it is aligned with the guidelines established therein regarding REDD initiatives and contributes to the goals and objectives of climate change. This

Area	Norm or Law	Characteristics	Compliment
		Degradation in Colombia (REDD+).	initiative will be registered in the RENARE once it becomes operational through which all the information on the development of these projects at the national level is controlled.
	Ley 1931 de 2018 - Lineamientos Cambio Climático	Establishes guidelines, mainly on climate change adaptation actions, as well as on greenhouse gas mitigation, with the objective of reducing the vulnerability of the country's population and ecosystems to the effects of climate change and promoting the transition to a competitive, sustainable economy and low-carbon development.	Taking into account that the ORINOCO2 project involves 147 private landowners who guarantee the reduction of emissions on their properties, it complies with Law 1931, which establishes that all natural or legal persons have the responsibility to participate in the management of climate change and develop their own actions to contribute to its management. These landowners linked to the Cataruben Foundation develop actions to adapt and mitigate greenhouse gas emissions.
	CONPES 3918 de 2018- Estrategia para la Implementación de los Objetivos de Desarrollo Sostenible (ODS) en Colombia	Consolidate sustainable alternatives for production, conservation, recovery of goods and ecosystem services and improve the management of information on the status and pressures of forest resources, for the development of actions aimed at the administration and sustainable management of the country's forests.	The ORINOCO2 project complies and aligns with the guidelines established in the document regulating climate change, environment and Sustainable Development Goals (SDGs) in Colombia. This document, which establishes clear guidelines for the achievement of environmental and development goals, serves as a fundamental reference for our approach and implementation of each of the activities established in the project.

Area	Norm or Law	Characteristics	Compliment
	Ley 2169 de 2021 - Carbono Neutralidad	This regulation establishes minimum goals and measures to achieve carbon neutrality, climate resilience and low carbon development in the country in the short, medium and long term, and establishes other provisions.	ORINOCO2 during the development of the project activities implemented by Cataruben Foundation and Ecopetrol as a strategic ally, contributes significantly to the fulfillment of the goal established in Law 2169 in the whole Colombian territory. Under which a 51% reduction of greenhouse gas emissions caused by different aspects among them fossil fuel consumption, coal mining, electric energy, etc. must be generated by the year 2030. These reduction activities must be measured and monitored, and a system will be established to allow for this.
	Resolución 849 de 2022 - Planes integrales de Gestión de Cambio Climático Territoriales - PIGCCT	Establish the "Guide for the formulation and implementation of the Integrated Territorial Climate Change Management Plans - PIGCCT".	Resolution 849 addresses fundamental aspects such as the analysis of climate risk vulnerability, strategies to achieve carbon neutrality in the short, medium and long term, the development of mitigation scenarios, the development of measures and actions to be implemented in the territory by each of the local authorities. The project develops a matrix of social and economic environmental risks to measure and mitigate the impacts caused by the project in the territory, while generating a baseline scenario based on the temporal and spatial history of the ORINOCO2 project.

Area	Norm or Law	Characteristics	Compliment
PROGRAMS	Ley 2294-2023 Plan Nacional de Desarrollo 2022- 2026 "Colombia Potencia Mundial de la Vida	To lay the foundations for the country to become a leader in the protection of life through the construction of a new social contract that favors the overcoming of historical injustices and exclusions, the non-repetition of conflict, a change in our relationship with the environment and a productive transformation based on knowledge and in harmony with nature. This process must lead to total peace, understood as the search for an opportunity for all of us to live a dignified life, based on justice; that is, in a culture of peace that recognizes the exalted value of life in all its forms and that guarantees the care of our common home.	Throughout the first monitoring period (2018-2022), the ORINOCO2 Project has implemented activities in compliance with the established special protection and land management figures. These actions have been fundamental to advance our conservation and sustainability objectives. However, in order to remain aligned with the most recent standards and developments in land management guidelines, the project has decided to consider revising the updates in the monitoring reports. These updates will focus mainly on changes or modifications to the Municipal Development Plans and the CAR (Corporación Autónoma Regional) Action Plan, thus ensuring that our activities remain consistent with current policies and regulations, and the ORINOCO2 project reaffirms its commitment to environmental management.
	Politica Bosques Territorio de Vida de 2019	Comprehensive Strategy to Control Deforestation and Forest Management, as a cross-sectoral policy instrument that involves the co-responsibility of the different sectors of the Colombian State. It has the purpose of halting deforestation and forest degradation, addressing the complexity of the causes that generate it. It is based on recognizing the strategic significance of these ecosystems for the country, for their	ORINOCO2 is aligned with the strategy of forests territories of life, since they share the general objective of contributing to the sustainable development and preservation of natural forests. This in addition to strengthening the knowledge of the owners of the properties linked to ORINOCO2, on forest governance, environmentally sustainable activities, in order to conserve the existing ecosystems in each property and join efforts in the mitigation of Greenhouse Gases (GHG).

Area	Norm or Law	Characteristics	Compliment
		socio-cultural, economic and environmental importance, for their potential as a development option in the framework of the peace-building process, and for their contribution to mitigating and adapting to climate change.	
	Actualización de la Contribución Determinada a Nivel Nacional de Colombia (NDC)- 2020	The NDC incorporates three components: i) Greenhouse Gas (GHG) mitigation, ii) climate change adaptation, and iii) means of implementation as an instrumental component of policies and actions for low carbon, climate resilient and adapted development.	The NDC is a document in which countries assume roles and strategies to reduce greenhouse gas (GHG) emissions and address climate change. In the implementation of the ORINOCO2 project, its main function is to reduce greenhouse gas (GHG) emissions and promote carbon sequestration, including activities or strategies in sectors. These are renewable energy, energy efficiency, reforestation, sustainable forest management, strengthening of forest governance, impact on local communities with respect to the activities carried out on their land, and other efforts to reduce GHG emissions.

Source: Fundación Cataruben, 2023.

5.8 Carbon ownership and rights

To assess carbon ownership and rights in the ORINOCO2 project, a review of the relevant agreements and contractual documents provided by the project holder was carried out, ensuring compliance with the requirements established by the BCR Standard version 3.4, methodologies BC0002 version 4.0 and BCR0005 version 1.0, as well as the validation and verification manual 2.4. National regulations do not explicitly define carbon ownership, so the project holder, the Cataruben Foundation, has aligned itself with existing land tenure legislation, thus mitigating legal risks due to ownership disputes.

Cataruben has established an implementation model in which it acts as the project owner, while the 148 landowners are the managers of the ecosystems to be conserved. Cataruben

leads the monitoring, reporting, validation management and verification procedures, and the landowners execute the necessary activities within their property boundaries. This model ensures that the landholders hold the rights to carbon sequestration in private land areas.

Regarding free, prior and informed consent (FPIC), a process has been implemented to identify and map all communities living in the project's reference region. This process is crucial to define and delimit the eligible area without causing environmental, economic or social damage. Although the project does not develop activities in the territories of ethnic groups, it has ensured that local communities are informed and have participated in consultations, respecting their rights to consent and participate in the design and implementation of the project.

It is important to note that ORINOCO2 does not involve the territories of ethnic groups or traditional communities; however, the project seeks to guarantee respect for their rights and to carry out the procedures established by the applicable legislation in the region in question.

The validated agreements between Cataruben and the 148 participants of the properties are transparent and include fair and equitable compensation provisions. Documentation was reviewed to ensure that these agreements clearly define the responsibilities and obligations of all parties involved, and that stakeholders have a clear understanding of the project's objectives, timelines and potential impacts.

In terms of distribution, the ORINOCO2 project involves a total of 148 participants acting as ecosystem managers, distributed in different roles essential for the implementation and management of project activities. Of these, 91 are landowners, which implies that they have direct ownership of the land and are responsible for conservation and sustainable management activities within their respective territories.

Finally, 39 participants are legal representatives, who act on behalf of organizations or individuals who hold land rights but cannot directly manage project activities. These legal representatives ensure that decisions and actions taken in the project are aligned with the interests and rights of the landowners. Finally, 18 participants act as proxies, which means that they have authority to make operational and administrative decisions on behalf of the landowners. This role facilitates the coordination and execution of activities in the managed properties.

5.9 Risk management

Following the guidelines of section 13 of BCR0002 methodology version 4.0 and BCR0005 methodology version 1.0, as well as the tool "Permanence and Risk Management" version 1.1, an assessment of the risks related to the implementation of ORINOCO2 project activities in the environmental, financial and social dimensions was carried out, see Table 15.

First, the potential natural and anthropogenic risks that the GHG mitigation actions could face were identified. For each risk, specific measures were determined to mitigate them, ensuring that GHG emission reductions or removals would be maintained during the project quantification period. Among the environmental risks considered are catastrophic fires with the highest risk rating for the project, for which preventive and monitoring measures are defined.

As for financial risks, those related to the expected costs and investments, as well as the project's cash flows, were evaluated. Measures were established to mitigate these risks, such as the search for strategic allies and the constant monitoring of applicable regulations. In addition, risk workshops were held with the strategic partner Ecopetrol.

In the social dimension, risks associated with the participation of local communities and other stakeholders were considered. Spaces for dialogue and consultation with indigenous communities near the project areas were implemented, ensuring their participation and addressing potential conflicts. Clear agreements on responsibilities were also established and mechanisms were implemented to strengthen communication and governance among project participants.

The Permanence and Risk Management tool version 1.0 was used to assess and manage reversion risks, ensuring that conservation areas were maintained during the life of the project. In this regard, a reserve of 20% of the Verified Carbon Credits (VCCs) was implemented as a guarantee, with provisions that allow the project holder to dispose of 10% of the total retained after the verification period.

To ensure adaptive risk management of the ORINOCO2 project, continuous monitoring and evaluation procedures were adopted, periodically reassessing risks and updating mitigation actions as necessary. These procedures were based on the PMBOK guide (Project Management Fundamentals Guide), allowing for flexible adaptation to future conditions and reducing uncertainty in the generation of results for the ORINOCO2 project. Table 15 below lists the risk management proposed for the ORINOCO2 project.

Table 15 Risk Management for the ORINOCO2 project

Cod	Dimension	Risk	$(I)^*$	$(P)^{\alpha}$	$(IxP)^{\Omega}$	Value	C^{μ}	Mitigation Activities
A1	Environmental	Catastrophic Fire Events, natural or anthropogenic origin	3	3	9	3	High	1. Design of project activities involving fire management education 2. Implementation of forest fire prevention measures,

Cod	Dimension	Risk	(I)*	(P)$^{\alpha}$	(IxP)$^{\Omega}$	Value	C$^{\mu}$	Mitigation Activities
								3. Project activity preventive monitoring in summer time (early warnings).
A2	Environmental	Landslide or flooding events	1	1	1	1	Low	
F1	Financial	Emerging regulations, norms or changes in standards or methodologies that establish new conditions for new conditions for carbon project management	2	2	4	2	Medium	1. Constant monitoring of applicable norms, national regulations and standards. 2. Project design with an adaptive model involving the owners, Cataruben and the strategic collaborates in such a way that it can adapt to the circumstances.
F2	Financial	Lack of resources to implement, validate and verify the project	3	2	6	2	Medium	1. Design of a project activity in order to find a strategic partner to generate the enabling conditions for the monitoring, reporting and verification system.
F3	Financial	Increase or decrease in the price of the carbon certificate that exceeds or is below the expected cost per tonne in the future (market price sensitivity).	3	1	3	1	Low	
F5	Financial	Potential overlaps not compatible with other climate change mitigation initiatives	3	2	6	2	Medium	1. Register with Renare 2. Search and monitor carbon program databases.
S1	Social	Lack of security of land tenure and therefore of ownership and carbon rights.	2	2	4	2	Medium	1. Legal analysis of ownership and rights over carbon prior to verifications.
S2	Social	Increased conflicts between indigenous communities and private landowners, due to the	2	2	4	2	Medium	1. Creation of spaces for dialogue with the indigenous communities near the project areas.

Cod	Dimension	Risk	(I)*	(P)α	(IxP)Ω	Value	Cμ	Mitigation Activities
		implementation of project activities						
S3	Social	Little active participation of landowners in project activities.	3	2	6	2	Medium	1. Agreements on responsibilities clearly established in the contracts of engagement.
S4	Social	Land tenure disputes or complaints about participation mechanisms (tutelas, lawsuits, prior consultations), lawsuits, prior consultations)	2	1	2	1	Low	
S5	Social	Forced displacement due to security conditions	2	1	2	1	Low	
S6	Social	Materialization of unethical and non-compliant acts (bribery, deception, others) in the project.	3	1	3	1	Low	
S7	Social	Loss of efficient communication among the project participants.	3	2	6	2	Medium	1. Establishment of a project monitoring platform with access for all project participants. 2. Design of a governance model between the three main actors of the project.
S8	Social	No permanencia, de algunos predios en el proyecto por cambio de actividad económica, venta alquiler o transacción que genera más	3	2	6	2	Medium	1. Establishment of permanence clauses in the employment contract. 2. Strengthening of the PQRS mechanism. 3. Establishment of a governance model among the three project stakeholders.

Cod	Dimension	Risk	(I)*	(P)$^{\alpha}$	(IxP)$^{\Omega}$	Value	C$^{\mu}$	Mitigation Activities
		ingresos o insatisfacción con las actividades del proyecto						

Source: Fundación Cataruben, 2024.

* I: Impact
$^{\alpha}$ P: Probability
$^{\Omega}$ IxP: Score

$^{\mu}$ C: Score.

5.10 Sustainable development safeguards (SDSs)

As part of the evaluation of the ORINOCO2 project, a comprehensive environmental and social assessment was carried out, analyzing the likely effects on biodiversity, ecosystems and communities within the project boundaries. This assessment was supported by reliable and recent references, which ensures the validity and timeliness of the analysis. Both environmental and socioeconomic impacts were considered in order to comply with the criteria set out in BCR V3.4 standard, as well as in the Environmental and Social Safeguards and Harm Avoidance Tool V1.1.

The project proponent developed the impact analysis under sections 8, 8.1, and 8.2 of the PDD v 2.4, providing clarity on how the environmental and social impact assessment was conducted, in accordance with the implementation of the Sustainable Development Safeguards Tool (SDS Tool), version 1.1 of July 4, 2024, developed by BioCarbon Standard.

Based on this tool (SDS Tool), the project impact assessment was defined and divided into two documents. The first, titled "Annex 5.1.1. Environmental Impact Assessment," evaluated the project's activities regarding land use, resource efficiency, pollution prevention and management, as well as impacts on water, biodiversity, ecosystems, and climate change.

The second document, "Annex 5.1.2. Socioeconomic Impact Assessment," evaluated the project's impacts on key aspects such as human rights, specifically in terms of labor and working conditions, gender equality and women's empowerment, land acquisition, restrictions on land use, displacement and involuntary resettlement, indigenous peoples and cultural heritage, and community health and safety. Additionally, topics related to corruption, economic impact, and forest governance were addressed.

Using this identification as a starting point, the proponent developed sections 8 and 9 of the Monitoring Report, where the impacts on each environmental and socioeconomic component were reported for the period 2018-2023.

In this regard, the project owner conducted the environmental assessment to identify the potential impacts of project implementation in its area of influence. This assessment, documented in the ORINOCO2 Annex 5.1.1. Environmental Impact Assessment, identified two negative potential environmental impacts. To address these impacts, specific mitigation actions were established and are monitored. The assessment concluded that the project activities are geared towards environmental protection and greenhouse gas (GHG) reduction, indicating favorable alignment with environmental criteria.

In addition, in the Annex 5.1.2. Socioeconomic Impact Assessment, the assessment considered the impacts resulting from the interaction of project activities with the social and economic conditions of local communities. An Economic Impact Assessment was carried out that included aspects such as gender equity, education and training, communication with stakeholders and forest governance. In economic terms, access to financial goods and services, the economic benefits of the project, the formalization of environmental services as an economic activity and the implementation of sustainable production practices were evaluated. The socioeconomic evaluation matrix, adapted from the Leopold matrix, applied a rating scale to determine the magnitude and importance of the impacts.

It is validated that the project proponent adequately developed the specific questionnaire provided by the SDSs tool. Each question was answered accurately and sufficiently justified. In cases where potential risks were identified, appropriate preventive, corrective, or mitigation measures were implemented.

In this regard, the potential impact on feline species that may be threatened by the presence of landowners and their productive systems was identified. To address this, the project proponent established a Feline Management Plan as a preventive measure, aimed at managing these species appropriately, starting with the identification of those causing predation and applying the corresponding plan. Additionally, awareness spaces about the importance of jaguars were created. Landowners were advised to keep livestock away from forested areas and closer to populated areas, maintain short grass free of weeds, dispose of domestic animal carcasses properly to avoid attracting predators, mark livestock, record incidents and causes of death, and avoid animal isolation through the use of a circular design for water troughs and mineral sources. Non-lethal repellent collars were also proposed. Furthermore, constant communication was established with the Regional Autonomous Corporations, territorial entities, the community, and other environmental organizations present in the area.

A potential risk related to social and cultural barriers that could hinder the advancement of gender equality and women's empowerment within the project environment or the communities was also identified. To address this potential risk, the project proponent established preventive measures such as creating a space to strengthen access to and management of financial goods and services with a gender equity approach to empower rural women. This space will offer financial management training, facilitate access to credit, and

other financial products. Additionally, campaigns will be implemented to raise community awareness and promote women's equal participation in economic decision-making, thereby contributing to sustainable development.

Likewise, the socio economic evaluation documented in the ORINOCO2 Annex 5.1.2. Socioeconomic Impact Assessment Matrix determined that the project activities do not represent negative impacts within the area of influence. All activities are aimed at generating social and economic benefits, which is in line with climate change mitigation and GHG reduction actions. The need to generate additional socioeconomic management plans to prevent or mitigate negative impacts was not identified, as the effects observed are positive.

The monitoring of these measures is carried out through Annex 5.1.1 "Environmental Impact Assessment" and Annex 5.1.2 "Socioeconomic Impact Assessment," ensuring continuous evaluation of the outcomes of the preventive and mitigation actions. This plan provided a clear view of the progress and effectiveness of the implemented actions.

Following a thorough review and detailed evaluation of the provided and validated evidence, the audit team concludes that the impact assessment for the project activities was conducted in accordance with the criteria established in the Sustainable Development Safeguards Tool (SDS Tool), version 1.1 of July 4, 2024, developed by BioCarbon Standard. The process ensured the application of appropriate practices and knowledge in environmental and socioeconomic matters, implementing preventive, corrective, and mitigation actions when necessary. The evaluation was based on reliable and updated sources, ensuring the quality and accuracy of the analysis. It was verified that the project did not generate negative impacts on the environment or the communities, meeting the applicable validation and verification requirements. In summary, it was confirmed that the project complies with all validation and verification requirements, ensuring environmental sustainability and respect for the social and economic rights of the involved communities.

5.11 Stakeholder engagement and consultation

During the stakeholder consultation process for the ORINOCO2 project, a review was conducted to validate the individuals, groups and organizations that would be affected by project activities. In the initial phase, a database of potentially interested stakeholders was created and documented in Annex 4.1.1 of the PDD. An official letter was sent to these stakeholders, for a total of 147 letters detailing the project design and the potential impacts identified, inviting them to make comments, suggestions or recommendations through official channels such as telephone and e-mail. In addition, the possibility of organizing virtual or face-to-face meetings was offered upon request.

In this sense, stakeholder consultation allowed us to identify their interests, potential risks, and appropriate mitigation measures. The project documentation provides mechanisms for stakeholders to comment on the project, demonstrating their involvement in project design and implementation. They ensured that the 147 invitations to comment were sent to relevant stakeholders, allowing for broad participation.

In line with the above, only one comment was received by email, out of the 147 letters sent, this comment was responded to in a timely manner. For example, from the agricultural company Agrocacay S.A.S., questions were raised regarding the measurement of carbon sequestration in reforestations and the monitoring of threatened species. The project owner informed that the REDD+ project focuses on the conservation of natural areas through the reduction of emissions caused by deforestation and forest degradation, and that the landowners would carry out conservation and monitoring activities in conjunction with Fundación Cataruben.

Finally, the comments received were documented and an assessment was made as to whether they were adequately considered. Table 47 of the document summarizes the comments and corresponding considerations, ensuring transparency and an adequate response to the concerns raised. In addition, if there were complaints or grievances from stakeholders, a full explanation was provided on how they were addressed and whether they were satisfactorily resolved.

Public Comments on Biocarno Registry

Additionally, the ORINOCO2 project was open for public comment on the Biocarbon Standard public platform, from September 11, 2023 until October 11, 2023. During this 30-calendar day period, all stakeholders were invited to provide their comments and suggestions on the project. Therefore, it is validated that no comments were received during the public consultation period on Biocarbon Standard, according to the documentation available on said platform at the time of this validation and verification audit.

6 Verification findings

6.1 Project and monitoring plan implementation

6.1.1 Project activities implementation

During the monitoring period, an assessment of the implementation and operational status of the ORINOCO2 project was conducted in accordance with the Project Document (PD), the monitoring plan and applicable verification requirements. The assessment focused on ensuring that the project activities were aligned with the original project description and methodologies BCR0002 version 4.0, BCR0005 version 1.0, BCR standard version 3.4 and the validation and verification manual version 2.4.

The evaluation process included detailed verification of the existence of any discrepancies between the actual implementation of the project and its initial description. To this end, the project document (PDD), monitoring plan and monitoring report (MR) were reviewed, on-site visits were made and interviews were conducted with ecosystem managers and landowners. The conclusion of this evaluation indicated that no significant dissimilarities

were found, confirming the execution of the implementation with respect to what was planned.

The information evaluated included monitoring reports (MR), records of conservation activities, and documentation of meetings with project participants. Cross-checks were conducted to validate the accuracy of the data and to ensure that all activities were in accordance with the objectives and targets established in the PDD and monitoring plan. Among the activities verified were the conservation of forests and natural savannas, the implementation of sustainable practices, and community education and training.

The information reviewed, including the PDD v2.4, section 2.3.8.1 Design of Project Activities, the Table 62 Design of Co-Benefit Actions for the Wax Palm, the Annex 6.1 Project Activities and Co-Benefits Monitoring Plan, and the Monitoring Report (2018-2022), a comprehensive evaluation of the project activities' compliance and progress has been conducted.

Delimitation and coding of activities: The project holder has clearly structured and coded the activities according to their component. The activities are divided as follows:

- *G#: General Activities that impact both the forest component and natural savannas. These activities include actions involving the communities residing in the properties and represent additional actions for co-benefits.*
- *R#: Activities exclusive to the REDD+ component.*
- *S#: Activities exclusive to the Natural Savanna Component.*
- *B#: Additional activities related to the Biodiversity Component for co-benefits.*

This coding ensures that there is no duplication of activities and allows for a clear distinction between actions aimed at reducing deforestation through the REDD+ methodology and those focused on preventing land use change in the savannas under the BCR0005 methodology.

The analysis of the Monitoring Plan and its comparison with the Monitoring Report (2018-2022) shows no significant differences or deviations between the validated plan and the verified report. This means that the activities implemented during the first monitoring period (2018-2022) were executed as planned, in accordance with the BCR0002 and BCR0005 methodologies.

It was confirmed that the activities implemented during this period were effective, achieving a 95.65% reduction in deforestation and a 97.02% reduction in the transformation of natural savannas compared to the baseline scenario. This highlights the effectiveness of the measures adopted to protect ecosystems and manage land use.

The property agreements and carbon rights were verified based on the Annex 2 Property and Carbon Rights. In addition, the Property Implementation Plans detailing the implementation of activities on each property were reviewed. Interviews conducted, along

with spatial documentation, confirmed that the implementations do not correspond to compensations from the biotic component nor to payments for environmental services. This verification ensures the integrity of the project regarding the implementation of activities on the involved properties.

Progress of Activities

The evaluation of the section 14.1.1 "Progress of Project Activities" in the Monitoring Report (2018-2022) reveals the implementation status of each activity during the monitoring period. The comparison between the Monitoring Planand the Monitoring Report shows that, in general, the project has been executed in alignment with the established objectives and methodologies.

Below are some key activities along with their progress:

REDD+ Activities:

Activity R1: Implementing sustainable fire management practices to prevent forest fires

- *Status: In execution since 2018, with sustainable practices implemented on properties.*
- *Progress: 83.7%*

Activity R2: Monitoring heat points as an early warning mechanism

- *Status: In execution, started in 2018.*
- *Progress: 5.0%*
- *Activity R3: Promoting the establishment of eco-efficient stoves and dendroenergy banks*
- *Status: In execution, with property characterization starting in 2018.*
- *Progress: 4.2%*

Natural Savanna Activities:

Activity S1: Implementing landscape management tools in savannas

- *Status: In execution since 2018.*
- *Progress: 41.6%*
- *Activity S2: Implementing sustainable productive practices in natural savannas*
- *Status: In execution since 2018.*
- *Progress: 60.0%*

Biodiversity Activities:

Activity B1: Identifying and monitoring High Conservation Values (HCV)

- *Status: In execution since 2018.*
- *Progress: 25.0%*
- *Activity B3: Restoration actions in degraded ecosystems*
- *Status: In execution since 2018.*
- *Progress: 25.0%*

Gender-Related Activity:

EG1: Strengthening access and management of financial goods and services with a gender equity approach

- *Status: In execution, starting in 2022.*
- *Progress: 10.0%*

General Activities:

Activity G1: Improving landowner incomes through the sale of carbon credits

- *Status: In progress, starting with the commercialization of carbon credits.*
- *Progress: 0.0%*

Activity G2: Strengthening technical capacities for the sustainable management and conservation of ecosystem services

- *Status: In execution since 2018, with the capacity-building plan in place.*
- *Progress: 30.0%*

Activity G3: Building an alliance to enable the conditions for project validation and verification

- *Status: In progress, since 2022 with Agreement No. 3051645.*
- *Progress: 64.0%*
- *Activity G4: Designing and implementing a governance model for the project*
- *Status: In progress, design started in 2018.*
- *Progress: 10.0%*

The progress of each activity aligns with what was stipulated in the Monitoring Plan. Significant advances in deforestation reduction and savanna preservation reflect the effectiveness of the interventions. Additionally, the implementation of indicators related to information and knowledge management, technical support, forest management, and land management has been detailed in the reports and validated.

The progress of each of the project activities and their progress for this first monitoring period in 2018 to 2022 are listed in RM V 2.4, section 14.1.1. Progress of project activities. In conclusion, The analysis and comparison between the Monitoring Plan and the Monitoring

Report indicate that the activities of the Orinoco2 project have been executed as planned, with significant impact on deforestation reduction and savanna conservation. The activities implemented have made remarkable progress in the first five years, and no major deviations have been identified between what was planned and what was executed. The validation of property agreements and property implementation plans further reinforces the transparency of the project. The results obtained ensure that the proposed goals have been met, with significant advances in ecosystem protection and the implementation of sustainable practices.

6.1.2 Monitoring plan implementation and monitoring report

The implementation of the Orinoco REDD+ project monitoring plan2 was assessed in accordance with the monitoring plan and applicable verification requirements. This process included a review of the methodology used, ensuring that all monitoring activities were conducted in accordance with the validated documents.

To evaluate the implementation of the monitoring plan, the monitoring report version 2.4 detailing the activities performed, quality control procedures applied, data and parameters verified was reviewed. This review included project delineation, project activities, quality control procedures, and data and parameter verification, among other critical aspects. The evaluation confirmed that the monitoring activities were carried out in accordance with the established requirements.

Table 16 Key development and implementation dates and milestones

Date	Milestones in the development and implementation of the project
01/10/2018	Start date
01/10/2018	Start of activity implementation.
2018 – 2022	Validation and verification period
11/09/2023	Project registration under the certification program
01/10/2018 - 31/12/2022	Investment for the development of REDD+ activities Implementation of activities First monitoring period
11/09/2023 - 11/10/2023	Public comment period for the project in the Biocarbon Standard.
24/11/2023 – 15/07/2024	Validation and verification process

Source: Present validation and verification report

The project's compliance with the application of sections 9 (monitoring process) and 10 (monitoring plan) of BCR's Monitoring, Reporting and Verification (MRV) tool version 1.0 is

detailed in this section. In this vein, it was confirmed that the project holder implemented all necessary monitoring procedures to ensure the accuracy and reliability of the data collected. This included the collection of activity data, verification of coverage maps and application of monitoring methodologies.

The evaluation of the monitoring report involved cross-checking the information submitted, ensuring that all data were accurate and correctly documented. The review included validation of the procedures used to calculate GHG reductions and verification of the quality management mechanisms implemented.

6.1.2.1 Data and parameters

In the evaluation of the project monitoring plan, a review was conducted to verify the monitored data and parameters. Each parameter was evaluated according to the criteria established in the methodologies BCR0002 version 4.0 and BCR0005 version 1.0, as well as in the BCR standard version 3.4, monitoring, reporting and verification tool version 1.0 and the validation and verification manual version 2.4.

For each parameter, the following aspects were considered:

(a) Monitored parameter value.

The value of the parameters monitored during the quantification period was documented in the project accounting annexes. These values (see section 6.1.2.1) were used to calculate GHG emissions in the baseline scenario as well as in the project and leakage areas in the scenario with the project. The data and parameters determined in the registry that were monitored and not monitored during the monitoring period, including default values and factors, are listed below.;

Table 17 Data and parameters not monitored during the monitoring period (Total biomass in forests)

Data/Parameter	*Total biomass in forests*
data unit	*t/ha*
Description	*Plant biomass contained in forest ecosystems.* *It is estimated from the sum of aboveground biomass (BA) and belowground biomass (BS).*
Data source used	*Ministerio de Ambiente y Desarrollo Sostenible – IDEAM (2020)*
Values	*106,47*

Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	*Definition of the carbon emission factor in total biomass (REDD+ Activities).* *Calculation of emissions in forest ecosystems in baseline.* *Calculation of emissions in forest ecosystems in project areas.* *Calculation of emissions in forest ecosystems in leakage areas.*
Justification of the choice of data or description of the measurement methSDG and procedures applied.	*The value is taken from the NREF, so it represents a conservative value, according to the national context for the estimation of GHG emissions.*
Additional comments	

Source: Fundación Cataruben, 2024.

Table 18 Data and parameters not monitored during the monitoring period (Soil organic carbon in forests)

Data/Parameter	*Soil organic carbon in forests*
data unit	*tC/ha*
Description	*Carbon content in soils in forest ecosystems*
Data source used	*Ministerio de Ambiente y Desarrollo Sostenible – IDEAM (2020)*
Values	*64,51*
	Definition of the soil carbon emission factor (REDD+ Activities)
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	*Calculation of baseline emissions in forest ecosystems* *Calculation of emissions in forest ecosystems in the project area.*
	Calculation of emissions in forest ecosystems in leakage areas
Justification for the	

choice of data or description of the methSDG and measurement measurement methSDG and procedures applied	*The value is taken from the NREF, so it represents a conservative value, according to the national context for the estimation of GHG emissions.*
Additional comments	*N/a*

Source: Fundación Cataruben, 2024.

Table 19 Data and parameters not monitored during the monitoring period (Total biomass in natural savannahs)

Data/Parameter	*Total biomass in natural savannas*
data unit	*t/ha*
Description	*Plant biomass contained in natural savanna ecosystems.* *It is estimated from the sum of aboveground biomass (BA) and belowground biomass (BS).*
Data source used	Own data
Values	*3,78*
	Definition of the carbon emission factor in the total biomass of natural savannas
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	*Calculation of baseline emissions in forest ecosystems* *Calculation of emissions in forest ecosystems in the project area.*
	Calculation of emissions in forest ecosystems in leakage areas
Justification of the choice of data or description of the measurement methSDG and procedures applied.	*Sampling was conducted according to nationally validated methodologies and was carried out in eligible areas of the project.* *The statistical and technical aspects that were taken into account for their development are described in section 3.7.3.2.3 of the PD.*
Additional comments	*N/A*

Source: Fundación Cataruben, 2024.

Table 20 Data and parameters not monitored during the monitoring period (Soil organic carbon in natural savannahs)

Data/Parameter	*Soil organic carbon in natural savannas*
data unit	*tC/ha*
Description	*Carbon content in soils in natural savanna ecosystems*
Data source used	*Hyman et al., 2022. Soil carbon storage potential of acid soils of Colombia's Eastern High Plains*
Values	*65,94*
Indicate what the data is used for (Baseline/Project/Leakage Emission Calculations)	*Definition of the carbon emission factor in the soil of natural savannas Calculation of emissions in forest ecosystems at baseline Calculation of emissions in forest ecosystems in project areas Calculation of emissions in forest ecosystems in leakage areas leakage*
Justification of the choice of data or description of the measurement methSDG and procedures applied.	*The study is regional, so it was developed in areas with ecosystems and environmental characteristics similar to the project areas.*
Additional comments	*N/A*

Source: Fundación Cataruben, 2024.

Monitored data and parameters

The data and parameters monitored during the 2028-2020 monitoring period are listed below;

Table 21 Monitored data and parameters 2018-2022 (Forest eligible area).

Data/Parameter	*Eligible forest area*
data unit	*ha*
Description	*Areas within the geographical boundaries of the project that correspond to the forest category, according to the national forest definitions, years 2005, 2018, 2022.*
Measured/Calculated/Predetermined:	Calculated

Data source	Forest and Carbon Monitoring System - Remote Sensing Satellite Images (Sentinel, Worldview-2)
Monitored parameter value(s)	Eligibility 2005 - 2018: 30,718.3 Follow-up 2018 - 2022: 30,650
Indicate what the data is being used for (Baseline/Project/Leakage Baseline/Project/Leakage Emission Calculations)	Estimation of forest cover change, eligible areas and monitoring period. Data to define degradation and deforestation in the baseline scenario and project scenario.
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	ArcGISV3.1 and QGIS V3.28 Google Earth Engine Platform 2008: 0.96 Thematic Accuracy 2018: 0.95 Thematic Accuracy 2022: 0.94 Thematic Accuracy Thematic accuracy is achieved through AcATaMa.
Measuring/reading/recording frequency	Annual
Calculation method (if applicable)	Supervised forest classification procedure Eligible area monitoring procedure
Quality control procedures applied	In situ Remarks Formats field coverages AcATaMa Procedure Reference region and station activity data Verification of viable areas

Source: Fundación Cataruben, 2024.

Table 22 Monitored data and parameters 2018-2022 (Savanna eligible area).

Data/Parameter	Eligible savannah area
data unit	ha

Description	*Areas within the geographical boundaries of the project that correspond to the savanna category (shrubland and grassland), according to national definitions of natural savanna.*
Measured/Calculated/Predetermined:	Calculated
Data source	*Remote sensors such as Sentinel, and high resolution sensors such as Imágenes Planet, Worldview-2, Corine Land Cover layers at a scale of 1:100,000 will be used.*
Monitored parameter value(s)	Elegibility *2012 - 2018: 88.306,0 ha* Monitoring *2018 - 2022: 87.684 ha*
Indicate what the data is being used for (Baseline/Project/Leakage Baseline/Project/Leakage Emission Calculations)	*Estimated land use change in natural shrub and grassland cover in the baseline and project scenarios.*
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	*ArcGISV3.1 and QGIS V3.28* *Maps of 2012 and 2018 are national inputs Map of 2022: 0.98 Thematic Accuracy* *Thematic accuracy is achieved through AcATaMa.*
Measuring/reading/recording frequency	*Annual*
Calculation method (if applicable)	*Eligible areas monitoring procedure*
Quality control procedures applied	*In situ Remark Formats for field coverages* *Characterization of cartographic inputs* *Instructions for land cover interpretation under the Corine Land Cover methodology adapted for Colombia, scale 1:100-000.* *Confusion Matrix* *Reference region and station activity data*

Source: Fundación Cataruben, 2024.

(b) Equipment used for monitoring.

In this component, the products of the technologies used were documented, including their accuracy class. In the case of remote sensors such as Sentinel and WorldView-2 for monitoring eligible areas of forest and savanna, the information is listed below;

Table 23 Characterization of cartographic inputs.

Vector (satellite or airplane)	Sensor	Resolution		Coverage	Acquisition Date	Scene or identification point
		Espacial	Spectral	(Km²)	(DD/MM/AAA)	Tile Number
S2A_MSIL1C_20221215T151803_A030081_R125_T18NXJ.tiff	MSI	10 metros bandas (2 a 3 y 8); Pancromática (banda 8) de 10 m ,20 metros bandas (5 a 7 y 9); Pancromática (banda	7 -10 bandas	9.698,0	15/12/2022	T18NXJ
S2A_MSIL2A_20221223T151016_N0301_R082_T19NCF.tiff				12.093,0	23/12/2022	T18NCF
S2A_MSIL2A_20221225T145721_N0509_R039_T19NFF.tiff				12.093,0	25/12/2022	T19NFF
S2A_MSIL2A_20221228T150835_A039_R082_T19NCG				11.675,4	28/12/2022	T19NCG
S2B_MSIL1C_20221223T150719_N0509_R082_T19NDG				12.093,0	23/12/2022	T19NDG
S2B_MSIL1C_20221226T151709_N0509_R125_T18NYJ.tiff				12.026,4	26/12/2022	T19NYJ
S2B_MSIL1C_20221226T151709_N0509_R125_T18NYK.tiff		8A) de 20 m		12.027,2	26/12/2022	T19NYK
S2B_MSIL1C_20221226T151709_N0509_R125_T18NZK.tiff				12.014,1	26/12/2022	T19NZK
S2B_MSIL1C_20221226T151709_N0509_R125_T18NZL.tiff				12.014,03	26/12/2022	T19NZL
S2B_MSIL1C_20221226T151709_N0509_R125_T19NBE.tiff				8.417,7	26/12/2022	T19NBE

Vector (satellite or airplane)	Sensor	Resolution		Coverage	Acquisition Date	Scene or identification point
		Espacial	Spectral	(Km²)	(DD/MM/AAAA)	Tile Number
'S2B_MSIL2A_20221218T150839_A039118_R082_T19NEF.tiff'				8.663,3	18/12/2022	T19NEF
'S2B_MSIL2A_20221223T150719_N0509_R082_T19NDF.tiff'				12.092,8	23/12/2022	T19NDF
S2B_MSIL2A_20221223T150719_N0509_R082_T19NEG.tiff'				11.102,9	23/12/2022	T19NEG
S2B_MSIL2A_20221226T151709_N0509_R125_T19NBF.tiff'				10.885,2	26/12/2022	T19NBF
S2B_MSIL2A_20221230T145729_N0509_R039_T19NFG.tiff'				12.146,8	23/12/2022	T19NFG
'S2B_MSIL1C_20221223T150719_N0509_R082_T19NCE.tiff'				12.100,0	23/12/2022	T19NCE

Source: Fundación Cataruben, 2024.

It is important to point out that BCR0002 and BCR0005 methodologies indicate that the accuracy of the maps used must be greater than 90%. In this sense, the maps used for the forest and savannas component comply with this precision requirement, since values between 95% and 94% are obtained for forest and 98% for savannas.

(c) Measurement and recording methSDG.

The measurement and recording methSDG were described, including the frequency of measurement. The project holder collected data, using techniques such as supervised forest classification and the monitoring procedure for eligible areas, in section 6.1.2.1 of this validation and verification report.

(d) Data source.

The data sources supported by the project holder included daily logs, surveys, sample plots, and inventories. For example, soil organic carbon data in natural savannas were based on

regional studies by Hyman et al. (2022), as well as the other parameters listed in section 6.1.2.1 of this validation and verification report.

(e) Calculation method.

The calculation method for each parameter provided by the project owner was reviewed, ensuring consistency with the emission factors and project parameters in section 6.1.2.1 of this validation and verification report. Similarly, the calculation methSDG are detailed in section 6.2 and 6.1.2.1 of this validation and verification report.

(f) Quality control procedures (QA/QC).

The application of quality control procedures was verified, such as the use of the AcATaMa complement for the validation of non-forest forest maps and the implementation of confusion matrices to evaluate the accuracy of the classifications.

In addition, it was verified that the Cataruben Foundation has implemented specific measures to identify and control the necessary resources, including economic, support and human resources, during the stages of the project. These measures have been verified through the implementation of manuals, procedures and guides, complying with the requirements established by ISO 9001/2015 and ISO 14001/2015 standards, as well as applicable legal and regulatory requirements

On the other hand, quality control focuses on the inspection of the information produced to assess whether it complies with ISO 9001/2015 and ISO 14001/2015 quality standards, as well as those established by BCR standard version 3.4 and BCR0002 and BCR0005 methodologies. In this regard, records and documents evidencing the implementation of these procedures have been reviewed, confirming that quality inspections are carried out. The accuracy of the data is ensured through reviews to avoid arithmetic and grammatical errors. Completeness is verified by exhaustive collection of the necessary data to avoid erroneous decisions and cost overruns. Data timeliness is validated by ensuring that the information reaches the intended recipients in the appropriate period. Relevance is confirmed by aligning the data with stakeholder questions and needs, and ease of use is ensured by clear and understandable presentation of the data. Reliability of the source is assessed by reviewing the metrics of information collection, validation and consolidation, and the information management.

Additionally, it has been verified that the Cataruben Foundation implements a continuous improvement cycle in its information management activities, with the objective of preventing non-conforming outputs during the process. This ensures that the data used in the project maintain their quality and accuracy, complying with the applicable methodological and regulatory standards.

(g) Emission factors and reference values.

The ORINOCO2 project has implemented the use of official emission factors for the country, both in forests and savannas, in accordance with methodologies BCR0002 version 4.0 and BCR0005 version 1.0.

In Section 3.7.3.2.1 and 3.7.3.2.2 of the Project Description Document (PDD), it is specified that, for the quantification of emissions in forests, the official emission factors established in the proposed reference levels for Colombia (NREF 2020) for the present monitoring period were used. These factors include specific values for aboveground and belowground biomass, as well as soil organic carbon, adjusted to reflect local conditions of forest ecosystems.

Also, in Section 3.7.3.2.3 of the PDD, the emission factors used for natural savannas are detailed. These factors are based on regional and national studies that provide default values for biomass and soil carbon in these areas.

In this sense, the ORINOCO2 project also aligns with the official Forest Reference Emission Level (NREF 2020,2024) for Colombia as of the date of this validation and verification, which establishes a framework for the national reference emissions baseline. Section 3.7.3 of the PDD and the monitoring report (MR) confirm that the project has adopted these baseline values to calibrate its GHG emissions and removals estimates. The use of the NREF 2020 ensures that the project estimates are consistent, aligned with national climate change mitigation metrics, and adequately reflect the specific conditions of the project areas.

It is important to note that for the ORINOCO2 project, the deforestation emission factors were based on the NREF values for the Orinoco biome, considering technical specifications such as stratification (Ministry of Environment and Sustainable Development - IDEAM, 2020, 2024). The NREF 2020 values were used for the first verification period 2018-2022, and the NREF 2024, currently under evaluation, was used for the period 2023-2027. These emission factors are listed below.

Emission factors used for deforestation

Table 24 Carbon stored in total biomass and debris

Period 2018-2022 (NREF 2020)				
Biome/Stratum	**Aerial biomass (t/ha)**	**Subterranean biomass (t/ha)**	**Total biomass (t/ha)**	**Total biomass carbon (tC/ha)**
Orinoquía (Forest)	85,58	20,90	106,47	50,04
Period 2023-2027 (NREF 2024)				
Biome/Stratu	**Total biomass**	**Total biomass**	**Carbon in debris**	**Total carbon (tC/ha)**

m	(t/ha)	carbon (tC/ha)	(tC/ha)	
Orinoquía (Forest Core)	159,58	75,00	4,74	79,74
Orinoquía (Forest edge)	104,35	49,04	4,74	53,78

Source: Ministerio de Ambiente y Desarrollo Sostenible – IDEAM, 2020, 2024. Taken from the monitoring report, 2024.

Table 25 Soil organic carbon (COS) by stratum

Period 2018-2022 (NREF 2020)		
Biome/Stratum	**COS (tC/ha)**	**COS20 (tC/ha)**
Orinoquía (Forest)	64,51	3,23
Period 2023-2027 (NREF 2024)		
Biome/Stratum	**COS (tC/ha)**	**COS20 (tC/ha)**
Orinoquía (Forest)	34,73	1,73

Source: Ministerio de Ambiente y Desarrollo Sostenible – IDEAM, 2020, 2024. Taken from the monitoring report, 2024.

Table 26 Emission factors due to deforestation

Period 2018-2022 (NREF 2020)			
Biome/Stratum	**Total carbon (tC/ha)**	**COS20 (tC/ha)**	**Deforestation emission factor (tCO2e/ha)[1]**
Orinoquía (Forest)	50,04	3,23	195,32
Period 2023-2027 (NREF 2024)			
Biome/Stratum	**Total carbon (tC/ha)**	**COS20 (tC/ha)**	**Deforestation emission factor (tCO2e/ha)[2]**
Orinoquía (Forest Core)	79,74	1,73	298,76
Orinoquía (Forest edge)	53,78	1,73	203,58

1 The emission factor is calculated by converting the total carbon value and COS20 into tons of CO2e, multiplied by the stoichiometric ratio between carbon dioxide (CO_2) and elemental carbon. (44/12)

2 The emission factor is calculated by converting the total carbon value and COS20 into tons of CO2e, multiplied by the stoichiometric ratio between carbon dioxide (CO_2) and elemental carbon. (44/12)

Source: Ministerio de Ambiente y Desarrollo Sostenible – IDEAM, 2020, 2024. Taken from the monitoring report, 2024.

Emission factors used for degradation

Table 27 Emission factor for forest degradation.

Transition fragmentation classes	Total biomass Average difference (t/ha)	Carbon content difference in Total biomass (tC/ha)	Degradation emission factor (tCO2e/ha)
Núcleo-Borde	57,30	26,93	98,74

Source: Ministerio de Ambiente y Desarrollo Sostenible – IDEAM, 2024. Taken from the monitoring report, 2024.

Emission factors used for land use change in natural ***savannahs***

Table 28 Carbon emission factor in the Total biomass of Savannahs.

Total biomass (t/Ha)	Carbon in LV (tC/ha)	LV equivalent carbon dioxide (tCO2e/ha)
3,78	1,78	6,51

Source: Fundación Cataruben, 2023. Taken from the monitoring report, 2024.

Table 29 Emission factor for land use change in Savannahs.

COS (tC/ha)	COS20 (tC/ha)	Carbon dioxide equivalent in COS (tCO2e/ha)	Carbon dioxide equivalent contained in the Total biomass (tCO2e/ha)	Total Carbon Dioxide Equivalent (tCO2e/ha)
65,94	3,30	12,09	6,51	18,60

Source: Fundación Cataruben (2023) y Hyman et al. (2022). Taken from the monitoring report, 2024.

6.1.2.2 Environmental and social effects of the project activities

The monitoring of the environmental and social effects of the ORINOCO2 project was carried out following the criteria of the BioCarbon Standard "Empowering sustainability, redefining standards" version 3.4, and using the Safeguards for Sustainable Development tool questionnaire version 1.1. The rating of these impacts was carried out according to the criteria of the Leopold matrix, which assess the magnitude and importance of the impacts. The environmental assessment, documented in Annex 3.1 of the Monitoring Report (Environmental Impact Assessment), covered the impact on land use, water, biodiversity, ecosystems and climate change. A potential negative impact of medium category was

identified in the biodiversity component, for which preventive actions were implemented. However, this impact is not directly related to the project activities, but rather comes from cultural practices in the region where the project is being developed. Furthermore, the socioeconomic assessment, documented in Annex 3.2 of the Monitoring Report (Socioeconomic Impact Assessment), analyzed the impact on human rights, labor conditions, gender equality and women's empowerment, land acquisition and restrictions, involuntary displacement, indigenous peoples and cultural heritage, community health and security, as well as aspects related to corruption, the economy and governance. In this analysis, a potential negative impact was identified, also of medium category, in the gender equality and women's empowerment component, for which preventive measures were taken. This impact is also rooted in cultural and historical factors of the region, and is not produced by the implementation of the project.
The assessments conclude that the implementation of the project activities did not generate negative impacts on the environment or the communities. On the contrary, they promote social, economic and environmental benefits, such as gender equity, transparency and community participation, capacity building, efficient management of natural resources, conservation of ecosystems and biodiversity, and economic benefits derived from the formalization of environmental services and the implementation of sustainable productive practices. Therefore, the need for additional environmental or socioeconomic management plans was not identified, as the impacts observed during this monitoring period were positive.

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

The evaluation of the procedures implemented for the management of GHG reductions or removals and the quality control related to the monitoring activities was carried out through a review of the project documentation and compliance with quality requirements.

The project define five stages for assuring the quality: definition of the information, collection, validation and cleaning of data, consolidation of information for analysis, and officialization, publication and dissemination of the results.

Table 30 documents and details these stages on the review of information processing.

Table 30 Review of information processing

nformation Management Stages	*Responsible*	*Monitoring*
Information Definition:		
Review of Methodology BCR 0002 and Methodological Document Sector AFOLU / BCR0005 Quantification of the Reduction of GHG Emissions and Removals-Activities that Avoid Land Use Change in natural savannas. This in order to identify the type of data required, as well as the appropriate tools, means and strategies for its collection, to prevent events of duplication of efforts and ensure compliance with applicable technical and legal requirements. *In this first step, the structure of the information, the relationships and its integrity are identified, in addition to identifying and ensuring that the sources are reliable and official, such as IDEAM and IGAC.*	*-Project Manager* *-Care Unit* *-Quantification Unit* *-Governance Unit* *-Geospatial Area* *-Implementation Unit* *-Economic Area* *-Operational Risk Unit*	*This stage of the process must be recorded in the minutes of the meeting, in which at least the following aspects are described and approved:* *-Technical Requirements* *-Legal Requirements* *-Formats and their content (geographic, social, biodiversity, legality of land)* *-Tools and means of information collection (oficial and adequate) -Responsible for each activity* *-Responsible for each activity*

nformation Management Stages	Responsible	Monitoring
Collection According to the means and tools established in the previous stage, the information identified as necessary for the implementation of BCR 0005 Methodology and the Methodological Document Sector AFOLU / BCR0005 Quantification of the Reduction of GHG Emissions and Removals- Activities that Avoid Land Use Change in savannas is collected. For this process there are competent personnel and adequate tools for the collection of information. The information collected is stored in the organization's Drive unit.	-Project Manager -Care Unit -Quantification Unit -Governance Unit -Geospatial Area -Implementation Unit -Economic Area -Operational Risk Unit	Prior to the start of the data collection activities, the operability of the equipment to be used and the competence of the personnel performing this activity must be verified, both for the use of the tools (procedures and forms) and for the use of the technological equipment. Any non-compliance must be reported to the corresponding area in order to prevent delays in programming and/or inadequate processing of the information collected. Procedures and instructions have been established for the collection of information at this stage, which have been validated in the previous stage by the leaders or persons responsible for the project and each of the units involved in the process.

nformation Management Stages	Responsible	Monitoring
Validation and Debugging *Once the compliance with the principles of the information in the previous stage has been reviewed, the data is validated and cleaned using the technological tools and equipment initially established.* *10% of the records of the information collected will be reviewed. This aiming to to comply with the BCR 0002 Methodology and the AFOLU Sector Methodological Document / BCR0005 Quantification of the Reduction of GHG Emissions and Removals-Activities that Avoid Land Use Change in savannas, related to the review of the information processing. As well, it will be reviewed in order to prevent errors during the consolidation of the information for the analysis.*	*-Project Manager* *-Care Unit* *-Quantification Unit* *-Governance Unit* *-Geospatial Area* *-Implementation Unit* *-Economic Area* *-Operational Risk Unit*	*The Quality Unit must verify the data collected, for which the approval of the person in charge of the Quality Unit is established in the records (both physical and digital).* *If inconsistencies are found in the data collected, they must be recorded in the corresponding form and managed through the procedure of non-conforming outputs.*
Consolidation of Information for Analysis *The information collected is stored in digital and physical databases in compliance with the Information Control Procedure Methodology BCR 0002 and the Methodological Document Sector AFOLU / BCR0005 Quantification of the Reduction of GHG Emissions and Removals-Activities that Avoid Land Use Change in savannas, applicable through the use of the ODK Collect platform.*	*-Project Manager* *-Care Unit* *-Quantification Unit* *-Governance Unit* *-Geospatial Area* *-Implementation Unit* *-Economic Area* *-Operational Risk Unit*	*At this stage the PDD is prepared, which is reviewed and validated by the project manager according to the requirements identified in the initial stage and the applicable methodology.* *To validate compliance with the requirements, the information is submitted to audit by the corresponding entity and corrective actions*

nformation Management Stages	Responsible	Monitoring
		are established in case of finding significant findings.
Oficialization, Publication and Dissemination Once the PDD is generated and validated, the results are published and disseminated to the relevant stakeholders.	-Project Manager -Operational Risk Unit	The information generated throughout the process is stored in physical and digital media in accordance with the provisions of the Information Security Manual (F-GAM-03) and the Archive Manual (FC-GAM-04), in order to ensure the security and proper maintenance of such information for as long as required.

Source: Adapted from Fundación Cataruben, 2024.

Additionally, during the information definition stage, the methodological documents applicable to the project were reviewed, including the BCR 0002 methodology and the AFOLU Sector Methodological Document / BCR0005. This review made it possible to identify the type of data needed the appropriate tools and means for data collection, as well as to ensure that the sources of information are reliable, such as IDEAM and IGAC. In the collection stage, competent personnel and adequate tools were used to collect the necessary information and store it in the organization's Drive unit. The validation and debugging stage involved reviewing 10% of the records to prevent errors and ensure data quality. The information collected was consolidated in digital and physical databases, following the Information Control Procedure Methodology BCR 0002 and BCR0005.

Finally, the formalization, publication and dissemination stage ensured that the results were communicated to interested parties. It was verified that all procedures were performed in accordance with applicable technical and legal requirements. Document review and crosschecking confirmed that the procedures implemented are appropriate and consistent with the monitoring plan and verification requirements. This assessment provides an overall conclusion on the conformity of the management and quality control procedures, ensuring the completeness and accuracy of the reported GHG reductions or removals.

Overall the structured approach, coupled with rigorous quality control measures, confirmed that the methodologies were applied correctly, ensuring the integrity, completeness, and accuracy of the reported GHG reductions or removals. This thorough, multi-step assessment leads to the conclusion that the project's management and quality control procedures are fully compliant with the applicable standards and methodologies, thereby supporting the credibility of the emission reduction outcomes

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

For the ORINOCO2 project, an evaluation of the method defined for the periodic quantification of GHG reductions or removals and leakage was carried out. This evaluation included the review of the information provided by the project owner, contrasting with the requirements established in the methodologies BCR0002 version 4.0, BCR0005 version 1.0 and the BCR standard version 3.4.

The quantification of baseline emissions and leakage is based on the definition of activity data and emission factors. As documented in Section 3.7.3.2 of the Project Description Document (PDD), default values and factors from official sources, such as the Ministry of Environment and Sustainable Development - IDEAM (2020), were used for Total biomass in forests and soil organic carbon in forests in this monitoring period. For natural savannas, own data and regional studies such as Hyman et al. (2022) were used. These values are listed in section 6.1.2.1 of this validation and verification report.

The monitoring process included data validation and cleaning through specific procedures such as supervised forest classification and monitoring of eligible areas using tools such as ArcGIS and QGIS. Data were collected annually and validated using the AcATaMa add-on to ensure thematic accuracy. In addition, quality control procedures were implemented, including on-site Remarks and characterization of cartographic inputs, ensuring the reliability of the data used with the corresponding documentary supports.

Conclusion: The evaluation of the REDD+ project ORINOCO2 demonstrates a robust and systematic approach to quantifying greenhouse gas (GHG) reductions and leakage analysis, ensuring compliance with established methodologies. A combination of data from official sources and regional studies was used, which reinforces the representativeness of the results. In addition, the monitoring process included advanced geospatial analysis tools and rigorous validation procedures, such as supervised forest classification, along with quality controls and annual data collection, ensuring thematic accuracy. Taken together, these factors highlight the project's commitment to data accuracy and quality, underscoring its relevance in promoting sustainable practices and effective environmental management, justifying the

conclusion that REDD+ is ORINOCO2 a significant effort in the fight against climate change.

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

In the verification of the process of assigning responsibilities for monitoring and reporting relevant variables in the calculation of emission reductions or removals in the ORINOCO2 project, it was confirmed that the Cataruben Foundation is the main responsible for these activities, headed by its technical team. This assignment is reinforced through close collaboration with local communities, who participate in monitoring and reporting data. This collaborative approach ensures that monitoring activities are carried out effectively and with differentiated accuracy and shared responsibility.

Documentary analysis of the project activity monitoring plan and review of the procedures implemented by the Cataruben Foundation demonstrated a clear definition of roles and responsibilities. Records and protocols detailing the specific functions of each team member involved were reviewed, ensuring that each monitored and reported variable complies with the requirements established in the BCR0002 version 4.0 and BCR0005 version 1.0 methodologies. In addition, it was verified that the training processes and the assignment of tasks are aligned with best practices and international standards, ensuring competence and efficiency in monitoring and reporting.

Therefore, the assignment of roles and responsibilities for monitoring and reporting in the ORINOCO2 project is adequate and complies with the applicable verification requirements in the BCR validation and verification manual version 2.4. The combination of the technical leadership of the Cataruben Foundation and the participation of local communities strengthens the monitoring process and ensures the accuracy and reliability of the data used in the calculation of GHG emission reductions and removals.

Conclusion: The audit has verified the information related to the quality control and quality assurance implemented by the Cataruben Foundation. It is confirmed that these are fundamental elements for the success of the project, ensuring that the quality of the information is maintained throughout the execution of the BCR 0002 Methodology and the AFOLU Sector Methodological Document / BCR0005 Quantification of the Reduction of GHG Emissions and Removals. During the review, the measures planned to ensure the correct development and management of the project were evaluated, as well as the identification and control of the necessary resources at all stages.

In addition, it was found that the Foundation has established procedures and manuals that comply with the requirements of quantification methodologies, as well as with the ISO 9001/2015 and ISO 14001/2015 standards. Quality attributes were reviewed during the data collection and processing process, confirming that the accuracy, completeness, timeliness, relevance and ease of use of the information are prioritized. It was also verified that the sources of information are reliable and that adequate validation and consolidation processes are carried out. This demonstrates a clear commitment to integrity and transparency in project data management.

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

The evaluation of the monitoring procedures implemented to demonstrate the contribution of the ORINOCO2 project to the Sustainable Development Goals (SDGs) was carried out in accordance with the BCR standard version 3.4, the Sustainable Development Goals (SDG) document version 1.0 and the Excel SDG Tool (2023). The review included an analysis of project activities and actions, specifically assessing their alignment with three selected global goals: SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action) and SDG 15 (Life of Terrestrial Ecosystems).

In this sense, the project proponent developed section 10 of the Project Document, providing clarity on the process of assessment and contribution to the Sustainable Development Goals (SDGs), using the "SDGs TOOL" version 1.0 of June 27, 2023, by BioCarbon Standard.

Within this process, the audit team validated and verified, based on the review and evaluation of the information provided, that the ORINOCO2 project uses the "SDGs TOOL" to accurately and up-to-date assess the project's contribution to the SDGs. Following this assessment, an analysis of the project's activities was conducted, and the SDGs to which these activities contribute were defined. Once the contribution was evaluated, the BioCarbon Standard SDGs Tool further identified how each activity specifically contributes to the goals and indicators of SDGs 6, 13, and 15.

Through Annex 6.3 "SDG TOOL," the project proponent continuously monitors and evaluates the project's activities that contribute to SDGs 6, 13, and 15 in each monitoring period. This ensures constant tracking and a precise evaluation of the project's contribution to these SDGs.

Now, For SDG 6, a characterization of the properties linked to the project was carried out, focusing on sustainable water management. Water Quality, Efficient Use and Saving Programs (PUEAA) were developed for each property, with the aim of promoting sustainable practices and ensuring equitable access to drinking water. The evaluation verified that, to date, 149 properties have been linked and 148 PUEAA have been created, demonstrating progress in water resource management, see table below;

Table 31 Resultado del avance de cumplimiento del SDG 6 (Agua y saneamiento), respecto a la Overall goal.

SDG	SDG *Global* Indicator	*Approach and/or Compliance*	*Progress (%) Period 2018-2022 with respect to the Overall goal*
6	*6.4.1 Change in water use efficiency over time over time*	*Of the 149 properties involved, 148 diagnoses have been completed and 148 PUEAA's have been created. The main activities have included the characterization of the properties, the preparation of plans for the efficient use and saving of water, and the diagnosis of the project.*	*24.8%*

Source: Fundación Cataruben, 2024.

Regarding SDG 13, GHG emissions in the project area and leakage areas were monitored, comparing the reductions obtained with the baseline values established in the baseline scenario. A 97.21% reduction in GHG emissions was evidenced, equivalent to 738,912 tCO2e reduced during the monitoring period. This progress corresponds to 46.57% compliance with the Overall goal for the first quantification period of the project, see table below;

Table 32 Results of progress in meeting SDG 13 (Climate Action), with respect to the Overall goal.

SDG	SDG Global Indicator	Approach and/or Compliance	*Progress (%) Period 2018-2022 with respect to the Overall goal*
13	*13.2.2 Total greenhouse gas emissions per year*	*GHG emissions monitoring was conducted for the period 2018-2022, with which compliance with the target was evaluated in terms of GHG emissions reduction in relation to the baseline scenario.*	*46,57%*

Source: Fundación Cataruben, 2024.

For SDG 15, specific methodologies were implemented to identify and protect key biodiversity areas. Strategic sites were selected to promote ecosystem conservation and indicators were developed to monitor biodiversity. The evaluation confirmed the implementation of activities aimed at protecting the forest area and identifying important sites for biodiversity, reaching 10% compliance in indicator 15.1.1 and 25% compliance in indicators 15.1.2 and 15.5.1, see table below;

Table 33. Results of the progress of compliance with SDG 15 (Climate Action), with respect to the Overall goal.

SDG	*SDG Global Indicator*	*Approach and/or Compliance*	*Progress (%) Period 2018-2022 with respect to the Overall goal*
	15.1.1 Forest area as a proportion of total area	*For the calculation and reporting, the guidelines defined in the environmental indicators of the Ministry of Environment and Sustainable Development and IDEAM corresponding to the Galindo et al. indicator (2019) were followed. The indicator establishes a relationship between the extension covered by natural forest and the total area of the region at a specific time, this information is extracted from the forest cover maps generated from PDI in the Google Earth Engine platforms.*	*10,0%*

SDG	*SDG Global Indicator*	*Approach and/or Compliance*	*Progress (%) Period 2018-2022 with respect to the Overall goal*
15			
	15.1.2 Proportion of sites important for terrestrial biodiversity and freshwater that are part of protected areas, by ecosystem type.	*The methodology was implemented to identify areas of importance for biological diversity, in order to subsequently promote the marking of strategic ecosystems. Twenty properties were selected because they have large extensions of key ecosystems for biological diversity.*	*25%*
	15.5.1 Red List Index	*The methodology for the development of participatory biodiversity monitoring to identify endangered species is presented.*	*25%*

Source: Fundación Cataruben, 2024.

The audit team concludes that the project has assessed its contribution to the SDGs using the "SDGs TOOL" version 1.0 and the BioCarbon Standard SDG Tool, ensuring an accurate evaluation. A robust mechanism has also been established for continuous monitoring and tracking of the project's contribution to the SDGs. It has been verified that the project's activities contributed to the targets of SDGs 6, 13, and 15, thus meeting the applicable validation and verification requirements.

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

Verification of the monitoring procedures implemented to demonstrate the additional co-benefits of the Orinoco REDD+ project2 was carried out according to the criteria and methods established in the BCR standard version 3.4, the Sustainable Development Goals (SDG) document version 1.0 and the Excel SDG Tool (2023). The assessment focused on the analysis of activities related to biodiversity conservation and gender equity, as detailed in Table 34 and subsequent tables.

Table 34 Co-benefits monitoring report Wax Palm for ORINOCO2 (Activity B1)

Activity ID	*B1*			
Description	*Identification and monitoring of HCVs present in the project area.*			
Co-Benefits Component	*Biodiversity Conservation*			
Performance description for the monitoring period.	*The first identification of the HCVs associated with biodiversity present in the area of the properties linked to the project was carried out. Of the 4 HCVs, HCV1 Species, HCV2 Landscape and HCV4 Ecosystem Services were identified. All the results obtained are schematized by means of maps and analysis methodologies.*			
Indicators for reporting activity progress				
ID + NAME	***Type***	***Goal***	***Unit of measure***	***Results of the indicator in the period under analysis.***
B-1.1. High Conservation Values identified	*Product*	*4*	*Results report*	***1 report with 4 HCVBCs identified in the project area***

Source: Adapted from Fundación Cataruben, 2024.

During the monitoring period, several activities were implemented including the identification and monitoring of High Conservation Values (HCVs), the monitoring of globally threatened species and the restoration of degraded ecosystems. These activities were documented and monitored using specific indicators to measure their progress. Four HCVs were identified in the project area, and progress was made in the methodology for participatory bioacoustic monitoring, with the objective of conserving threatened species. In addition, restoration activities implemented by the land managers were reported, highlighting the planting of native species such as Acacia mangium and Mauritia flexuosa (see tables below);

Table 35 Co-benefits monitoring report Wax Palm for ORINOCO2 (Activity B2)

ID Activity	B2			
Description	Monitor the presence of globally threatened species and take actions to conserve them.			
Co-Benefits Component	Biodiversity conservation			
Description of performance during the monitoring period.	Progress was made in planning the methodology for participatory bioacoustic monitoring in order to identify, based on recordings, the species in a state of threat and subsequently propose mechanisms for the maintenance of the populations of these species.			
Indicators for reporting activity progress				
ID + Name	**Type**	**Goal**	**Measurement Unit**	**Results of the indicator in the period under analysis.**
B-2.1. Participatory wildlife monitoring to identify endangered species in the project area	Product	3	Methodological Description or Results Report	**1 description of the methodology to be implemented**

Source: Adapted from Fundación Cataruben, 2024.

Table 36 Co-benefits monitoring report Wax Palm for ORINOCO2 (Activity B3)

ID Activity	B3			
Description	Restoration actions in degraded ecosystems			
Co-Benefits Component	Biodiversity conservation			
Description of performance during the monitoring period.	The first report of restoration activities implemented by ecosystem managers (landowners) was presented, most of them were active restoration, through the planting of species such as Acacia (Acacia mangium), Congrio/Cangrio (Acosmium nitens), Saladillo (Caraipa llanorum), Moriche (Mauritia flexuosa).			
Indicators for reporting activity progress				
ID + Name	**Type**	**Goal**	**Measurement Unit**	**Results of the indicator in the period under analysis.**

B-3.1. Number of reports with restoration activities implemented by land managers	*Numeric*	*4*	*Number*	***1 report of restoration activities implemented***

Source: Adapted from Fundación Cataruben, 2024.

In terms of gender equity, a training plan was developed to strengthen access to and management of financial goods and services, focused on ecosystem managers. This plan aims to empower women in the responsible administration of Economic benefits derived from conservation activities, see table below;

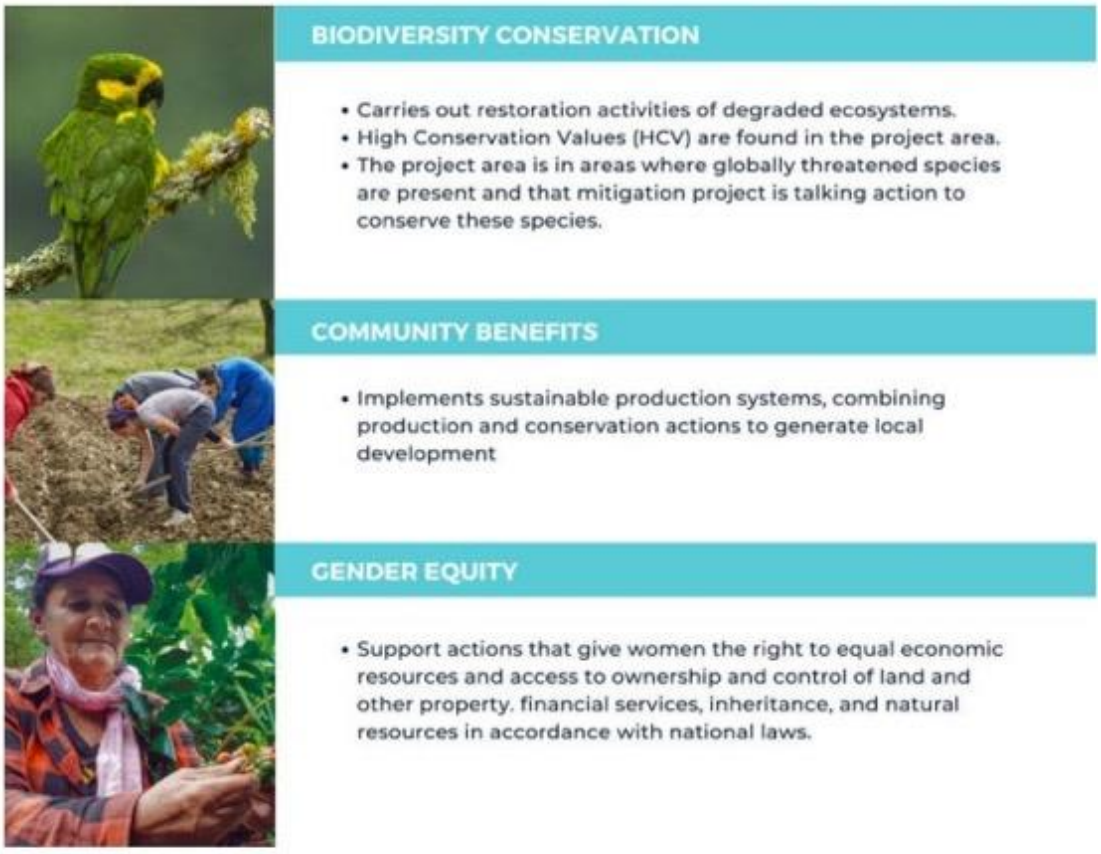
Table 37 Co-benefits monitoring report Wax Palm for ORINOCO2 (Activity EG1)

ID Activity	*EG1*			
Description	*Strengthening access to and management of financial goods and services with a gender equity approach.*			
Co-Benefits Component	*Gender Equity*			
Description of performance during the monitoring period.	*Progress was made in the formulation of the training plan that will focus on strengthening their knowledge on how to responsibly manage the Economic benefits (assets) acquired by the conservation activities carried out.*			
Indicators for reporting activity progress				
ID + Name	***Type***	***Goal***	***Measurement Unit***	***Results of the indicator in the period under analysis.***
EG1 Strengthening access to and management of financial goods and services with a gender equity approach.	*Product*	*10*	*%*	*A plan of workshops and topics focused on strengthening the agency and the recognized responsibility of ecosystem managers is presented.*

Source: Adapted from Fundación Cataruben, 2024.

In this order of ideas, the implementation of the monitoring procedures for the additional co-benefits of the ORINOCO2 project is aligned with the criteria established in the BCR

standard version 3.4, methodologies BCR0002 version 4.0 and BCR0005 version 1.0, Sustainable Development Goals (SDG) version 1.0 and the Excel SDG Tool (2023). Document review and cross-checking of information confirmed the consistency and effectiveness of the monitoring system implemented, ensuring that additional benefits and special categories are measured and reported as established in the project description.



Source: BIOCARBON, 2022.

According to the provisions of the BCR V3.4 standard, compliance with this special category is due to compliance with Biodiversity Conservation, Benefits on communities and Gender equality. These 3 aspects were validated and verified in the field, which in the RM were documentary results that were requested in the audit to the Cataruben Foundation team.

The results found were:

Biodiversity Conservation: 1 report with 4 strokes identified in the project area
Biodiversity Conservation: 1 description of the methodology to be implemented
Biodiversity Conservation: 1 report of restoration activities implemented

Gender equality: A plan for workshops and topics is presented that will focus on strengthening the agency and the recognized responsibility of ecosystem managers

Note: It is evident that the implementation of the indicators for compliance with the scope of Benefits on communities begins.

In conclusion, the project has made an informed decision to certify the co-benefits of the "Wax Palm" category under the BioCarbon Standard Version 3.4, evidencing its commitment to the conservation and restoration of ecosystems. Through the implementation of social and environmental actions, the project has established a model of criteria and indicators that allows rigorous monitoring of its objectives. Compliance with requirements has been demonstrated in key components such as biodiversity conservation, community development, and gender equality, which not only supports the integrity of the project, but also enhances the active participation of the stakeholders involved.

The certification of these co-benefits not only testifies to the positive impact of the project on the environment, but also fosters sustainable development and social equity. Actions aimed at restoring degraded ecosystems, promoting sustainable production systems, and ensuring equal economic rights for women are testimony to the project's comprehensive approach.

6.2 Quantification of GHG emission reductions and removals

The evaluation of the consistency in the quantification of GHG emission reductions or removals of the ORINOCO2 project was carried out in accordance with the applicable requirements of the methodologies BCR0002 version 4.0 and BCR0005 version 1.0, as well as the validation and verification manual version 2.4. During this process, it was verified that the methods and procedures used for quantification were correctly implemented and aligned with the methodological guidelines and established standards.

The verification process included a detailed review of the information provided in the Project Description Document (PDD) and the Monitoring Report (MR) for the 2018-2022 period. In the PDD, quantification methods based on activity data and specific emission factors, adjusted to reflect local conditions of forest and savanna ecosystems, are described. According to Section 3.7.3.2.3 of the PDD, Total biomass and soil organic carbon values from official sources, such as the Ministry of Environment and Sustainable Development - IDEAM, were used, ensuring consistency and accuracy of emission calculations. According to Section 3.7.3.2.3 of the PDD, Total biomass and soil organic carbon values from official sources, such as the Ministry of Environment and Sustainable Development - IDEAM, were used, ensuring consistency and accuracy of emission calculations.

Furthermore, the MR documents the application of data validation and cleaning procedures, such as the supervised classification of forests and the monitoring of eligible areas using tools such as ArcGIS and QGIS. The data collected annually were validated using the AcATaMa plug-in, ensuring thematic accuracy and reducing uncertainty in the estimates of GHG reductions. The review of these documents confirmed that quality control procedures were adequately implemented, ensuring the integrity and reliability of the data used in the quantification.

6.2.1 Methodology deviations (if applicable)

it was confirmed that the ORINOCO2 project does not present a methodological deviation in the emission quantification.

6.2.2 Baseline or reference scenario

To assess the baseline scenario identified for the ORINOCO2 project, the applicable validation requirements related to the establishment of the baseline scenario according to and applied methodologies BCR0002 version 4.0 (section 9) and BCR0005 version 1.0 (section 8) and the validation and verification manual version 2.4 (sections 7, 9.1 and 9.2) were followed. Documentary review was carried out to ensure that assumptions, methods, parameters, data sources and emission factors were transparently applied, adequately justified and supported by sufficient evidence, as well as the step-by-step approach indicated by each of the methodologies indicated for the establishment of the baseline scenario.

First, the land use alternatives identified in the project areas were reviewed. Alternatives considered included continuation of previous land use, REDD+ projects without certified emission reductions, and other credible or documented land use alternatives. Each of these alternatives was evaluated for consistency with applicable laws and regulations, as well as alignment with land use trends in the reference region.

The evaluation included the identification of potential activities in the project areas, considering the specific conditions of the area and the reference region. For example, activities such as palm crops, corn, rice and clean pastures were considered. These activities were selected based on their potential and credibility, as well as their consistency with common land use practices in the region.

The land use alternatives identified were verified to be consistent with applicable laws and regulations. For each alternative, their alignment with local and national regulatory frameworks and policies was assessed, ensuring that any proposed land use was legally permitted and regulated.

In addition, relevant national and sectoral policies were taken into account, as well as the specific circumstances of the forest sector and the region, which were listed in the project description document in section 3.3. This included an assessment of how these policies and circumstances would influence land use and the implementation of project activities.

Moreover, to identify the baseline scenario, consistency was maintained with emission factors, activity data, GHG emission projection variables and other relevant parameters. Procedures were ensured to maintain data quality under ISO 14064-2 and the requirements of the applied methodologies BCR0002 version 4.0 (section 9) and BCR0005 version 1.0 (section 8).

Additionally, uncertainty analysis was considered using conservative assumptions, ensuring that any variability in the data and methods was adequately managed. The methods and

parameters were selected to minimize uncertainty and provide conservative and reliable estimates, which are within the limits established by the applied methodologies BCR0002 version 4.0 (section 13.1) and BCR0005 version 1.0 (section 12).

Besides, during the assessment of the baseline scenario, multiple sources of information were used and cross-checks of data used by the project owner and official country information were performed. This process ensured that the baseline scenario identified was relevant, adequately justified and aligned with national accounting. The documents reviewed included their geo database; land cover maps, satellite imagery and historical land use records, providing a compendium of information for the identification of the baseline scenario.

In accordance with section 11.2 of the BioCarbon Standard version 3.4, it was corroborated that the project complies with its baseline establishment criteria, as well as its period of re-validation or baseline update to be carried out every 10 years.

6.2.3 Mitigation results

The following sections 6.2.3.1 and 6.2.3.2 list the mitigation results for the first monitoring period of the ORINOCO2 project. The information provided in the monitoring report version 2.4 by the project owner has been verified in its technical annexes in accordance with the BCR standard version 3.4 and the validation and verification manual version 2.4.

6.2.3.1 GHG emissions reduction/removal in the baseline scenario

To determine the emission reductions in the baseline scenario, the project holder determined the activity data for deforestation, forest degradation and land use change in natural savannas. To do so, the project holder followed the guidelines established in the methodological documents BCR0002 version 4.0, sections 13.2.1 and 13.2.2, and BCR0005 version 1.0, sections 11.2.2 and 11.2.4.

Subsequently, the project holder calculated the emission factors for each component, according to the carbon pools selected in section 5.5.3 of this validation and verification report and procedures established in methodologies BCR0002, section 13.3, and BCR0005, section 11.3.

Finally, to calculate the GHG emissions resulting from the relationship between the activity data and the defined emission factors, the procedures established in sections 13.4 of BCR0002 methodology and 11.4 of BCR0005 were followed.

Activity Data

According to BCR0002 and BCR0005 methodologies, activity data corresponds to changes in forest area and natural cover area in the geographical and temporal boundaries of the project.

In accordance with the guidelines of methodology BCR0002, item 13.2 Activity data, the non-forest forest maps generated by the Forest & Carbon Monitoring System in the reference region, period 2005 - 2017, were used. These were stratified through MSPA software into Forest Core and Forest edge as related in section The processes performed in deforestation consisted of determining how many pixels (areas) of Forest Core and Forest edge went to non-forest, while for degradation were the areas of Forest Core that transited to Forest edge.

On the other hand, regarding the BCR0005 methodology guidelines, item 11.2 Activity data, the national land cover maps, period 2012 - 2018, were used. In relation to the activity data, only the changes in the vegetation covers typical of savannas (Herbazales - Arbustales) identified in 2012 will be considered, focusing specifically on the transitions towards other anthropic covers for the year 2018.

Deforestation

For the estimation of deforestation activity data, the historical average approach was selected. The processes applied by the project owner are presented below;

Annual historical deforestation in the reference region.

The calculation of historical average deforestation was performed by the project holder through the analysis of change in forest to non-forest cover, occurred in the reference region in the period 2005 - 2017, using the following equation:

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

$$CSB_{año} = (\frac{1}{2017 - 2005})\ x\ (621.129 - 548.046)$$

$$CSB_{año} = 6.090{,}25\ ha$$

Where:

$CSB_{año}$ *Annual change in the area under forest cover in the reference region; ha*

t_1 *Year of beginning of reference period; year*

t_2 *Year end of reporting period; year*

A_1 *Forest area in the reference region, at the initial point in time; ha*

A_2 *Forest area in the reference region at the final point in time.; ha*

Given that the 2023-2027 period contemplates the stratification of the forest into Core and Edge areas. The analysis was repeated considering this stratification in the following way:

For the Forest Core stratum: $CSB_{Núcleo,año} = (\frac{1}{2017-2005})\ x\ (101.589 - 77.998)\ CSB_{Núcleo,año} = 1.965{,}92\ ha$

For the Forest edge stratum:

$$CSB_{Borde,año} = (\frac{1}{2017-2005})\ x\ (519.540 - 470.047)$$

Subsequently, to estimate the rate of forest cover loss or historical deforestation rate the value of $CSB_{año}$ *the project holder divided by the area of forest in the reference region at the initial time of analysis (t_1). This value was multiplied by the eligible forest area to estimate the expected loss in the project area in the baseline scenario.*

In accordance with the national baselines, for the quantification period the project holder applied the national circumstances adjustment to the $CSB_{lb,año}$ *calculated from the historical average, according to the most conservative scenario of the logistic model developed for this purpose. (Ministerio de Ambiente y Desarrollo Sostenible – IDEAM, 2020; Ministerio de Ambiente y Desarrollo Sostenible – IDEAM, 2024).*

Annual historical deforestation in the leakage area.

The project holder using the forest cover change analysis for the period 2005 - 2017, relating the following equation, calculated the annual historical deforestation in the leakage area:

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

$$CSB_{f,año} = (\frac{1}{2017 - 2005})\ x\ (23.249 - 21.374)$$

$$CSB_{f,año} = 156{,}25\ ha$$

Where:

$CSB_{f,año}$	*Annual change in the area covered by forest in the leakage area; ha*
t_1	*Beginning year of the reporting period; year*
t_2	*Final year of reporting period; year*

$A_{1,f}$ Forested area of the leakage area at the start of the reference period; ha

$A_{2,f}$ Forested area in the leakage area at the end of the reference period; ha

Similar to the reference region, to project the change in forest cover in the baseline scenario for the period 2023-2027, the project holder conducted the analysis considering the defined strata: core and forest. The following values were presented:

For the Forest Core stratum:

$$CSB_{f\ Núcleo,año} = (\frac{1}{2017-2005})\ x\ (5.019 - 4.448)$$

$$CSB_{f\ Núcleo,año} = 47{,}58\ ha$$

For the Forest edge stratum:

$CSB_{f\ Borde,año} = (\frac{1}{2017-2005})\ x\ (18.230 - 16.926)$In this sense, the rate of forest cover loss in the reference region and the value of annual change in the leakage area calculated by the project holder from the historical average represent the expected forest loss in the project area and leakage area, respectively, in the baseline scenario.

Forest Degradation

To define the activity data for degradation, the project holder followed the guidelines of the proposed national reference level - NREF (Ministry of Environment and Sustainable Development - IDEAM, 2024). After the post stratification where only 2 categories are defined: Forest Core and Forest edge in the reference region, project areas and leakage areas, the project holder proceeds to perform the forest degradation process which consists of: Determine the Forest Core areas that transitioned to Forest edge.

Annual historical degradation in the baseline project area.

The calculation of the annual historical degradation in the baseline the project holder performs them from the fragmentation analysis in the period 2005 - 2017. Likewise, the equation applied is based on the stipulations of the BCR0002 methodology for the calculation of primary degradation, making an adjustment in the transition between fragmentation classes (core areas that move to edge).

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

Where:

$DFP_{lb,año}$	*Annual historical primary degradation in baseline; ha*
t_1	*Beginning year of the reporting period; year*
t_2	*Final year of reporting period; year*
$A_{núcleo,lb}$	*Area of the reference region in core class in the year of the beginning of the reference period; ha*
$A_{núcleo-borde,lb}$	*Area of the reference region that goes from core to edge in the final year of the reference period; ha*

In order to avoid overestimating emissions due to degradation, the value of $A_{núcleo-borde,lb}$ was defined by the project owner as the areas in the Core category at t1, minus the areas that move from Core to Edge between periods t1 and t2. As described below:

$$DFP_{lb,año} = \left(\frac{1}{2017-2005}\right) x_{(101.591\ -\ (101.591\ -\ 20.657))}$$

$$DFP_{lb,año} = \left(\frac{1}{2017-2005}\right) x_{(101.591\ -\ 80.934)}$$

$$DFP_{lb,año} = 1.721{,}42\ ha$$

Thus, when related to the project's Forest Core area, average annual degradation values of 155.33 ha are estimated.

Annual historical degradation in the leakage area

Similarly, for the estimation of historical degradation in the leakage area, the project owner applied the following equation:

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

Where:

$DFP_{lb,f,año}$	Annual primary degradation in the leakage area; ha
t_1	Beginning year of the reporting period; year
t_2	Final year of reporting period; year
$A_{núcleo,lb,f}$	Leakage area in core class in the year of the beginning of the reference period; ha
$A_{núcleo-borde,lb}$	Leakage area moving from core to patch in the final year of the reporting period; ha

As in the previous section, the value of $A_{núcleo-borde,lb,f}$ was defined by the project holder as the area in the Core category in t1 minus the areas moving from Core to Edge between periods t1 and t2, applying the equation as follows:

$$DFP_{lb,f,año} = \left(\frac{1}{2017-2005}\right) x(5.019 - (5.019 - 675))$$

$$DFP_{lb,f,año} = \left(\frac{1}{2017-2005}\right) x(5.019 - 4.344)$$

$$DFP_{lb,f,año} = 56{,}25\ ha$$

Changes in land use in Natural Savannas

The analysis of change in the area with natural vegetation cover (CSCN) for the estimation of activity data in land cover classified as savannas was carried out by the project owner based on the guidelines established in the BCR 0005 methodology, section 11.2.

The main input for the analysis of the land cover change matrix is the IDEAM's Corine land cover for the years 2012 and 2018 carried out by the project owner, defined in the reference region area, in order to generate a land use classification for each cover, as shown in the following table;

Table 38 Land use classes by land cover.

LAND USE BY LAND COVER		
CAPTION	LAND USE	CODE
1.1.1. Tejido urban continuo	URBAN	F1
1.1.2. Tejido urban discontinuo	URBAN	
1.2.2. Red vial, ferroviaria y terrenos asociados	INFRASTRUCTURE	F2
1.2.4. Aeropuertos	INFRASTRUCTURE	
1.3.1. Zonas de extracción minera	INFRASTRUCTURE	
2.1.1. Otros cultivos transitorios	AGRICULTURAL	F3
2.1.2.1. Arroz	AGRICULTURAL	
2.2.1.1. Otros cultivos permanentes herbáceos	AGRICULTURAL	
2.2.3.2. Palma de aceite	AGRICULTURAL	
2.3.1. Pastos limpios	PASTURE	F4
2.3.2. Pastos arbolados	PASTURE	
2.3.3. Pastos enmalezados	PASTURE	
2.4.1. Mosaico de cultivos	AGRICULTURAL	F3
2.4.2. Mosaico de pastos y cultivos	AGRICULTURAL	
2.4.3. Mosaico de cultivos, pastos y espacios naturales	AGRICULTURAL	
2.4.4. Mosaico de pastos con espacios naturales	AGRICULTURAL	
2.4.5. Mosaico de cultivos con espacios naturales	AGRICULTURAL	
3.1.1.1.1. Forest denso alto de tierra firme	FORESTRY	F5
3.1.1.1.2. Forest denso alto inundable	FORESTRY	
3.1.1.1.2.1. Forest denso alto Inundable heterogéneo	FORESTRY	
3.1.1.2.1. Forest denso bajo de tierra firme	FORESTRY	
3.1.1.2.2. Forest denso bajo inundable	FORESTRY	
3.1.2.1.1. Forest abierto alto de tierra firme	FORESTRY	
3.1.2.1.2. Forest abierto alto inundable	FORESTRY	
3.1.2.2.2. Forest abierto bajo inundable	FORESTRY	
3.1.3. Forest fragmentado	FORESTRY	
3.1.3.1. Forest fragmentado con pastos y cultivos	FORESTRY	
3.1.3.2. Forest fragmentado con vegetación secundaria	FORESTRY	
3.1.4. Forest de galería y ripario	FORESTRY	
3.1.5. Plantación FORESTRY	PRODUCTION	F7
3.2.1.1.1. Herbazal denso de tierra firme	SAVANNAH	F6
3.2.1.1.1.1. Herbazal denso de tierra firme no arbolado	SAVANNAH	
3.2.1.1.2. Herbazal denso inundable	SAVANNAH	
3.2.1.1.2.1. Herbazal denso inundable no arbolado	SAVANNAH	
3.2.1.1.2.2. Herbazal denso inundable arbolado	SAVANNAH	
3.2.1.2.1. Herbazal abierto arenoso	SAVANNAH	

LAND USE BY LAND COVER		
CAPTION	LAND USE	CODE
3.2.1.2.2. Herbazal abierto rocoso	SAVANNAH	
3.2.2.1. Arbustal denso	SAVANNAH	
3.2.2.2. Arbustal abierto	SAVANNAH	
3.2.3. Vegetación secundaria o en transición	RESTORATION	F8
3.3.1. Zonas arenosas naturales	RESTORATION	
3.3.3. Tierras desnudas y degradadas	RESTORATION	
3.3.4. Zonas quemadas	RESTORATION	
4.1.1. Zonas Pantanosas	WATER BODIES	F9
4.1.3. Vegetación acuática sobre WATER BODIES	WATER BODIES	
5.1.1. Ríos (50 m)	WATER BODIES	
5.1.2. Lagunas, lagos y ciénagas naturales	WATER BODIES	

Source: Fundación Cataruben, 2024.

Once the land covers have been classified by each land use code for the years 2012 and 2018 from the table above, the project holder performs an intersection of both layers to determine the change of use in the reference region during that period, as shown below;

Table 39 Land cover change and use matrix

LAND COVER CHANGE MATRIX											
Idcl		Initial Coverage/Use Classes (2012), area in hectares									
		I1	I2	I3	I4	I5	I6	I7	I8	I9	TOTAL
Clase Finales Cobertura (2018)	F1	732	24	59	46	17	70	25	6	2	981
	F2	1	45	0,00	24	7	209	53	0,00	2	341
	F3	228	187	114670	108443	20683	52581	46855	5405	563	349615
	F4	251	148	36523	156389	19959	115008	11988	3737	436	344439
	F5	39	23	202225	33606	612758	122652	4982	14773	4745	995803
	F6	496	1193	112385	287254	183767	2293287	66034	74398	24919	3043733
	F7	0	0	30	250	20	0	0	0	0	300
	F8	4	5	11025	15665	9491	123815	2558	12237	1458	176258
	F9	8	0	3454	678	8209	7968	9	7125	10610	38061
	TOTAL	1759	1625	480371	602355	854911	2715590	132504	117681	42735	3.200.728

Source: Fundación Cataruben, 2024.

As a result of the analysis of the land cover change matrix, the project holder obtains that 62.8% (3,200,728 Ha) of the land covers within the reference region of the ORINOCO2 project, has been maintained during the 2012-2018 period.

Annual historical changes in the reference area

The calculation of the annual historical change in the reference region for the scenario, the project owner contemplated the multi-temporal analysis to the land covers classified as savannah in the period 2012 - 2018, applying the following equation:

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

$$CSCN_{año} = \left(\frac{1}{2018 - 2012} ln \frac{2.293.288}{3.046.769}\right) x88.306$$

$$CSCN_{año} = 4.181{,}22\ ha$$

Where:

$CSCN_{año}$ *Change in the area with natural vegetation cover in the without-project scenario;ha/year*

t_1 *Beginning year of the reference period in which the changes are analyzed*

t_2 *Final year of the reporting period in which the changes are analyzed*

A_1 *Area under natural vegetation cover in the reference region in t1; ha*

A_2 *Area in natural vegetation cover in the reference region in t2; ha*

A_p *Eligible project area; ha*

In this regard, based on the historical average of land use changes in the reference region, the project holder calculated a natural savannahs transformation rate of 4.73%, which represents an average annual change of 4,181.22 ha in the project area.

Annual historical changes in land use in the leakage area.

In turn, the annual historical changes in land use in the leakage area the project holder estimates using the following formula, for the period 2012 - 2018:

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

$$CSCN_{f,año} = \left(\frac{1}{2018-2012} ln \frac{76.577}{84.973}\right) x76.577$$

$$CSCN_{f,año} = 1.327{,}8\ ha$$

Where:

$CSCN_{f,año}$	*Change in area with natural vegetation cover in the leakage area, in the without-project scenario; ha/year*
t_1	*Beginning year of the reference period in which the changes are analyzed*
t_2	*Final year of the reporting period in which the changes are analyzed*
A_1	*Area in natural vegetation cover in the leakage area t1; ha*
A_2	*Area in natural vegetation cover in the region area of leakage in t2; ha*
A_f	*Leakage area; ha*

in this sense, the historical transformation rate recorded in the reference region and in the leakage area represents the expected loss of vegetation cover in the without-project scenario.

Emission factors

The emission factors for deforestation, degradation and soil organic carbon (SOC) used by the project owner are listed in section "6.1.2.1 data and parameters" of this validation and verification report.

6.2.3.1.1 Emission factor of Natural Savanna

The project owner, given the limited availability of applicable values for the project area, used their own data to define the total biomass emission factor in natural savannas. Field sampling was conducted following the FC-GPP-22 procedure, "Cluster Sampling Procedure for Aboveground Biomass in Grasslands and Forests," which is based on Colombia's National Forest Inventory (Olarte et al., 2021).

The selection of the number and location of sampling points was carried out according to procedure FC-GOP-23, "Inventory Design for Biomass Growth Monitoring," specifically in Section 7.4. This procedure correlates the size or area of each ecosystem and the variation in biomass content, established from reference data for the study region (Orozco et al., 2023). Thus, six (6) cluster points were randomly selected in eligible areas of the project properties for carbon stock monitoring.

Each sampling unit consisted of a cluster composed of five (5) circular plots with a 15-meter radius (707 m²) arranged in a cross, with an 80-meter distance between the central points, as established by procedure GPP-22. In the savanna ecosystems, no tree or shrub individuals were recorded. Therefore, to calculate biomass content, herbaceous vegetation was collected from four 1 m x 1 m quadrants located 7.5 meters from the center of each subplot.

Figure 1 Cluster establishment: a) and b) delimitation of the cluster; c) and d) harvest of herbaceous vegetation; e) measurement of fresh weight of herbaceous vegetation and f) reference sample sent to the laboratory.

Source: Fundación Cataruben, 2024.

After evaluating the methodology used, the sampling design, the number of samples, and the applied statistics, it was concluded that the process for constructing the biomass emission factor in natural savannas is appropriate and complies with BCR 0005 standards and methodology, as follows:

***Methodology Used:** The procedure detailed in FC-GPP-22 follows validated practices based on Colombia's National Forest Inventory, ensuring the scientific validity of the process. The selected methodology is suitable for capturing the variability of biomass in natural savannas and ensures precision in the results.*

Sampling Design and Number of Samples: *The cluster sampling design with circular subplots arranged in a cross is a robust method that captures the spatial heterogeneity of biomass in savanna ecosystems. This method is reliable as it is used by Colombia for its ecosystem inventories. Although the number of sampling points (six) may seem limited, it is important to note that each cluster point is composed of five plots, making it sufficient given the size and characteristics of the study area, in line with accepted statistics and as calculated in PDD v2.4 Section 3.6.3.2.3, "Emission Factor in Natural Savannas.":*

$$n = \frac{S^2}{\underline{y_U^2} cve^2 + \frac{S^2}{N}}$$

Where*:*

n	*Sample size*
S^2	*Sample variance*
$\underline{y}$	*Mean of the guiding variable*
cve	*Sampling error (%)*
N	*Population size. Total number of sampling points within the project boundaries..*

Location of sampling points of the Savannah component.

Component	***Id***	***Department***	***Municipio***	***Vereda***	***Length***	***Latitude***
SAVANNAHS	*S1*	*Vichada*	*La Primavera*	*Matiyure*	*69°56'44,2"O*	*05°24' 53,8"N*
	S2	*Vichada*	*La Primavera*	*San Teodoro*	*70° 14' 37,1" O*	*05° 05' 21,3"N*
	S3	*Vichada*	*La Primavera*	*Nazareth*	*70° 25' 21,3" O*	*04° 48' 36,7"N*
	S4	*Vichada*	*Cumaribo*	*Asocortomo*	*70° 13' 57,5" O*	*04° 49' 2,4"N*
	S5	*Goal*	*San Martín*	*Brisas del Camoa*	*72° 56' 59,5" O*	*03° 25' 49,3" N*

Source: Adapted from Fundación Cataruben, 2024.

Statistics and Comparison with Recognized Sources: *The random selection of sampling points ensures adequate coverage of the eligible project areas, and the applied methodology aligns with relevant local and national studies, such as those by Olarte et al. (2021) and*

Orozco et al. (2023). The choice of the number and location of points ensures that the results are representative and comparable with internationally recognized data for this type of ecosystem. Additionally, the application of a conservative approach in data selection minimizes any bias or overestimation of biomass content.

The samples of herbaceous vegetation collected were sent by the project manager to the CIAT Analytical Services laboratory for their respective preparations and analysis of dry weight of each sample under the gravimetry technique, which have their respective supports of the results.

Additionally, based on the information collected in the field, for the calculation of aerial biomass, the dry and wet weight data were related, applying the following equation (IDEAM, 2011):

$$BS = \left(\frac{PS_{muestra}}{PH_{muestra}}\right) * BH$$

Where:

BS	*Dry biomass of material harvested in field*
$PS_{muestra}$	*Dry weight of the sample taken to the laboratory*
$PH_{muestra}$	*Wet weight of the sample taken to the laboratory*
BH	*Biomass or wet weight of all material harvested in the field*

Subterranean biomass was estimated by the project owner based on the ratio factor of 1.6, established by default for tropical grasslands by the IPCC (2006). The Total biomass emission factor was estimated from the average value of aboveground and belowground biomass, applying the following equation. The results are presented in section 6.1.2.1.

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

Where:

CBF_{eq}	*Carbon dioxide equivalent contained in the Total biomass . tCO2e/ha/year*
BT	*Total biomass ; t/ha*

FC *Carbon fraction of dry matter (0.47)*

$\frac{44}{12}$ *Molecular ratio constant between carbon and carbon dioxide*

In conclusion, the process of constructing the biomass emission factor for natural savannas, based on field sampling and statistical methods, complies with the principles of relevance, accuracy, and a conservative approach, as required by the BCR standard. The results are comparable with recognized sources and provide a solid basis for the quantification of carbon stocks in the project's natural savannas.

In other hand, considering the principles of BCR v3.4, particularly Relevance, Accuracy, and Conservative Approach, and as described in BCR0005 Section 12.1, Conservative Selection of Default Data, when using default data, the following considerations should be applied when selecting the data source:

- ***Values should be as specific as possible, with data selected from the following sources (in order of priority, starting with the highest):***
  - *Locally peer-reviewed studies from areas with similar climate and soil conditions to those of the project area, provided that the smaller datasets from local studies are deemed sufficiently reliable.*
  - *Regional or national forest or GHG inventories for the same ecological zone (i.e., similar broad climate zone and similar soil fertility and depth).*
  - *International or global forest or GHG inventories, including IPCC literature, for the same ecological zone.*

The following table evaluates the use of default emission factors for natural savanna COS.

Table 40: assessment of default emission factors for natural savanna (COS)

Data	*Study*	*Compliance with BCR Principles*			*Analysis*	
		Relevance	*Accuracy*	*Conservative Attitude*		
79.9 ton/ha C up to 30 cm.	*Costa, C. Jr., Villegas, D. M., Bastidas, M., Rubio, N. M., Rao, I., and*	*Relevant is a study developed*	*High accuracy as it is in*	*Conservative since it comes from local studies reviewed by experts. From areas with climatic and soil conditions similar to those of the project area.*		*Adequate data complies with BCR principles*

Data	Study	Compliance with BCR Principles			Analysis	
		Relevance	Accuracy	Conservative Attitude		
	Arango, J. (2022). Soil carbon stocks and nitrous oxide emissions of pasture systems in Orinoquía region of Colombia: potential for developing land-based greenhouse gas removal projects. Front. Clim. 4, 916068. Doi: 10.3389/fclim.2022.916068	within the reference area of the project, and where it is located in La Primavera, the municipality where most of the project implementation areas are located.	the same reference region of the project. In the municipality where most of the project areas are located (La Primavera) which reduces bias and uncertainty	Although it is evident that the depth of the roots can reach up to a meter deep. And the carbon contents are significant up to 60 cm deep, the data provided by the study is taken at 30 cm.		and section 12.1 of BCR00005

Data	Study	Compliance with BCR Principles			Analysis		
		Relevance	Accuracy	Conservative Attitude			
65,94 ton/ha C up to 40 cm.	Hyman G, Castro A, Da Silva M, Arango M, Bernal J, Pérez O and Rao IM (2022) Soil carbon storage potential of acid soils of Colombia's Eastern High Plains. Front. Sustain. Food Syst. 6:954017. doi: 10.3389/fsufs.2022.954017			Relevant, it is a study developed in the same within the reference area of the project	High accuracy as it is in the same reference region of the project. Municipality of Puerto Gaitán and Puerto López	Conservative since it comes from local studies reviewed by experts. From areas with climatic and soil conditions similar to those of the project area. Although it is evident that the depth of the roots can reach up to a meter deep. And the carbon contents are significant up to 60 cm deep. The data given by the study is taken at 40 cm.	Adequate data complies with BCR principles and section 12.1 of BCR 00005

In conclusion, both studies are relevant, with good accuracy and a conservative approach. The project proponent has used the smaller of the two available values to ensure a conservative approach.

The COS value of 65.94 tC/ha for native Savannahs, at a depth of 0-40 cm depth. In other words, for the soil deposit the project owner defines an emission factor of 12.09 tCO2e/ha.

***GHG** emissions in the baseline scenario*

GHG emissions correspond to the amount of carbon dioxide (CO_2) to be emitted as a result of deforestation and forest degradation events, and changes in land use in natural Savannahs

in a no-project scenario. Thus, the procedures applied for its calculation are based on the guidelines of BCR 0002 (section 13.4) and BCR 0005 (section 11.4) methodologies.

Deforestation

The annual estimate for deforestation in the baseline scenario for each identified stratum is estimated taking into account the following equation

$$EA_{lb,año} = (DA_{lb}\ x\ CT_{eq})$$

Where:

EA_{lb}	*Annual emission due in the baseline scenario; tCO2/year*
$DA_{lb,año}$	*Annual historical deforestation in the baseline scenario; ha*
CT_{eq}	*Carbon dioxide equivalent; tCO2e/ha.*

The audit team, complying with BCR0002 version 4.0 methodological requirements, verified the detail of the annual emissions calculations for the entire quantification period.

Degradation

For the calculation of annual emissions in the baseline scenario, the following equation is used:

$$EA_{d,lb,año} = (DFP_{lb,año}\ x\ DCBT_{DP})$$

Where:

$EA_{d,lb,año}$	*Annual emission due to degradation, in the baseline scenario; tCO2/year*
$DFP_{lb,año}$	*Annual historical primary degradation, in the baseline scenario; ha*
$DCBT_{DP}$	*Carbon dioxide equivalent contained in the Total biomass difference per hectare in the primary degradation class; tCO2e/ha*
$DFS_{lb,año}$	*Annual historical historical secondary degradation in the baseline scenario; ha*
$DCBT_{DS}$	*Carbon dioxide equivalent contained in the difference of Total biomass per hectare in the secondary degradation class; tCO2e/ha*

The audit team, complying with BCR0002 version 4.0 methodological requirements, verified annual emissions calculations for the entire quantification period.

Land use change in natural savannahs

The following equation is used to calculate annual emissions in the without-project scenario for the sheeting component:

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

Where:

EA_{lb}	*Annual emission in the without-project scenario; tCO2e/ha/yr*
$CSCN_{lb}$	*Historical changes in the without-project scenario; ha/yr*
CBF_{eq}	*Carbon dioxide equivalent contained in the Total biomass; tCO2e/ha*
COS_{eq}	*Soil carbon content; tC/ha*

The audit team, complying with BCR0005 version 1.0 methodological requirements, verified the annual emissions calculations for the entire quantification period.

6.2.3.2 GHG emissions reduction/removal in the project scenario

To determine the projected emission reductions during project implementation, the project proponent followed the guidelines set out in methodology documents BCR0002 and BCR0005. First, the project holder estimated the activity data for the scenario with project, according to the guidelines described in sections 13.2.1 and 13.2.2 of the BCR002 methodology, and sections 11.2.3 and 11.2.5 of BCR0005.

Regarding the emission factors, the project holder applied the same values used in the calculation of the baseline scenario emissions, which are detailed in section 6.1.2.1 of this validation and verification report.

To calculate the GHG emissions, derived from the relationship between the activity data and the defined emission factors, derived from the relationship between the activity data and the defined emission factors, the project owner followed the procedures established in sections 13.4 of BCR0002 methodology and 11.4 of BCR0005.

Activity data

Activity data corresponds to changes in forest area and natural cover area within the project boundaries. For the scenario with project, its estimation was carried out by the project owner using as a reference the average of historical changes recorded in the reference region and the leakage area, as well as the projected impact due to the implementation of the project activities. The procedures used by the project proponent for this estimate are detailed below;

Projected annual deforestation in the with-project scenario

The annual projected deforestation in the scenario with REDD+ project was calculated by applying the following equation:

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

Where:

$CSB_{proy,año}$	*Annual change in area under forest cover in the with-project scenario; ha*
$CSB_{lb,año}$	*Annual change in area covered by forest in the without-project scenario; ha*
$\%DD$	*Projected decrease in deforestation due to implementation of REDD+ activities.*

For the quantification period, the project owner projects a decrease in deforestation of 96.56%, according to the behavior observed during the first monitoring period and taking into account that the implementation of the project activities promotes the conservation of the total forest cover and seeks to strengthen technical capacities for the sustainable management of the project areas.

On the other hand, the project owner based on the following equation estimated the projected annual deforestation in the leakage area in the scenario with project:

$$CSB_{REDD+proy,f\ año} = CSB_{f,lb} x(1 + \%E_f)$$

Where:

$CSB_{REDD+proy,f\ año}$	*Annual change in the area covered by forest in the leakage area, in the with-project scenario; ha*
$CSB_{f,lb}$	*Annual change in the area covered by forest in the leakage area, in the baseline scenario; ha*

$\%E_f$	*Percentage increase in leakage area emissions due to implementation of REDD+ activities.*[3].

Projected annual degradation in the with-project scenario

The project owner using the following equation estimated the estimate of projected degradation in the project area:

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

Where:

$DFP_{REDD+proy,año}$	*Annual primary degradation of the project area in the with-project scenario; ha*
DFP_{lb}	*Annual historical primary degradation in the without-project scenario; ha*
$\%DFP$	*Projected decrease in degradation due to the implementation of REDD+ activities* [4]

Finally, for the calculation of the projected degradation in the leakage area, the project owner used the following equations:

$$DFP_{f,año} = DFP_f \; x \; (1 + \%E_f)$$

Where:

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

[3] *According to BCR 0002 methodology, the use of a default value of 10% is accepted.*
[4] *A 99% decrease in degradation is projected, according to the behavior observed during the first monitoring period and taking into account that the project activities are aimed at conserving the entire eligible forest area.*

DFP_{lb} *Annual historical primary degradation of the leakage area in the without-project scenario; ha*

$\%DFP$ *Percent increase in leakage area emissions due to implementation of REDD+ activities* [5]

Projection of annual changes in natural savannah in the with-project scenario

The project owner based on the following equation quantified the estimation of annual changes in savannah areas in the scenario with project:

$$CSCN_{Proy} = CSCN_{lb} x (1 - \%DC_{proy})$$

Where

$CSCN_{proy}$ *Change in area with natural vegetation cover in the with-project scenario; ha/year*

$CSCN_{lb}$ *Change in area with vegetation cover in the without-project scenario; ha/year*

$\%DC_{proy}$ *Projected decrease in cover change due to implementation of project activities.*[6]

The project owner calculated estimated annual changes in leakage area changes in the with-project scenario as follows:

$$CSCN_{Proy,f,año} = CSCN_{f,lb} x (1 - \%E_f)$$

Where

$CSCN_{proy,f,año}$ *Change in natural vegetation cover in the leakage area, in the with-project scenario; ha/year*

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[5] *According to BCR0002 methodology, the use of a default value of 10% is accepted..*
[6] *Based on the project activities to be implemented and the behavior observed during the first monitoring period, the project owner estimates a 97.02% decrease in land use changes.*

$CSCN_{f,lb}$	Annual change in vegetation cover area in the leakage area, in the baseline scenario; ha/year
$\%E_f$	Percentage of projected increase in emissions in the leakage area due to implementation of project activities.[7]

Annual emissions in the with-project scenario

Annual GHG emissions correspond to the projected amount of CO2 to be emitted as a result of deforestation and forest degradation events, and land use changes in natural savannahs during the crediting period, in a scenario without project. The procedures applied by the project holder for its calculation are based on the guidelines of BCR 0002 (section 13.4) and BCR 0005 (section 11.4) methodologies.

Deforestation

The project owner using the following equation calculates annual emissions from deforestation in the with-project scenario:

$$EA_{REDD+proy,año} = (DA_{REDD+proy}\ x\ CT_{eq})$$

Where:

$EA_{REDD+proy,año}$	Annual emission in the scenario with project; tCO2/year
$DA_{REDD+proy}$	Projected annual deforestation with project; ha
CT_{eq}	Carbon dioxide equivalent[8]; tCO_{2e}/ha.

The project owner calculates the annual emission from deforestation in the leakage area as follows:

[7] The use of a default value of 10% is accepted by BCR 0005 methodology.
[8] The estimation of GHG emissions contemplates the distinction in emission factors, according to the period of analysis (2018-2022 and 2023-2027) and the strata identified for each case.

$$EA_{f,año} = DA_f \; x \; CT_{eq}$$

Where:

$EA_{f,año}$	*Annual emission in the scenario with project; tCO2/year*
DA_f	*Projected annual deforestation in the leakage area; ha*
CT_{eq}	*Carbon dioxide equivalent; tCO2e/ha.*

The calculation of estimated annual emissions for the entire quantification period by the project holder, which were verified in the audit process.

Degradation forestry

The annual emission calculation in the scenario with project the project holder uses the following equation:

$$EA_{d,REDD+proy,año} = (DFP_{REDD+proy,año} \; x \; DCBT_{DP})$$

Where:

$EA_{d,REDD+proy,año}$	*Annual emission in the with-project scenario; tCO2/year*
$DFP_{REDD+proy,año}$	*Annual historical primary degradation in the with-project scenario; ha*
$DCBT_{DP}$	*Carbon dioxide equivalent contained in the difference of Total biomass per hectare in the primary degradation class; tCO2e/ha*

In order to calculate the annual emission in the leakage area, the project owner uses the following equation:

$$EA_{d,f,año} = (DFP_{f,año} \; x \; DCBT_{DP})$$

Where:

$EA_{d,f,año}$	*Annual emission in the leakage area; tCO2/year*
$DFP_{f,año}$	*Annual historical primary degradation in the leakage area; ha*

$DCBT_{DP}$	Carbon dioxide equivalent contained in the difference of Total biomass per hectare in the primary degradation class; tCO2e/ha

The audit team verifies the calculation of estimated annual emissions for the entire quantification period identified by the project holder.

Land use change in natural savannahs

For the annual emission calculation in the scenario with project the project holder uses the following equation:

$$E_{proy,año} = CSCN_{proy}\ x\ (CBF_{eq} + COS_{eq})$$

Where:

$E_{proy,año}$	Annual emission in the with-project scenario; tCO2e/ha/yr
$CSCN_{proy}$	Land use change in the with-project scenario; ha/yr
CBF_{eq}	Carbon dioxide equivalent contained in Total biomass ; tCO2e/ha
COS_{eq}	Carbon dioxide equivalent contained in soils; tCO2e/ha

Finally, for the calculation of the annual emission in the leakage area, the project owner uses the following equation:

$$E_{f,año} = CSCN_f\ x\ (CBF_{eq} + COS_{eq})$$

Where:

$E_{f,año}$	Annual emission in the leakage area; tCO2e/ha/year
$CSCN_f$	Change in land use in the leakage area; ha/year
CBF_{eq}	Carbon dioxide equivalent contained in the Total biomass; tCO2e/ha
COS_{eq}	Carbon dioxide equivalent contained in soils; tCO2e/ha/ha

The audit team verifies the calculation of the estimated annual emissions for the entire quantification period performed by the project holder.

Emission Reduction Calculation in the Scenario with Project

The emissions reduction calculation relates the difference between the amount of GHG estimated in the baseline scenario and the projected emissions in the project area and the leakage area. Therefore, the following describes the procedures applied by the project owner for the quantification of project emissions reductions, based on the BCR 0002 (Section 13.5) and BCR 0005 (Section 11.5) methodologies.

Once all the formulas have been applied, the project holder generates a summary table of projected emissions by year for both forests and Savannas. The GHG emissions column in the baseline scenario shows the emissions that would occur in the without-project scenario, according to the historical and regional trend. The emissions column in the with-project scenario shows the emissions from the project according to the activities that were designed. The column of emissions attributable to leakage corresponds to the projection of a 10% increase in historical emissions in the leakage belt, due to the implementation of project activities.

Finally, the estimated net GHG reduction column corresponds to baseline emissions minus project emissions and emissions attributable to leakage. That is, it corresponds to the projected reduction of emissions by the project that could be translated into carbon certificates according to the results presented in each of the future monitoring and verification reports by the project owner.

As a general conclusion, it is determined that the calculations of emission reductions have been carried out in accordance with all the guidelines established in the BCR 0005 version 1.1 and BCR 0002 version 4.0 methodologies. Both for the baseline scenario and in the project scenario.

6.2.3.2.1 GHG Emissions Reduction/Removal During the Monitoring (Verification) Period

The project's emissions were evaluated for the first monitoring period based on the data provided by the project owner in accordance with the monitoring plan. The following procedures or annexes were considered for the evaluation:

- *Annex 1.1.1 GDB Savannas: Comprehensive geodatabase for the savanna methodology, serving as the information source for activity data under the BCR 0005 methodology implemented in the project.*
- *Annex 1.1.2 GDB Forests: Comprehensive geodatabase for the REDD+ methodology, serving as the information source for activity data under the BCR 0002 methodology implemented in the project.*
- *Annex 1.2.1 Project Emissions: Excel file used for calculating the project's emissions, incorporating data from the GDBs, emission factors, and formulas established in BCR 0005 and BCR 0002. It was assessed to ensure compliance with the guidelines set forth in PDD v2.4, Section 16, Monitoring Plan.*

It was concluded that the emission reductions were correctly calculated during the 2018-2022 monitoring period, in accordance with the validated parameters.

6.3 Sustainable development safeguards (SDSs)

The evaluation of the ORINOCO2 project involved a review of the environmental and social aspects, analyzing the likely effects on biodiversity, ecosystems and communities within the project boundaries. This assessment was based on reliable and updated references, ensuring the validity and timeliness of the analysis. In order to comply with the criteria established in BCR V3.4 standard numbers 14 and 16, as well as in the Environmental and Social Safeguards and Harm Avoidance Tool V1.0, both environmental and socioeconomic impacts were considered.

In this regard, the project owner conducted an environmental assessment to identify the potential impacts of project implementation in its area of influence. This assessment, documented in the ORINOCO2 Environmental Assessment Matrix, identified two negative environmental impacts. To address these impacts, specific mitigation actions were established and monitored through the Safeguards Monitoring Plan. The assessment concluded that the project activities are oriented towards environmental protection and greenhouse gas (GHG) reduction, complying favorably with the established environmental criteria.

Additionally, in the socioeconomic area, in the evaluation the project owner considered the impacts resulting from the interaction of project activities with the social and economic conditions of the local communities. Similarly, the project owner conducted an Economic Impact Assessment that covered aspects such as gender equity, education and training, communication with stakeholders and forestry governance. In economic terms, the project owner evaluated access to financial goods and services, the economic benefits of the project, the formalization of environmental services as an economic activity and the implementation of sustainable productive practices. The socio-economic evaluation matrix conducted by the project proponent, adapted from the Leopold matrix, applied a rating scale to determine the magnitude and importance of the impacts with methodological and technical support.

Furthermore, the socioeconomic assessment conducted by the project owner, which is documented in the ORINOCO2 Socioeconomic Assessment Matrix, determined that the project activities do not represent negative impacts within the area of influence. All activities are aimed at generating social and economic benefits, in line with climate change mitigation and GHG reduction actions. Therefore, the need to generate additional socioeconomic management plans to prevent or mitigate negative impacts was not identified, as the effects observed were positive.

Finally, the use of the Sustainable Development Safeguards, (SDSs) version 1.0 tool by the project owner was verified in this audit process, confirming that measures have been implemented to ensure that the rights of communities are respected and that ecosystems

and the environment in general are protected. The assessment of the social and environmental due diligence process, in accordance with BCR standard version 3.4, corroborated that the social and environmental safeguards are met, providing a robust framework for managing and monitoring the impacts of the project.

6.4 Sustainable Development Goals (SDGs)

The evaluation of the monitoring procedures implemented to demonstrate the contribution of the ORINOCO2 project to the Sustainable Development Goals (SDGs) was carried out in accordance with the BCR standard version 3.4, the Sustainable Development Goals (SDG) version 1.0 document and the Excel SDG Tool (2023). The review included an analysis of project activities and actions, specifically assessing their alignment with three selected global goals: SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action) and SDG 15 (Life of Terrestrial Ecosystems).

For SDG 6, a characterization of the properties linked to the project was carried out, focusing on sustainable water management. Water Quality, Efficient Use and Saving Programs (PUEAA) were developed for each property, with the aim of promoting sustainable practices and ensuring equitable access to drinking water. The evaluation verified that, to date, 149 properties have been linked and 148 PUEAA have been created, demonstrating progress in water resource management, see table below;

Table 41 Results of progress in meeting SDG 6 (water and sanitation), with respect to the global target.

SDG	*Global SDG Indicator*	*Approach and/or Compliance*	*Progress (%) Period 2018-2022 with respect to the global target.*
6	*6.4.1 Change in water use efficiency over time.*	*Of the 149 properties involved, 148 diagnoses have been completed and 148 PUEAA's have been created. The main activities have included the characterization of the properties, the development of plans for the efficient use and saving of water, and the diagnosis of the project.*	*24.8%*

Source Fundación Cataruben, 2024.

Regarding SDG 13, GHG emissions were monitored in the project area and leakage areas, comparing the reductions obtained with the baseline values established in the baseline

scenario. A 97.21% reduction in GHG emissions was evidenced, equivalent to 738,912 tCO2e reduced during the monitoring period. This progress corresponds to 46.57% compliance with the overall goal for the first quantification period of the project, see table below;

Table 42 Results of progress in meeting SDG 13 (Climate Action), with respect to the global target.

SDG	Global SDG Indicator	Approach and/or Compliance	Progress (%) Period 2018-2022 with respect to the global target.
13	13.2.2 Total GHG emissions by year	GHG emissions monitoring was conducted for the period 2018-2022, with which compliance with the target was evaluated in terms of GHG emissions reduction in relation to the baseline scenario.	46,57%

Source Fundación Cataruben, 2024.

For SDG 15, specific methodologies were implemented to identify and protect key biodiversity areas. Strategic sites were selected to promote ecosystem conservation and indicators were developed to monitor biodiversity. The evaluation confirmed the implementation of activities aimed at protecting the forested area and identifying important sites for biodiversity, reaching 10% compliance in indicator 15.1.1 and 25% compliance in indicators 15.1.2 and 15.5.1, see table below;

Table 43 Results of progress in meeting SDG 15 (Climate Action), with respect to the global target.

SDG	Global SDG Indicator	Approach and/or Compliance	Progress (%) Period 2018-2022 with respect to the global target.
		For the calculation and reporting, the guidelines defined in the environmental indicators of the Ministry of Environment and Sustainable Development and IDEAM corresponding to the indicator Galindo et al., (2019) were followed. The indicator establishes a	

SDG	Global SDG Indicator	Approach and/or Compliance	Progress (%) Period 2018-2022 with respect to the global target.
15	15.1.1 Forestry area as a proportion of total land area	relationship between the extension covered by natural forest and the total area of the region at a specific time, this information is extracted from forest cover maps generated from PDI in Google Earth Engine platforms.	10,0%
	15.1.2 Proportion of sites important for terrestrial biodiversity and freshwater that are part of protected areas, by ecosystem type.	The methodology was implemented to identify areas of importance for biological diversity, in order to subsequently promote the marking of strategic ecosystems. Twenty properties were selected because they have large extensions of key ecosystems for biological diversity.	25%
	15.5.1 Red List Index	The methodology for the development of participatory biodiversity monitoring to identify threatened species is presented.	25%

Source Fundación Cataruben, 2024.

6.5 Climate change adaptation

During the verification audit of the ORINOCO2 project, the criteria and indicators used by the project holder to carry out actions that demonstrate its contribution to climate change adaptation were evaluated, in accordance with the provisions of the BCR standard.

The documentation provided, in section 6. Climate change adaptation, Table 48. the project holder indicates how the project activities derive in adaptation actions. The audit team review this asseveration and contrast with information provided in annex 6.2. Monitoring plan of project activities and cobenefits, and the information provide in the national climate change policy and planned adaptation actions.

On the other hand RM version 2.4 Section 6 Adaptation to climate change, table 6 the project holder review and provide evidence of implementation and progress during the 2018-2022 monitoring period.

Based on the information, and documentation review and contrast with the mentioned politics and requirements. The ORINOCO2 project demonstrates compliance with climate change adaptation requirements through the implementation of several activities, each associated with specific criteria and progress indicators. These criteria and indicators, summarized below, provide evidence of the project's alignment with adaptation strategies:

d. ***Improvement of Biodiversity Conservation and Ecosystem Services:***

- *The project actively promotes the conservation of biodiversity and its ecosystem services by identifying, monitoring, and safeguarding high conservation values (HCVs) within and around the project area. The project also focuses on managing water resources within the properties, emphasizing ecosystem health beyond project boundaries.*

- *Activities include:*

  - ***G5**: Delimitation and signage of strategic ecosystems (25% progress).*

  - ***G7**: Development of a Water Use and Saving Plan (24.8% progress).*

  - ***S1 & S2**: Implementation of landscape management tools and sustainable production practices (41.6% and 60% progress, respectively).*

  - ***B1, B2, B3**: Monitoring of HCVs, globally threatened species, and restoration actions (each at 25% progress).*

e. ***Implementation of Sustainable Low-Carbon Productive Landscapes:***

- *The project fosters sustainable production systems, empowering local communities with technical training to promote the preservation of natural resources and responsible landscape management. These efforts strengthen community resilience and support low-carbon economy transitions.*

- *Key activities include:*

  - ***G1**: Improved landowner income via carbon credit sales (pending initiation upon commercialization).*

- ***G2**: Strengthening community technical capacities (G-2.1: 30%, G-2.2: 10% progress).*
- ***R1**: Sustainable fire management practices (83.7% progress).*
- ***S1 & S2**: Sustainable landscape and production practices (41.6% and 60% progress).*

f. ***Restoration of Environmentally Important Areas:***

- *The project identifies riparian forests within its boundaries as critical for biodiversity conservation and has initiated efforts to restore these areas. This involves assessing potential restoration sites and executing necessary actions.*

- *Key Activity:*

  - ***B3**: Restoration actions in degraded ecosystems (25% progress).*

2. ***Ecosystem-Based Adaptation Strategies:***

- *By focusing on conservation, restoration, and sustainable management of ecosystems, the project employs nature-based solutions. The strategy also involves community engagement to build local capacity for long-term ecosystem conservation.*

- *Key Activities:*

  - ***G2**: Community training for ecosystem management (G-2.1: 30%, G-2.2: 10%).*

  - ***G6**: Promotion of conservation areas and sustainable ecosystem management (1.3% progress).*

g. ***Strengthening Local Capacities for Climate Change Adaptation:***

- *The project includes training programs aimed at equipping local communities with knowledge and tools to make informed decisions. These trainings help recognize climate vulnerabilities and adapt to climate change impacts by fostering sustainable land management and conservation.*

- *Key Activity:*

  - ***G2**: Community training and knowledge transfer (G-2.1: 30%, G-2.2: 10%).*

The analysis of the project's criteria and indicators confirms that the ORINOCO2 project holder effectively meets the requirements for climate change adaptation. The project has demonstrated a strong commitment to climate change adaptation, complying with criterion 11.8 of the BCR V3.4 Standard. Through a thorough analysis of the national

climate change policy and planned adaptation actions, clear criteria and indicators have been established to assess their effectiveness.

6.6 Co-benefits (if applicable)

During the verification audit of the ORINOCO2 project, the co-benefits measurement processes implemented by the project holder were evaluated. According to the documentation provided, a detailed evaluation of the co-benefits generated in terms of biodiversity conservation, benefits to communities and gender equity is specifically presented. The analysis included verification of the consistency between the activities reported and the indicators defined for each co-benefit component, see section 6.1.2.7 of this validation and verification report.

The identification and monitoring of High Conservation Values (HCVs) was documented in Table 22 of the monitoring report version 2.4, where the results obtained in the identification of HCVs associated with biodiversity, landscapes and ecosystem services are described. This activity was supported by the verified methodology, ensuring the application of biodiversity assessment techniques. Likewise, the monitoring of globally threatened species was addressed through the planning of a participatory bioacoustic monitoring methodology, demonstrating progress in the conservation of threatened fauna.

In addition, the restoration actions in degraded ecosystems, reported in the compliance report, were verified, where the restoration activities implemented by the land managers are documented, including the planting of native species such as Acacia mangium and Mauritia flexuosa, see Figure 2. In terms of gender equity, the project holder made progress in the formulation of a training plan to strengthen the management of financial goods and services with a gender approach. These activities were monitored and reported with specific indicators, demonstrating adequate compliance with the established co-benefits criteria, see section 6.1.2.7.

Figure 2 Photographic evidence of restoration activities carried out by various ecosystem managers. 1 to 9 on project sites

Source Fundación Cataruben, 2023

6.7 REDD+ safeguards (if applicable)

As part of the verification audit of the ORINOCO2 project, an evaluation of compliance with REDD+ safeguards was conducted using the Biocarbon Standard 's "Safeguards REDD+" version 1.1 tool.

The project proponent has developed the analysis on compliance with REDD+ safeguards in the PDD v2.4, specifically in Section 11 "REDD+ Safeguards," in accordance with the criteria established in the Sectoral Methodological Document AFOLU "Quantification of GHG Emission Reductions for REDD+ Projects BCR002", version 4.0 of May 27, 2024, as well as the "Tool for Demonstrating Compliance with REDD+ Safeguards", version 1.1 of January 26, 2023, developed by BioCarbon Standard, and the criteria set forth in the "National Interpretation of Environmental and Social Safeguards for REDD+ in Colombia" (Camacho A., Lara I., Guerrero R.D., 2017).

In addition, the project proponent designed the safeguard monitoring tool, which is detailed in Annex 6.2 "REDD+ Safeguard Monitoring Plan." The audit team reviewed the plan and verified that it includes the following elements:

- *National Interpretation of Safeguards, through its 15 elements and their relationship with the Cancun Safeguards.*
- *Identification of safeguards according to the "Tool for Demonstrating Compliance with REDD+ Safeguards," version 1.1.*
- *Indicators, along with their respective names.*
- *Evidence requirements established in the "Tool for Demonstrating Compliance with REDD+ Safeguards," version 1.1.*
- *Annexes of compliance evidence and links to the evidence.*
- *Responsible parties for the execution and monitoring of compliance.*
- *Global target for each indicator.*
- *Unit of measurement.*
- *Monitoring methodology.*
- *Monitoring schedule.*

The evaluation also included the review of indicators and monitoring criteria established in the "Safeguards REDD+" tool, as well as the documentation and evidence submitted by the project holder. In particular, the correspondence of project activities with national legislation and international commitments, documented in the Legal Compatibility Matrix, was verified. In addition, transparency and access to information was assessed through various communication channels, including emails, social networks, and face-to-face and virtual meetings. The tool also confirmed that measures have been implemented to respect the rights of local communities and ensure their participation in all phases of the project.

Based on a detailed review and comparison with the requirements set forth in BCR002 version 4.0, the "Tool for Demonstrating Compliance with REDD+ Safeguards," version 1.1, and the criteria of the "National Interpretation of Environmental and Social Safeguards for REDD+ in Colombia" (Camacho A., Lara I., Guerrero R.D., 2017), it is concluded that the project meets the necessary requirements to ensure compliance with REDD+ safeguards, including the national interpretation.

This compliance was achieved through a monitoring and verification process, supported by updated references and supporting documentation to back up each aspect assessed.

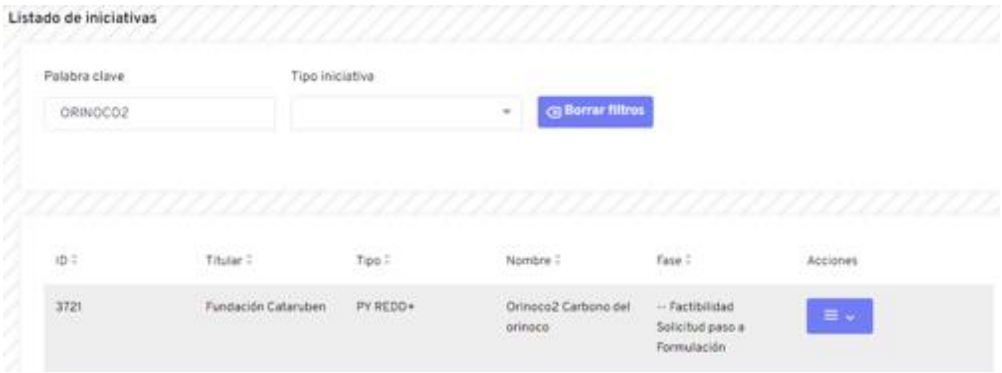
6.8 Double counting avoidance

The verification of double counting avoidance for the ORINOCO2 project was performed in accordance with the principles and requirements established by the BCR Tool "Avoiding Double Counting (ADC)" version 2.0, and applicable national regulations. This tool sets out the guidelines to prevent the double counting, issuance, and retirement of GHG mitigation results, ensuring transparency and integrity in carbon credits reporting.

The verification process followed a series of structured steps to assess the application of the BCR Tool "Avoiding Double Counting (ADC)"

- ***Step 1: Review of BCR Tool Version and Requirements:** The audit team ensured that the latest version of the BCR Tool "Avoiding Double Counting (ADC)" was used, as available on the BCR website. This included reviewing the principles and requirements outlined for AFOLU projects to prevent double counting.*

- ***Step 2: Verification of Project Registration in RENARE:** The project's registration in RENARE was verified to confirm compliance with national regulations (Resolution 1447 of 2018), ensuring that the project's GHG reductions were not duplicated across different systems.*



- ***Step 3: Systematic Monitoring and Data Tracking:*** *The project holder implemented systematic monitoring and data tracking to prevent overlap with other carbon projects. Relevant mapping data, including a Map Package file and Excel lists of projects, were stored in geospatial databases accessible via ArcGIS Pro. This allowed for continuous oversight and verification that ORINOCO2's emission reductions were uniquely attributed.*

- ***Step 4: Cartographic Analysis and Cross-Referencing:*** *A cartographic analysis was conducted using satellite imagery and spatial data, cross-referencing project boundaries with data from other GHG standards. This ensured there was no geographic overlap with other registered carbon initiatives.*

Assessment of Double Counting Avoidance: *The project holder demonstrated compliance with double counting avoidance by registering the project in RENARE, as required by Resolution 1447 of 2018. The verification audit reviewed this registration to confirm that the project's GHG reductions and removals were not duplicated across different reporting projects.*

Assessment for AFOLU Projects - Confirmation of Project Boundaries: *To ensure the project areas were not included within other project boundaries, a comprehensive cartographic analysis was conducted. The project proponent presented a detailed representation of the project areas, which was cross-referenced with other GHG standards and registries, including ColCX, Gold Standard, Puro Earth, Global Carbon Council, Cercarbono, Clean Development Mechanism (MDL by United Nations), Plan Vivo, Climate Action Reserve, and VERRA. This assessment utilized base cartographies to confirm the exclusivity of the ORINOCO2 project areas. The VERSA audit team performed a cartographic analysis using satellite imagery and geospatial data to validate the project's claims. This analysis involved a thorough review of the shapes and spatial coordinates of the projects located within the area of influence, confirming that the ORINOCO2 project did not overlap with any other existing carbon initiatives.*

The structured assessment and application of the BCR Tool "Avoiding Double Counting (ADC)" ensured that the ORINOCO2 project complied with all necessary measures to prevent double counting of GHG emission reductions or removals. The combination of systematic project registration, rigorous cartographic analysis, and ongoing monitoring confirms the transparency and integrity of the project's carbon accounting practices, upholding the standards required by the BCR Program and applicable national regulations.

6.9 Stakeholders' Consultation

During the stakeholder consultation process for the Orinoco REDD+ project2 , a review was conducted to validate the individuals, groups and organizations that would be affected by project activities. In the initial phase, a database of potentially interested stakeholders was

created and documented in Annex 4.1.1 of the PDD. An official letter was sent to these stakeholders, for a total of 147 letters detailing the project design and the potential impacts identified, inviting them to make comments, suggestions or recommendations through official channels such as telephone and e-mail. In addition, the possibility of organizing virtual or face-to-face meetings was offered upon request.

In this sense, stakeholder consultation allowed us to identify their interests, potential risks and appropriate mitigation measures. The project documentation provides mechanisms for stakeholders to comment on the project, demonstrating their involvement in project design and implementation. Ensured that the 147 invitations to comment were sent to relevant stakeholders, allowing for broad participation.

In line with the above, only one comment was received by email, out of 147 letters sent, and this comment was answered in a timely manner. For example, from the company AGRICULTURAL de Agrocacay S.A.S, questions were raised about the measurement of carbon sequestration in reforestations and monitoring of endangered species. The project owner informed that the REDD+ project focuses on the conservation of natural areas through the reduction of emissions caused by deforestation and forest degradation, and that the landowners would carry out conservation and monitoring activities in conjunction with the Cataruben Foundation.

Finally, the comments received were documented and evaluated to see if they were adequately considered. Table 47 of the document summarizes the comments and corresponding considerations, ensuring transparency and an adequate response to the concerns raised. In addition, if there were complaints or grievances from stakeholders, a full explanation was provided on how they were addressed and whether they were satisfactorily resolved.

6.9.1 Public Consultation

The ORINOCO2 project was open for public comment on the Biocarbon Standard public platform, from September 11, 2023 until October 11, 2023. During this 30-calendar day period, all stakeholders were invited to provide their comments and suggestions on the project. Therefore, it is verified that no comments were received during the public consultation period on Biocarbon Standard, according to the documentation available on said platform at the time of this validation and verification audit.

7 Internal quality control

To ensure the quality of the validation and verification activities of the ORINOCO2 project, measures were implemented in accordance with the guidelines established in the BCR standard version 3.4 section 21, the methodologies BCR0002 version 4.0 section 14.6, BCR0005 version 1.0 section 13.2 and the validation and verification manual version 2.4 section 10.3. These measures ensure that the project holder carries out the procedures and

activities in a systematic and rigorous manner, guaranteeing the integrity and accuracy of the reported data.

In this regard, the project owner responsible for project implementation has established an integrated management system that incorporates manuals, procedures and formats necessary to comply with the requirements and expectations of GHG quantification methodologies, as well as applicable legal and regulatory requirements. This system is based on ISO 9001:2015, ISO 14001:2015 standards, ensuring effective, and environmentally responsible quality management.

The integrated management system includes specific quality control and assurance procedures for data collection, processing and reporting. These procedures ensure the accuracy, completeness, timeliness, relevance and reliability of the information, minimizing the risk of errors and omissions. In addition, regular internal audits are implemented to review and evaluate compliance with established procedures, identifying areas for improvement and taking corrective action, when necessary.

During the validation and verification process, reviews of the project documentation, including the Project Description Document (PDD) version 2.4 and the Monitoring Report (MR) version 2.4, were carried out. These reviews included verification of GHG quantification methods, activity data, emission factors, implemented mitigation measures and their documentary supports. In addition, field visits were conducted to verify the implementation of project activities and the completeness of the reported data.

Therefore, the quality control measures implemented by the project holder for the ORINOCO2 project ensure that validation and verification activities are carried out effectively and in accordance with applicable standards and methodologies. The implementation of an Integrated Management System, combined with regular internal audits and reviews of project documentation, guarantees the accuracy and reliability of the reported data, complying with the requirements established by the BCR standard and methodologies BCR0002 version 4.0 section 14.6 and BCR0005 version 1.0 section 13.2. A complementary description of the information quality control and document management process can be found in paragraph (g) of section 6.1.2.1 of this validation and verification report.

8 Validation and verification opinion

The audit team conducted the validation and independent verification of the ORINOCO2 project in accordance with the following documents and regulations:

- *BCR Standard version 3.4*
- *Methodology BCR0002: Quantification of GHG Emission Reductions in REDD+ Projects, version 4.0, May 2022.*

- *Methodology BCR0005: Quantification of GHG Emissions Reductions and Removals-Activities Avoiding Land Use Change in Natural Savannah, version 1.0, February 2023.*
- *BCR Validation and Verification Manual version 2.4, January 2024.*
- *ISO 14064-2:2019 Standard.*
- *ISO 14064-3:2019 Standard.*

In this sense, it has been verified that the activities established in the validation and verification audit plan have been fully executed. In addition, it is confirmed that the declaration related to Greenhouse Gas Emissions (GHG) is free of substantial and material discrepancies, ensuring a confidence level of 95%, as stipulated in the BCR standard version 3.4.

For the 2018 to 2022 monitoring period, an estimated total emissions reduction of 652,418 tCO2e was verified, with an average annual reduction of 173,862 tCO2e in the Monitoring Report (MR) version 2.4. These values were derived from the detailed analysis and correct application of BCR0002 version 4.0 and BCR0005 version 1.0 methodologies, according to the procedures and criteria established in the validation and verification manual version 2.4 by the project owner. In this sense, project activities included the conservation of forests and natural savannahs, the restoration of degraded ecosystems and the implementation of sustainable practices.

Therefore, the lead auditor recommends a positive validation and verification opinion for the ORINOCO2 project. In this order of ideas, the validation process was developed as follows: i) strategic planning of the monitoring plan and ex ante and ex post estimation of GHG reductions; ii) on-site audit and interviews with stakeholders; iii) resolution of two rounds of findings and issuance of the final validation report, verification and opinion. During the validation process, corrective and clarifying actions were proposed, all of which have been successfully closed, as explained in section 11 Annexes, specifically Annex 3 of the validation and verification report.

The review of the Project Description (PDD) version 2.4 and Monitoring Report (MR) version 2.4 documentation, together with background research, follow-up interviews and review of stakeholder comments, has provided the audit team with sufficient evidence to validate compliance with the established criteria

9 Validation statement

Versa Expertos en Certificación S.A.S. been commissioned by ***Fundación Cataruben*** *to validate the* ***ORINOCO2*** *GHG emissions reduction project. The declared* ***ORINOCO2*** *project involves the activities developed in Meta and Vichada, Colombia. The* ***ORINOCO2*** *project has been developed in accordance with the guidelines of international standards ISO 14064-2:2019, ISO 14064-3:2019 and the specific requirements of the GEI Biocarbon Standard program.*

Versa Expertos en Certificación S.A.S. conducted a review of all the supporting documentation used by by ***Fundación Cataruben*** *for the elaboration of the* ***ORINOCO2*** *project and made a field visit together with by* ***Fundación Cataruben.*** *There, through interviews and review of primary information sources, it confirmed the organizational and reporting limits, activity data, emission factors and global warming potentials used; as well as the methodological assumptions and exclusions made.*

Versa Expertos en Certificación S.A.S. established the objectives, scope and validation criteria in the commercial proposal and legal agreement VERSA-P-0179 and in the approved audit plan for the validation of the Project ***ORINOCO2****. The objectives, scope and validation criteria are described below:*

Objective

The Validation process consists of the evaluation by Versa Expertos en Certificación S.A.S of the project design document and/or monitoring reports in accordance with the guidelines of the ISO 14064-2:2019 standard, the guidelines of the selected GHG program, the methodologies used and the legislation of the country where the project is developed.

Scope

Validate and verify the project activities, its PDD, its monitoring plan, its GHG sources, sinks and/or deposits, its GHG emissions reduction quantification period, its baseline scenario, its requirements management processes legal and information, guidelines and methodological documents Biocarbon Standard. ***Sectoral scope:*** *AFOLU; REDD+ and Activities that avoid land use change of natural savannahs.*

Criteria

- *ISO 14064-2:2019*
- *ISO 14064-3:2019*
- *BCR0002 Methodology: Quantification of GHG Emission Reductions in REDD+ Projects, version 4.0, Mayo 2024.*
- *BCR0005 Methodology: Quantification of GHG Emissions Reduction. Activities that prevent Land Use Change in Natural Savannas, version 1.0, February 2023.*
- *Biocarbon Standard requirements*

Versa Expertos en Certificación S.A.S. ensures that the data and information supporting the GHG statement are projected in nature. Validation activities have been configured in such a way that they offer a high, but not absolute, level of assurance.

Versa Expertos en Certificación S.A.S. identified that, according to the review of the evidence provided by ***Fundación Cataruben*** *and during the field visit, from the beginning of the initiative the* ***ORINOCO2*** *project has generated contributions to the Sustainable Development Goals (SDGs 6,13 and 15 defined by the project). This is applicable for the components (Quantification of GHG Emission Reductions) according to the relevant criteria and indicators.*

Versa Expertos en Certificación S.A.S. validated that the project presents the procedures related to the monitoring of co-benefits for the special categories Wax Palm, described in the "BioCarbon_joint Validation and verification Report ". These co-benefits are listed below:

- *Biodiversity*
- *Community*
- *Gender equity*

Versa Expertos en Certificación S.A.S. based on the results of the activities developed, it declares for all intended users that the ***ORINOCO2*** *project of* ***Fundación Cataruben*** *in 2024 complies with the principles established by ISO 14064-2:2019, ISO 14064-3:2019 and the GHG Biocarbon Standard program are within the level of material assurance and importance and is free from material errors. This statement is addressed to Biocarbon Standard and other interested parties and is issued.*

Report No.: GEI-P-238

Level of assurance: 95%

Legal Agreement No.: VERSA-P-0179

Material discrepancy: 5%

10 Verification statement

Versa Expertos en Certificación S.A.S. been commissioned by ***Fundación Cataruben*** *to verify* ***ORINOCO2*** *GHG emissions reduction project. The declared declared* ***ORINOCO2*** *project involves the activities developed in Meta and Vichada, Colombia. The* ***ORINOCO2*** *project has been developed in accordance with the guidelines of international standards ISO 14064-2:2019, ISO 14064-3:2019 and the specific requirements of the GEI Biocarbon Standard program.*

Versa Expertos en Certificación S.A.S. conducted a review of all the supporting documentation used by ***Fundación Cataruben*** *for the elaboration of the* ***ORINOCO2*** *project. It made a field visit together with* ***Fundación Cataruben*** *where through interviews and review of primary information sources, it confirmed the organizational and reporting limits, activity data, emission factors and global warming potentials used; as well as the methodological assumptions and exclusions made.*

Versa Expertos en Certificación S.A.S. established the objectives, scope and verification criteria in the commercial proposal and legal agreement VERSA-P-0179 and in the approved audit plan for the verification of the ***ORINOCO2.*** *The objectives, scope and verification criteria are described below:*

Objective

The Verification process consists of the evaluation by Versa Expertos en Certificación S.A.S of the project design document and/or monitoring reports in accordance with the guidelines of the ISO 14064-2:2019 standard, the guidelines of the selected GHG program, the methodologies used and the legislation of the country where the project is developed.

Scope

Validate and verify the project activities, PDD, monitoring plan, GHG sources, sinks and/or deposits, GHG emissions reduction quantification period, baseline scenario, requirements, management processes legal and information, guidelines and methodological documents for Biocarbon Standard. ***Sectoral scope:*** *AFOLU; REDD+ and Activities that avoid land use change of natural savannahs.*

Criteria

- *ISO 14064-2:2019*
- *ISO 14064-3:2019*
- *BCR0002 Methodology: Quantification of GHG Emission Reductions in REDD+ Projects, version 40, 27th May 2024.*
- *BCR0005 Methodology: Quantification of GHG Emissions Reduction. Activities that prevent Land Use Change in Natural Savannas, version 1.0, February 2023.*
- *Biocarbon Standard requirements*

Versa Expertos en Certificación S.A.S. ensures that the data and information supporting the GHG statement are historical in nature. Verification activities have been configured in such a way that they offer a high, but not absolute, level of assurance.

Versa Expertos en Certificación S.A.S. identified that, according to the review of the evidence provided by ***Fundación Cataruben*** *and during the field visit, from the beginning of the initiative the* ***ORINOCO2*** *project has generated contributions to the Sustainable Development Goals (SDGs 6,13 and 15 defined by the project). This is applicable for the components (Quantification of GHG Emission Reductions) according to the relevant criteria and indicators.*

Versa Expertos en Certificación S.A.S. verified that the project presents the procedures related to the monitoring of co-benefits for the special categories Wax Palm, described in the "BioCarbon_joint Validation and verification Report ". These co-benefits are listed below:

- *Biodiversity*
- *Community*
- *Gender equity*

Versa Expertos en Certificación S.A.S based on the results of the activities developed, it declares for all intended users that the ***ORINOCO2*** *project of* ***Fundación Cataruben*** *in 2024, complies with the principles established by ISO 14064-2:2019, ISO 14064-3:2019 and the GHG Biocarbon Standard program, are within the level of material assurance and importance and is free from material errors. This statement is issued and addressed to Biocarbon Standard and other interested parties.*

11 Annexes

Annex 1. Competence of team members and technical reviewers

In the following Table 44, the audit team selected by VERSA for the validation and verifications of the project.

Table 44. Audit team

Full Name	Role	Activities to Develop
Diana Rauchwerger	Lead Auditor (Round 1)	The lead auditor has predestined activities which are: -Document review -Creation of the audit plan -Carry out the field audit according to regulations -Make findings corresponding to the audit
Helena Villanueva	Technical Expert (Round 1)	The technical expert has predestined activities which are: -Document review -Carry out the field audit according to regulations -Make findings corresponding to the audit
Lucas Rivera	Lead Auditor (Round 2)	The lead auditor has predestined activities which are: -Document review -Creation of the audit plan -Make findings corresponding to the audit - Delivery of verification report
Joaquin Emilio Montealegre	Technical Reviewer	The technical reviewer has predestined activities which are:

		- *Carry out the review of the final documents.* - *Issue technical review document.*
Camilo Montaña	*Issuer of the Validation and Verification opinion*	*Accreditation in: ISO/IEC STANDARD 17029;2019* - *ISO 14064-1* - *ISO14064-2* - *ISO 14064-3* *ISO/IEC STANDARD 17065;2012*

Diana Rauchwerger:

Is an Agricultural Engineer specialized in environmental and local development, with studies in Biodiversity Conservation and Use. She has over 7 years of experience in the formulation, evaluation, and oversight of environmental projects. She has been part of teams responsible for designing and implementing sustainable strategies in sectors such as OIL&GAS, mining, electricity, and infrastructure.

She worked as a contractor at the Ministry of Environment and Local Development, specifically in the Climate Change Mitigation group. Additionally, she serves as a lead auditor and technical expert for various entities involved in the carbon credit market, climate change, validation and verification of greenhouse gas (GHG) projects, and accreditation processes for validator/verifier bodies (VVB) in GHG offset initiatives.

Helena Villanueva

Forest Engineer, with knowledge and experience in the development of REDD+, CDM projects, in the improvement of mathematical and spatial models of deforestation, with extensive knowledge in the development of calculations and analysis of emissions of carbon through the implementation of guides IPCC 2000, 2003 and 2006 for inventories of greenhouse gases, analysis of land use change and evaluation of carbon content for the different changes in coverage, implementation of REDD+ projects with verra 003, 007, 009, 0015, 0037 methodology, 0042 and their respective modules. With international academic recognition for his research contributions on the trapeze Amazonian.
Leadership capacity and disposition for interdisciplinary work and commitment to activities that promote sustainable development. Ability to handle computer packages statisticians as meets Minitab and Infostat, and of interpretation of images satellite, radar and aerial photography for spatial analysis and production cartographic.

Lucas Rivera
Forestry engineer with a master's degree in environmental management, he has worked for private companies, public companies, and multilateral organizations for the last fifteen years on GHG emissions reduction projects for AFOLU sector projects. His roles are based on forestry carbon project developer and auditor.

Consultant with more than thirteen years of international experience in REDD+, ARR, transportation, waste and energy for its formulation, validation, verification and issuance of carbon credits. With Master's training in Environmental Management, Master's Degree in Financial Administration and Forestry Engineering. Carbon Footprint and GHG Auditor.

Camilo Andres Montaña Salamanca:
Mechanical engineer and project manager with over 12 years of experience in conformity assessment and monitoring of technical regulations. Former head of the technical regulations group at the Superintendence of Industry and Commerce. He has completed the courses for lead formulators for the validation and verification of greenhouse gas (GEI) mitigation projects provided by Asocarbono-Asocec. Currently serving as the General Director of Versa Expertos en Certificación SAS.

BCR Antibribery policy:
The Conformity Assessment Body (CBA) must ensure the absence of conflicts of interest that may affect its validation and verification services, always acting objectively and independently. In addition, it is obliged to maintain the confidentiality of BCR's information, prohibiting its disclosure and reproduction without a justified need. Failure to comply with this obligation may result in the settlement being terminated and claims for damages.
The OEC must also comply with the BCR Code of Ethics and anti-corruption regulations, avoiding any relationship with entities linked to money laundering or terrorist financing, ensuring that all its transactions are legitimate. To manage conflicts of interest, VERSA uses the FOR-108 format (allocation and non-conflict of interest) and develops a risk matrix to assess bribery situations, thus ensuring proper and transparent management.

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

If VERSA EXPERTOS EN CERTIFICACIÓN S.A.S. identifies issues that require correction, improvement or clarification to ensure that the project/inventory complies with the applicable GHG program guidelines, non-conformity findings shall be raised, according to the following categorization:

***CAR:** Corrective action request*

Corrective action requests (CARs) are major non-conformities that must be raised when there is non-compliance with a requirement of the standard, national regulation or GHG program. CARs can arise from (among others):

- *Material misstatement: a material misstatement is one that may affect the decision of the intended user of the GHG inventory or project (ISO 14064-3:2019).*
- *Any situation that may influence the ability of the project or inventory to achieve quantification, reduction and/or removal of actual, measurable and verifiable GHG emissions.*
- *Any situation of risk that GHG emissions, reductions and/or removals cannot be monitored and/or calculated.*

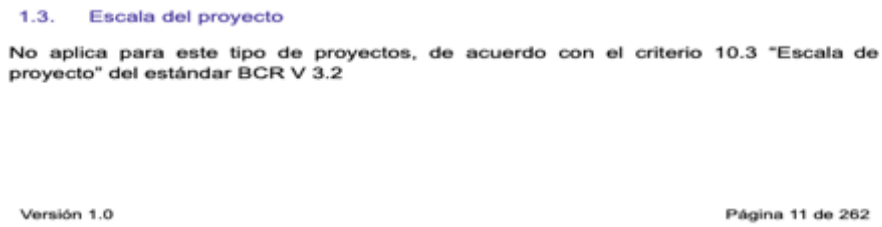
***CL:** Clarification request*

Clarifications are minor non-conformities that should be raised when there are non-material misstatements in the PDD or Corporate GHG Inventory Report, monitoring report or corporate GHG inventory information that make the rationale in these documents insufficiently clear or insufficient to determine whether the applicable requirements have been met.

***FAR**: Future action request*

Request for future action. Finding related to the implementation of future actions, which guarantee the veracity of the project/monitoring of the inventory that is required to be reviewed during the first verification.

Nº Finding :	*1*	*Finding Type:*	*CAR*	*X*	*CL*	
Description :	*The project is not aligned with:* *1. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 2. Version.* *2. Methodological Document Sector AFOLU/BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects Version 3.1. 15 September 2022.*					

	Methodology of GHG emission reduction BCR 0002 projects. V3.1, numeral 2. Version. *3. Methodology for activities that avoid land use change in natural savannas BCR 0005 V 1.0, numeral 2. Version.*
Objective Evidence	*The project is not aligned with:* *The project holder does not use the latest versions of all documents that make up the BCR program available to date.*  1.3. Escala del proyecto No aplica para este tipo de proyectos, de acuerdo con el criterio 10.3 "Escala de proyecto" del estándar BCR V 3.2 Versión 1.0 Página 11 de 262 *The Project Holder must use version 2.1 of the BIOCARBON TEMPLATE- GHG-Projects document, version 2.1.*
Action plan:	*Version 2.2, sections, styles and content are updated.* *Note: BIOCARBON TEMPLATE V 2.2 on its page 2 has the following clarification: "The instructions in this template only serve as a guide and do not automatically represent a complete list of the information that the project holder shall provide in each section of the template".* *Likewise PDD and RM are updated to version 3.3 of March 1, 2024 of the Biocarbon standard.*
OVV Evaluation:	*The project developer provides documentary evidence to bring closure to the finding.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*2*	*Finding Type:*	*CAR*	*X*	*CL*	
Description :	*The project is not aligned with:* *1. BIOCARBON TEMPLATE V 2.1, numeral 2.3 Project activities.* *2. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 10.1.2. REDD+ activities.* *3. National Interpretation of social and environmental safeguards for REDD+ projects in Colombia, No: B2 and D10.* *4. Methodological Document Sector AFOLU/BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects Version 3.1. 15 September 2022. Methodology of GHG emission reduction BCR 0002 projects. V3.1, numeral 2. Version.*					

	5. Methodology for activities that avoid land use change in natural savannahs BCR 0005 V 1.0, numeral 10. *6. National interpretation of social and environmental safeguards for REDD+ projects in Colombia, No B2. TRANSPARENCY AND ACCESS TO INFORMATION*
Objective Evidence	***ROUND 1*** ***Validation:*** *1. In the approach to project activities in section 2.4.1 of the PdD, the responsibilities and roles for each of the actors involved in the implementation of project activities are not defined. For example, the role played by Ecopetrol as a financing partner was not found within these activities. This was corroborated in the field during interviews with beneficiaries, who stated that they recognize Ecopetrol as part of the project, but are not clear about its role within the project.* *Accordingly, it is necessary for the project owner to clearly define the roles, responsibilities and commitments of the different project participants.* *This information must be included in the PdD and it is essential to establish mechanisms to ensure that all stakeholders can access the information easily and that it is clear, transparent and complete.* ***Verification:*** *1. During the field visit, interviews revealed that beneficiaries and other stakeholders involved with the project are not clear about the activities described in the Monitoring Report. In this regard, the project should ensure that it has defined mechanisms to ensure that all stakeholders have transparent, accessible and timely information related to REDD+ actions.* ***ROUND 2*** ***Validation:*** *1. The Channels of attention to PQRS and other components of the Governance Model should be updated (under development): Devise a governance model that promotes the active participation of stakeholders in decision making.*
Action plan:	***Validation**:* *1. To define clearly the roles, responsibilities and commitments of the various project participants, Section 2.3.8.1. is updated. Design of Project Activities as follows:* *a. The alliance model developed by Cataruben Foundation is related to the design of the activities where the role of Cataruben Foundation, Ecopetrol and the land owners is described in greater detail.*

Image. Three-party alliance model for the ORINOCO2 CARBONO DEL ORINOCO project.

a. *The responsibilities of the project stakeholders were added in each of the project activities, oriented to the fulfillment of the objective in each action. Thus highlighting that it is the ally Ecopetrol, who allows consolidating the enabling conditions to ensure the generation of economic benefits.*

In order to clearly define and describe the roles, responsibilities and commitments of the different project participants, the following texts will be included in the PDD V2.0:

a. ***In the general description of the project:*** *In the design and development of the project, Cataruben Foundation serves as project owner, Ecopetrol as strategic ally and the landowners as ecosystem managers or project participants. Cataruben and Ecopetrol are responsible for generating the enabling conditions of the project as well as leading the monitoring, reporting, validation management, verifications, carbon credit trading and distribution of economic benefits procedures. This approach ensures effective collaboration between the Cataruben Foundation, Ecopetrol and the landowners, promoting transparency and active participation in the implementation of climate change mitigation measures. Each party plays a key role in the success of the project, working together to achieve the goals of emissions reduction and ecosystem conservation. This synergy between actors allows the potential of multiple private properties to be harnessed, thus maximizing environmental and social benefits, separating them in a model of cooperation and shared responsibility that strengthens the sustainable management of ecosystems and contributes to climate change mitigation.*

	b. ***In section 5.3, Other project participants:*** *"For the establishment of the enabling conditions of the project, Ecopetrol provided technical and financial support within the sustainability strategy and decarbonization plan, this support is given with the objective of enabling the supply of carbon certificates for voluntary offsets in the framework of the company's decarbonization. This project partner ensures the generation of economic benefits for project participants, which facilitates the execution of project activities and the permanence of reductions and removals".* *Finally, to ensure easy and transparent access to information, we have established a Transparency and Access to Information Mechanism for the ORINOCO2 CARBONO DEL ORINOCO project. This mechanism includes the following tools:* a. *Communication System: We have several communication channels, such as telephone lines, e-mail, social networks and face-to-face service.* b. *Digital Platforms: We have 2 platforms, (see Cataruben Foundation website) and see (Orioco2 Geoportal). These digital spaces allow us to publish relevant information about the project, accessible to all interested parties.* c. *PQRS System: It is a system that allows receiving and managing requests, complaints, claims and suggestions in a transparent and efficient manner (See 6.5.1.3.2.2.2.6. PQRS System).* d. *Governance Model (under development): Devise a governance model that promotes the active participation of stakeholders in decision making. (See ID-G-4.1).* *These mechanisms are previously defined in section 12 of the PDD v2.0, table 47.* ***Verification:*** ***In accordance with the Transparency and Access to Information Mechanism established for the project, the monitoring report describes how this mechanism has been implemented, from safeguard B2, contained in section 11.2 of the Monitoring Report v2.0.*** *As an attention mechanism for some landowners who did not understand 100% of the project activities to be monitored, meetings were held with the ecosystem managers, whose main objective was to review two specific aspects in detail.* a. *In the first place, we sought to strengthen knowledge regarding project activities, emphasizing effective articulation among stakeholders in order to meet the objectives of the ORINOCO2 CARBONO DEL ORINOCO project, focused on reducing deforestation, degradation and land use change in the corresponding area.* b. *Secondly, emphasis was placed on reviewing and strengthening the responsibilities and roles assigned to stakeholders in the project. The purpose of this approach was to ensure that project implementation is*

	carried out in a clear, transparent and efficient manner, thus promoting effective collaboration among all stakeholders. The evidence related to these meetings can be found in the following link: Strengthening project activities and roles.					
OVV Evaluation:	FAR does the project developer, who shall guarantee the update of the governance model for the next verification, provide left in accordance with the documentation and supports.					
Conclusion:	Close finding		Maintain finding		FAR	X

Nº Finding:	3	Finding Type:	CAR	X	CL	
Description:	The project is not aligned with: 1. BIOCARBON TEMPLATE V 2.1, numeral 2.3 Project activities. 2. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 10.1.2. REDD+ activities. 3. National Interpretation of Social and Environmental Safeguards for REDD+ projects in Colombia, No: B2 and D10. 4. Methodological Document Sector AFOLU/BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects Version 3.1. 15 September 2022. Methodology of GHG emission reduction BCR 0002 projects. V3.1, numeral 2. Version. 5. Methodology for activities that avoid land use change in natural savannahs BCR 0005 V 1.0, numeral 10. 6. National interpretation of social and environmental safeguards for REDD+ projects in Colombia, No B2. TRANSPARENCY AND ACCESS TO INFORMATION.					
Objective Evidence	**Round 1** **Validation:** During the field visit, during interviews with different stakeholders (project beneficiaries, Ecopetrol and Cormacarena) and during the document review, the audit team found no evidence related to the development of numeral c) consultation mechanisms for the definition of project activities and aspects of participatory construction. In order to comply with the national interpretation of the safeguards, it is essential that the project ensures that stakeholders exercise their right to effective, free, full and informed participation. In addition, adequate mechanisms must be established to facilitate this participation, allowing stakeholders to be an integral part of the decision-making process that will benefit them.					
Action plan:	Validation:					

	Within the PDD V2.0, section 2.3.8.1 Design of project activities Table 19. Adjustment of paragraph c) consultation mechanisms for the definition of project activities as follows: - *- Initial meetings: The purpose of these meetings was to consolidate, jointly with the landowners, the project activities (See 6.1.4.1.1.1. Initial meetings).* - *- Letters of intent: These show the willingness of the landowners to participate in a conservation and climate change mitigation project (See 2.1.1 Letters of intent).* - *- Linkage contract: This is the document through which the initial intention is formalized (See 2.1.2. Binding contracts).* - *- Property implementation plans: Document through which the construction of the project activities was carried out in conjunction with the owners of the properties (See 6.5.1.1.2.2. Property Implementation Plans).* *To continue, ensure and strengthen the right of stakeholders to exercise their right to effective, free, full and informed participation, the following mechanisms have been established to facilitate the ongoing participation of owners and other stakeholders:* a. *PQRS System: It is a tool that allows receiving and managing requests, complaints, claims and suggestions in a transparent and timely manner (See 6.5.1.3.2.2.6. PQRS System).* b. *Geoportal: A platform was developed to facilitate access to information and participation of the ecosystem managers integrated to the project (See Orioco2 Geoportal).* c. *Governance model (under development): We are creating a governance model that allows us to establish structures and processes that promote transparency, inclusion and accountability of the parties involved in the project. (See ID-G-4.1).* d. *Stakeholder consultation: This is a periodic consultation to gather opinions and suggestions from stakeholders. (See 4.1 Stakeholder consultation).* *This ensures that stakeholders are an integral part of the decision-making process that will benefit them.*
OVV Evaluation:	*The project developer provides documentary evidence to bring closure to the finding.*

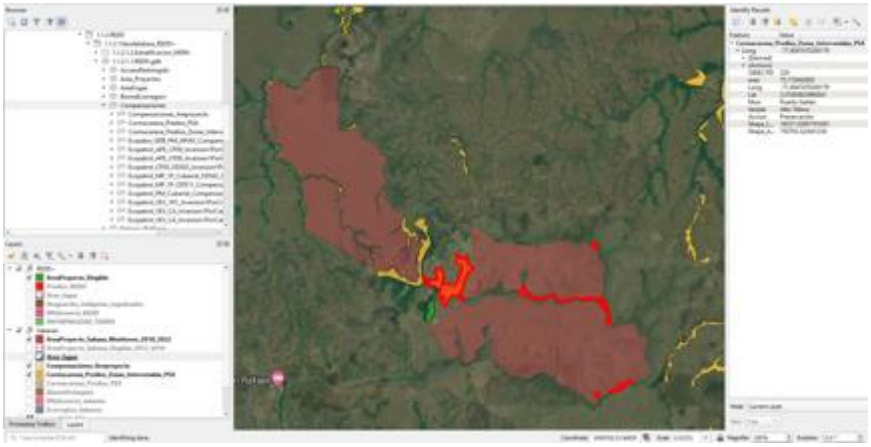
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*4*	*Finding Type:*	*CAR*	*X*	*CL*	
Description:	*The project is not aligned with:* *1. BIOCARBON TEMPLATE V 2.1, numeral 2.3 Project activities.* *2. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 10.1.2. REDD+ activities.* *3. National Interpretation of Social and Environmental Safeguards for REDD+ projects in Colombia, No: B2 and D10.* *4. Methodological Document Sector AFOLU/BCR0002 Quantification of GHG Emission Reductions from REDD+ Projects Version 3.1. 15 September 2022. Methodology of GHG emission reduction BCR 0002 projects. V3.1, numeral 10 Causes and drivers of deforestation/degradation.* *5. Methodology for activities that avoid land use change in natural savannas BCR 0005 V 1.0, numeral 9 Drivers that generate changes in land use.*					
Objective Evidence	***Validation:*** 1. *No evidence was found related to the identification and description of the drivers that generate land use changes in the project area in the PdD.* 2. *In accordance with the above, the holder must explain and justify how the design of the project activities originates from the analysis of the identified drivers and a participatory construction process among all stakeholders involved with the GHG project.* ***Verification:*** 1. *During the field visit through interviews with project beneficiaries, it was found that they are not clear about the activities that were subject to monitoring.* ***ROUND 2*** ***Validation:*** *1. The spatial limits reported in; 2.3.2. Spatial and temporal dimensions, do not correspond to the values reported by the project:* *"...According to the spatial dimensions of the project, the area comprised covers an area of 119,243.6 ha distributed in 27,793.1 ha of Forest and 91,450.5 ha of natural Savannas"* *The temporal boundaries should comply with BC002 V3.1, paragraph 10.1, to allow understanding of deforestation and forest degradation in terms of historical background, current dynamics and likely future behavior (historical period of forest degradation and deforestation).* *2.*					

	2.3.2.3 Economic Context *The development plan of Gobernación del Vichada, 2016 and Gobernación del Meta, 2016 are related, however, these entities have development plans that account for information up to 2023, which serves to understand the recent economic context of the region. Therefore, the project developer should make use of information available for the period of analysis in these development plans.* ***Verification:*** *In the interviews with the communities conducted on Friday, April 5, 2024, the communities indicated the role of the different stakeholders in the project.*
Action plan:	***Validation*** 1. *In compliance with the criteria established in the numeral "10 Causes and Agents of deforestation/degradation" of the BCR 0002 methodology and in the numeral "9 Drivers that generate changes in land use" of the BCR 0005 methodology, the analysis is carried out to identify the causes and agents of deforestation, forest degradation and transformation of natural savannas. For this purpose, the methodologies recommended by the United Nations Environment Program are used, which are: "Drivers of Deforestation and Forest Degradation" and "Conceptual and methodological guidelines for the characterization of causes and agents of deforestation in Colombia". The identification and description of the drivers that generate changes in land use and Causes and Agents of deforestation/degradation were developed within the PDD in section 2.3.1 Analysis of causes and agents of deforestation and transformation of natural savanna cover, 2.3.6 Relationships and synergies, 2.3.7 Chain of events* 2. *The design of activities is developed in section 2.3.8.1. Design of Project Activities where the information required in paragraph 11 of the Methodological Document Sector AFOLU/BCR0002 Quantification of GHG Emission Reductions of REDD+ Projects Version 3.1 and paragraph 10 of the Methodology activities that avoid land use change in natural savannas BCR 0005 V 1.0 is described. In this sense, the construction from the drivers is done in relation to the direct or underlying cause and the participation of the owners is framed within the consultation mechanisms for the identification of activities. This is evidenced by the letters of intent, the free and informed voluntary agreements signed between owners of private properties and the implementation plan of each property. For greater clarity in compliance, the row corresponding to the consultation mechanism and identification of objectives and definition of activities is adjusted and links to the relevant annexes are inserted.*

	Verification *The Cataruben Foundation has implemented various mechanisms to ensure transparency and accessibility of information related to REDD+ actions. This includes socialization activities and contextualization of the project prior to the signing of letters of intent and the elaboration of Predial Implementation Plans in collaboration with the ecosystem managers (See initial socializations and 2.1.1 LETTERS OF INTENTION). In order to improve the quality of the information, ecosystem managers with communication difficulties were identified, to whom support was provided through field visits and virtual strengthening of project activities. This approach seeks to get the managers actively involved in the conservation actions in their properties and to understand their responsibilities within the framework of the project (see 6.5.1.2.3.STRENGTHENING ACTIVITIES AND ROLES).* *As evidence of compliance with the aforementioned, a photographic record, attendance lists, meeting minutes, documents, and the implementation plans are attached. These supports guarantee compliance with the requirements of the transparency and access to information (B2) and participation (D10) safeguards.* ***ROUND 2*** ***Validation:*** *1. The respective adjustment is made to the text to clarify that the analysis period used is for the determination of causes and agents. Thus, the proposed activities are designed based on this analysis. The study focuses on the period between 2009 and 2018, since during these years it is feasible to obtain official information that allows for a more precise identification of the causes and agents behind deforestation, forest degradation and land use change in natural savannas. This approach facilitates the understanding of land use changes and their possible evolution, while at the same time contributing to the formulation of measures to help mitigate these trends, thus influencing the design of project activities. It is worth mentioning that, although section 10.1 of BC002 V3.1 does not establish a specific time period, it has been chosen to use the project start year and go back nine years, mainly due to the availability of official information. This approach seeks to ensure certainty in the analysis, allowing to understand the dynamics of degradation, deforestation and land use change in the context of identifying causes and agents.* *2. Economic context* *The information is updated taking into account the updated development plans.*
OVV Evaluation:	*The spatial boundaries reported in 2.3.2. Spatial and temporal dimensions do not correspond to the values reported by the project. As well as, The temporal limits of the project and the information of the 2.3.2.3 Economic context.* *Likewise, in interviews conducted with local stakeholders on Friday, April 5, 2024, the role of the different organizations involved in the project was corroborated*

	with these stakeholders. For this reason, the finding is closed, as the project developer has complied with it.					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*5*	*Finding Type:*	*CAR*	*X*	*CL*	
Description:		*The project fails to explain:* *Resolution 1447 of 2018, Articles: 20 and 37.*				
Objective Evidence		***ROUND 1*** ***Validation:*** *During the documentary review and the field visit to the PDD, the project fails to demonstrate that the proposed actions to avoid deforestation lead to a real reduction in carbon dioxide emissions, as no evidence was found to show that it is not counting as a reduction what is already in the national regulations or that it is an obligation. In this sense, it was not found how the project justifies and explains that the reductions or removals are due to the effect of the project and not due to legal restrictions such as EOT or POT, forestry or environmental compensation plans, among others.* ***ROUND 2*** *The project developer provides a geodatabase with shapefile of offsets and payment for environmental services, where it is evident that there is no overlap between project areas and offset areas (yellow) and with diagonal flattening, see screenshot below;*  *Source: Cataruben, 2024.* *In the documentation provided by the project developer on April 2, 2024, by email; Cataruben Ecopetrol Agreement Profile in FORM GCO-F-011 - AGREEMENT*				

	PROFILE and Ecopetrol Agreement Start Act, the origin of the resources is indicated as strategic, which differs from the mandatory nature of compliance. *Likewise, on Wednesday, April 3, 2024, a meeting was held with ECOPETROL, which corresponds to a "Technical and financial ally that allows consolidating the enabling conditions to ensure the generation of economic benefits that facilitate the execution of project activities", with the ECOPETROL responsible for this project, Mr. Diego Puentes. It was validated that the project resources come from ECOPETROL's voluntary investment lines and not from mandatory investments of 1%.*
Action plan:	*According to Resolution 1447 of 2018:* *Article 20 scopes of GHG emissions and removals accounting rules: article explaining the scope of the accounting rules.* *"Article 37 Additionality Criteria for GHG Mitigation Sectoral projects: those GHG emission reductions or removals that the holder of the GHG Mitigation Sectoral project demonstrates that would not have occurred in the absence of the GHG Mitigation initiative, and that generate a net benefit to the atmosphere with respect to its baseline, are considered additional."* *"Likewise, GHG removals resulting from the implementation of GHG Removal forestry activities that are developed in areas other than natural forest and that demonstrate a positive net change in carbon deposits in the area of development of the activity and the other additionality criteria defined by the Ministry of Environment and Sustainable Development are also considered additional." In this sense, it is clarified that Orinoco2 CARBONO DEL ORINOCO is an emission reduction project.* *"GHG emission reductions or removals resulting from compensation activities of the biotic component derived from the impacts caused by projects, works or activities within the framework of environmental licenses, concessions, requests for permits for the sole use of forest resources due to changes in land use, and requests for definitive subtraction of national and regional forest reserves are not considered additional.* *- In this sense, the project corroborated with cartographic base information provided by Ecopetrol (See Annex 1.Emissions/1.1.GDB/1.1.1.GDB /feature class/Compensations).* *"Emission reductions or GHG removals resulting from presentation and restoration activities in areas of strategic ecosystems for which payments for environmental services for GHG reduction and capture are accessed in accordance with the provisions of Chapter 8 of Title 9 of Part 2 of Book 2 of Decree 1076 of 2015 shall not be considered additional."*

	"GHG reductions or removals generated from the date of compliance with the legal terms of the offsets mentioned in this article, or completion of payments for environmental services for GHG reduction and capture are considered additional". *- With regard to this criterion it is clarified and evidenced that none of the areas linked to the project is within a scheme of payments for environmental services in Annex 1.Emissions/1.1.GDB/1.1.3.Compensations there is cartographic information corresponding to the PES of the department of Meta and Vichada.* *"The holders of sectoral GHG mitigation projects must apply in all their actions and procedures the additionality criteria established in this article, in a complementary manner to the additionality criteria established by the carbon standard GHG Certification program in which it is subscribed."* - *- The PDD V2.0 section 3.3. Identification and description of the baseline scenario and section 3.4. Additionality in accordance with the BCR baseline and additionality tool the baseline and additionality criteria are developed in a complementary manner to the following criteria described in Article 34 of Resolution 1447 of 2028. In addition, section 2.3.2.2.1.2 biophysical environment describes the characteristics of land use and land use conflicts in the region where the project is being developed so that the project activities do not go against the land uses established in the EOTs of the municipalities where the project is being developed. On the contrary, they help reduce land use conflicts that have been occurring and that could increase according to the baseline scenario, thanks to the fact that they promote the conservation of forests and natural savannahs as well as sustainable production.*
OVV Evaluation:	*The project developer provided cartographic and documentary support to close the finding regarding the scope of the GHG emissions and removals accounting rules, as well as the additionality criteria for sectoral GHG mitigation projects.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*6*	*Finding Type:*	*CAR*	*X*	*CL*	
Description:		*The project fails to explain:* *1. Biocarbon Template-GHG-Projects. Item 2.2 and 2.4* *2. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 2.3 PROJECT ACTIVITIES.*				
Objective Evidence		***Validation:*** *Section 2.3.1.1.1.2 Biophysical environment does not include a description of the environmental variables directly related to the fulfillment of the project's objectives, such as a description of the vocation and taxonomy of the soils present*				

	and the agrological conditions of the territory. Considering that one of the objectives of the project is the following: *¨Reduce deforestation, forest degradation and land use change in natural savannas, in private properties, in the departments of Meta and Vichada, through the implementation of conservation, restoration and sustainable soil use activities, to generate climate change mitigation results. ¨*					
Action plan:	*Validation* *A description of land cover and land use classification, land use conflicts and vocation and uses is included in the PDD v2.0 numeral 2.3.2.1.2 Biophysical Environment..*					
OVV Evaluation:	*The project developer provides documentary evidence to bring closure to the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

№ Finding:	*7*	*Finding Type:*	*CAR*	*X*	*CL*	
Description:	*The project is not aligned with:* *BIOCARBON TEMPLATE V 2.1, numeral 2.5 Additional information about the GHG Project.*					
Objective Evidence	*It was not found within the PoD how the project responsible included the development of numeral 2.5 Additional information about the GHG Project of BioCarbon Template V2.1.* *According to the above, the project holder must provide all additional information about the project in the PoD that it considers relevant with supporting evidence.*					
Action plan:	*Section 2.5 Additional information about the GHG Project is developed.* *BIOCARBON TEMPLATE V 2.1. mentioning that there is no additional information about the project.*					
OVV Evaluation:	*The project developer provides documentary evidence to bring closure to the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

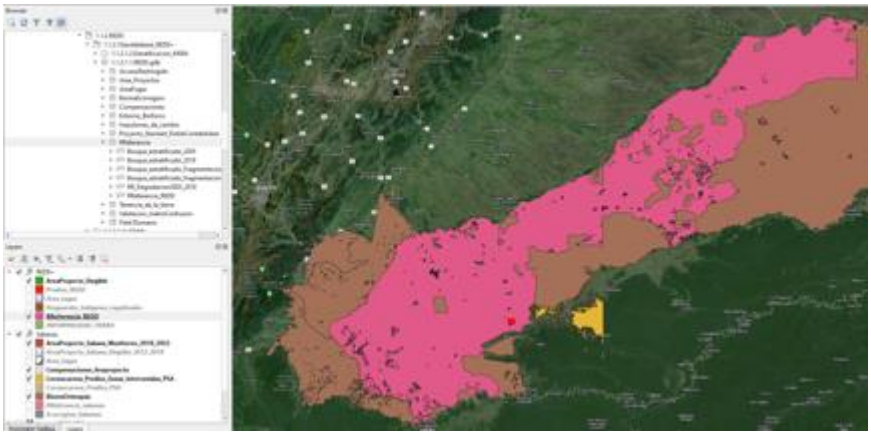
№ Finding:	*8*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*The project is not aligned with:* *BIOCARBON TEMPLATE V 2.1, numeral 3.1.2 Methodology deviations (if applicable)*					

Objective Evidence	*No evidence was found related to the development of the contents of the project in section 3.1.2 of BIOCARBON TEMPLATE V 2.1.*					
Action plan:	*Section 3.1.2 is included in the PDD, according to BIOCARBON TEMPLATE V 2.2.*					
OVV Evaluation:	*The project developer provides documentary evidence to bring closure to the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*9*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*The project is not aligned with:* 1. *GHG emission reduction methodology BCR 0002 projects 2. V3.1, numeral 4. Conditions of applicability.* 2. *Methodology for activities that avoid land use change in natural savannahs BCR 0005 V 1.0, numeral 4, Conditions of applicability.* 3. *BIOCARBON TEMPLATE V 2.1, numeral 3. Quantification of GHG emissions reduction*					
Objective Evidence	***ROUND 1*** *The project manager fails to describe how the initiative complies with the established applicability conditions of the methodologies BCR 0002 version 3.1 and BCR 0005 version 1.0.* *In Table 17, which addresses the compliance with the requirements of the methodologies under 3.1.1. Conditions of Applicability, submitted by the PdD holder, the description of compliance is limited to stating that these are met, but does not include a justification of how they satisfy all the conditions of applicability. In addition to the above, no evidence was found to support the statements described in the POA.* *The project owner should explain and justify how it meets one by one the applicability conditions of the BCR 0002 and BCR 0003 methodologies and should also provide ample, current evidence of recognized origin to support its assertions.* ***ROUND 2*** *3.1.1. applicability conditions in Table 21. Compliance with conditions for the application of methodologies, presents the following typographical errors that should be corrected;* *...forest for colombia [sic.] corresponds to....* *... The quantification of [sic.] GHGs other than...*					

	… of 3.2.1. herbazales and 3.2.2. arbustales, which are considered as sábanas [sic.]…					
Action plan:	*Section 3.1.1. applicability conditions of the PDD v2.0 is adjusted, including justifications on compliance with each of the applicability conditions presented by the BCR 0002 V3.1 and BCR 0005 V1.0 methodologies. Additionally, the corresponding sections of the PDD are listed, detailing the aspects contemplated by the project to ensure compliance.*					
OVV Evaluation:	*The project developer provides documentary evidence to bring closure to the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*10*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*The project is not aligned with:* *1. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 7.2 principle of FULL COVERAGE and numeral 7.5 TRANSPARENCY.* *2. BIOCARBON Standard BCR 0002, numeral 8 Temporal and spatial limits, section 8.2 Reference region for baseline estimation.* *3. BIOCARBON Standard BCR 0005,* *4. BIOCARBON TEMPLATE V 2.1, numeral 3.2 Project boundaries, sources and GHGs*					
Objective Evidence	***ROUND 1*** *The project manager fails to describe how the initiative complies with the BCR 0002 version 3.1 and BCR 0005 version 1.0 methodologies established applicability conditions.* *In Table 18, which addresses compliance with the criteria for the establishment of the reference region, under numeral 3.2.2. Carbon reservoirs and GHG sources, submitted by the PdD holder, the description of compliance is limited to stating that these are met, but does not include a justification of how they meet all applicability conditions. In addition to the above, no evidence was found to support compliance with these conditions.* *The project owner must explain and justify how it complies with the criteria for the establishment of the reference region within numeral 3.2.2 of BCR 0002 and BCR 0003 methodologies and must also provide ample evidence, current and of recognized origin, to support its claims.* ***ROUND 2***					

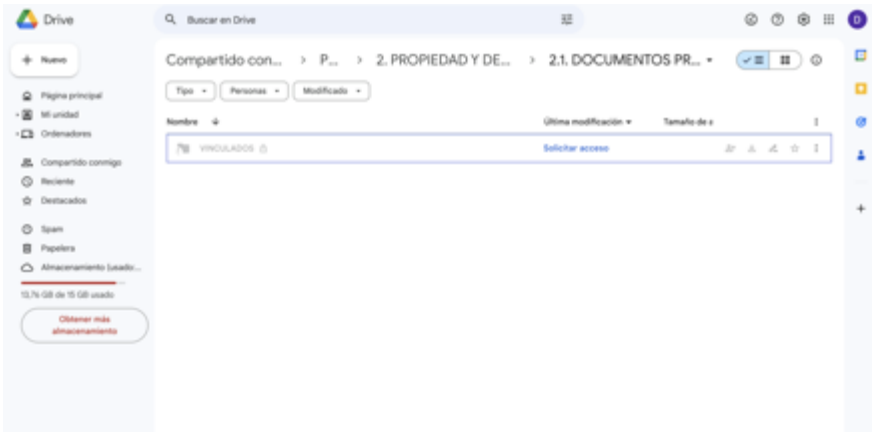
	The project developer geographically relates the reference region for forests and savannahs; the information is included in 3.2.1.2. Reference Region for the estimation of the PD v2.0 Baseline, as well as the justification in Table 22. Criteria for the establishment of the reference region, as well as a complementary geodatabase, see image below;  *Source: Project developer.*
Action plan:	*The PDD v2.0 complements section 3.2.1.2. Reference Region for Baseline estimation by improving the description, justification and provision of evidence of compliance with the criteria established in section 3.2.2. of the BCR 0002 and BCR 0003 methodologies for the establishment of the reference region.*
OVV Evaluation:	*The project developer provides documentary and cartographic evidence to support closure to the finding.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding :	*11*	*Finding Type:*	*CAR*	*x*	*CL*	
Description :	*The project is not aligned with:* *ISO 14064-2: 2019 Numeral 6.2 project description.* *BIOCARBON Standard BCR 0002, numeral. 8.4 Time limits and periods of analysis* *BIOCARBON Standard BCR 0005, numeral 7.1.5 Time limits and analysis periods.*					

Objective Evidence	During the documentary review, the following was found: 3.4.3. Periodos de monitoreo Los periodos de monitoreo corresponden a las plan de monitoreo del proyecto, dentr del periodo de acreditación de 20 años. In this regard the project proponent must describe the project and its context in a GHG project plan that includes: k) the chronological plan or actual dates and justification of the following aspects: 1) Start date of project activities. 2) Period of the GHG baseline 3) Project completion date 4) Frequency of project monitoring and reporting, as well as the project period, including relevant project activities at each stage of the GHG project cycle. 5) Frequency of validation and verification. As stated above, the project proponent must comply with all eligibility requirements set forth in the defined criteria. Consequently, a clearly defined monitoring period is required.
Action plan:	Taking into account that ISO 14064-2: 2019 Numeral 6.2 project description. literal k includes the following Note : "These parameters may be specified in a GHG program". Therefore, the parameters were established according to: 1. BCR Standard V3.3 Section 10.5 time limits and analysis periods: Section 3.3.2 of the PDD describes the quantification periods according to the type of project (REDD+ and Afolu Sector) establishing 40 years. 2. BIOCARBON Standard BCR 0002, numeral. 8.4 Temporal limits and analysis periods and BIOCARBON Standard BCR 0005, numeral 7.1.5 Temporal limits and analysis periods: Describes that the temporal limits and analysis periods correspond to the periods during which the project activities avoid changes in land use and for which GHG emission reductions/removals are quantified, The temporal limits must be defined considering the following a) Project start date: October 1, 2018 described and justified in PDD sections 3.2.3.1 Project start date evidencing the participation of landowners from the beginning, the formal sending of letters of intent to be part of the project and the participatory formulation of land use implementation plans. b) Period for quantification of reductions: 40 years from the project start date.

	c) Monitoring periods: These are established in section 17 of the PDD within the monitoring plan. *Also to complement the information requested in the BCR V3.2 standard:* **A.** Historical period of deforestation: Period used to determine the deforestation in the reference region and the area of leakage (see section 3.7.3.1.1). **B.** Historical period of land use change: Period used to determine land use change in natural savannas (See section 3.7.3.1.2). **C.** Project start date: Date on which the landowner's intention to reduce deforestation, forest degradation and land use change in natural savannas began, as well as the beginning of the structuring of land use implementation plans focused on reducing forest fire risks and conserving natural ecosystems (see section 3.2.3.1). **D.** Project quantification period: 40 years, thus complying with the criteria established for REDD+ projects and AFOLU Sector projects described in section 10.5 of BCR Standard V3.3. **E.** Monitoring Periods: These are monitoring periods foreseen during project implementation within the quantification period. As a result of the monitoring, monitoring reports are prepared for each monitored period. An initial monitoring period of 4.25 years is established and subsequently every 2 years (see section 17). **F.** Validation and/or verifications: Periods established for conducting validation and verification and subsequent validations and verifications. the project is validated in 2024 simultaneously the monitoring period from the project start date to December 31, 2022 is verified. Followed by a verification in 2025 of the monitoring period 2023-2024 and every two years thereafter.					
OVV Evaluation:	*The project developer provides documentary evidence to support closure to the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*12*	*Finding Type:*	*CAR*	*x*	*CL*	*2*
Description:	*The project is not aligned with:* *1. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 7.2 principle of FULL COVERAGE and numeral 7.5 TRANSPARENCY.* *2. BIOCARBON Standard BCR 0002, numeral 8 Temporal and spatial limits, section 8.2 Reference region for baseline estimation.* *3. BIOCARBON Standard BCR 0003,* *4. BIOCARBON TEMPLATE V 2.1, numeral 3.2 Project boundaries, sources and GHGs* *5. ISO 14064-3:2019 numeral 5.4.2. Sufficiency of information.*					
Objective Evidence	***ROUND 1*** *It was not possible to validate the information reported in the PdD on the project start date as the audit team was unable to access the letters of intent in the folder 2.1 Documents Predios.*  ***ROUND 2*** *The letters of intent for the following properties are dated after the project start date;* 1. *Algarrobo.* 2. *El Gran Marco Polo.* 3. *Hacienda Nuevo Mururito.* 4. *La Castellana.* 5. *La Esperanza.* 6. *La Flor.* 7. *La Mariposa.* 8. *La Provincia.* 9. *Los Alcornocos.*					

	10. *Lote Tres Cielos.* 11. *Providencia.* *Therefore, the project developer must support why these letters of intent have dates after the project start date, since this information does not correspond to the information of the start date recorded in the contracts of these properties. Likewise, the project developer must take into account that the calculations of emissions reductions of the project start from October 2018, reason why, the calculations of emissions reductions of the project must coincide with the start date of the project and therefore in the total areas at the start date of the project.*
Action plan:	*The information was reviewed and uploaded to the folder assigned for the auditor's review, in folder 2.1.1.1 letters of intent for linked properties.* ***ROUND 2*** *The information uploaded corresponds to the current information of the project owners once the ownership and carbon rights have been monitored; however, changes and/or updates in land tenure occur within the framework of the project, which may include inheritance and/or purchase and sale, which are formalized and duly recorded in the corresponding document in accordance with national regulations.* *In this sense, the project requested new letters of intent when these updates occurred. As evidence, the old letters of intent are uploaded and the following clarifications are made for each property.* 1. *Algarrobo: The father and husband of the current owners passed away in 2022, the succession was formalized in 2022, therefore they sent a new letter of intent in 2022 to reaffirm the permanence in the project. The previous letter of intent is uploaded.* 2. *El Gran Marco Polo: The father of the current owners passed away in 2018, the succession was formalized in 2019, they sent a new letter of intent reaffirming the intention to be part of the project.*

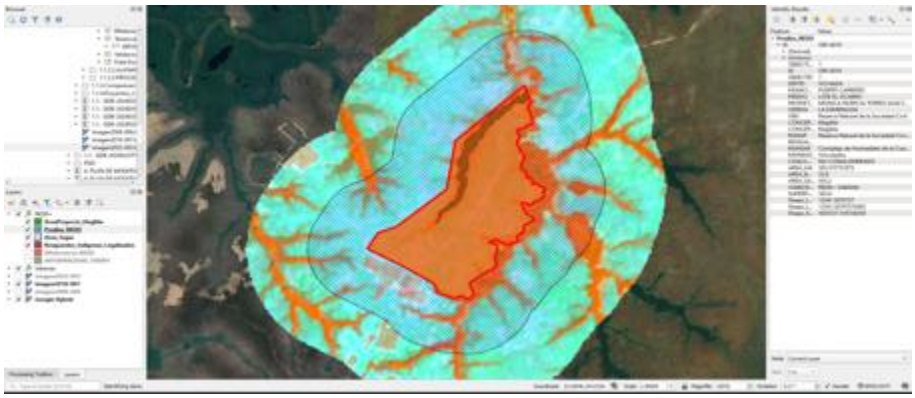
	3. *Hacienda Nuevo Mururito: They are the same owners since 2011. In the year 2021 the company ceded to the other through "contribution to society" to Sapaju S.a.s, therefore they sent a new letter of intent reaffirming the intention to be part of the project despite the change of corporate name.* 4. *La Castellana: The current owners before the purchase operated the property and sale was formalized; once it was formalized, they sent a letter of intent to reaffirm that they were still interested in being part of the project.* 5. *La Esperanza: the current owners exercised the property since 2016, as evidenced by documents evidencing ownership, the letter of intent attached in folder is dated August 2018.* 6. *La Flor: In 2018 the owner began the process of purchasing the property from Sociedad Inversiones Ganaderas El Luque S.A.s. to be part of the project, they sent a letter of intent from the representative of the company. Later in 2020, the legal business is finally formalized and to reaffirm the intention to continue with the project, a new letter is sent.* 7. *La Mariposa: The mother of the current owner passed away in 2021, the succession was formalized in 2021, and therefore a new letter of intent was sent reaffirming the commitment to continue with the project.* 8. *La Provincia: The owner had been in possession since 2018 but in 2019 the purchase was formalized, and at that time a new letter of intent updated to the date of formalization was sent to reaffirm the intention to remain in the project.* 9. *Los Alcornocos: Incoder as stated in Resolution No. 3112 of 2012 awarded the owner the property on November 30, 2012. However, the owner received a new resolution from the ANT, No. 28060 of 2020, through which the property was also awarded and registered with the Office of Public Instruments of the latter, therefore a new letter of intent was sent reaffirming the commitment to continue in the project.* 10. *Lot Tres Cielos: The property was exploited by the current owners before the purchase-sale was formalized in 2019, therefore a new letter of intent was sent which attests to what was stated and annexed documents that support it.* 11. *Providencia: The property was exploited and the current owner exercised possession, once the purchase was formalized, a new letter of intent was sent reaffirming the commitment to continue with the project.*

	Accordingly, this data is updated in section 7 Carbon Ownership and Rights of the Monitoring Report V 2.1.					
OVV Evaluation:	*Keep the finding open until the signature date information of the eleven properties is corrected.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*	*X*	*FAR*	

Nº Finding:	13	Finding Type:	CAR	x	CL	3
Description:	The project is not aligned with: 1. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 7.2 principle of FULL COVERAGE and numeral 7.5 TRANSPARENCY. 2. BIOCARBON Standard BCR 0002, numeral 8 Temporal and spatial limits, section 8.2 Reference region for baseline estimation.					
Objective Evidence	***ROUND 1*** *In the GDB provided by the owner of the ORINOCO 2 project, it does not allow visualizing:* *1. The base information layers and the base information.* *2. It is not possible to determine which are the agents of deforestation and degradation.* *3. The figures of the land.* *4. It is not possible to identify the roads and drainage.* *5. The procedure carried out for the determination cannot be determined and it does not meet the criteria FULL COVERAGE and TRANSPARENCY that guarantee that the process can be replicated.* *6. The attached document does not describe the procedure for determining the reference region for the determination of the baseline.* ***ROUND 2*** *1. Base information layers and base information: The geodatabase sent by the project developer shows the following information;* *Overlapping of leakage area (forest and savanna) with savanna and forest project area.*					

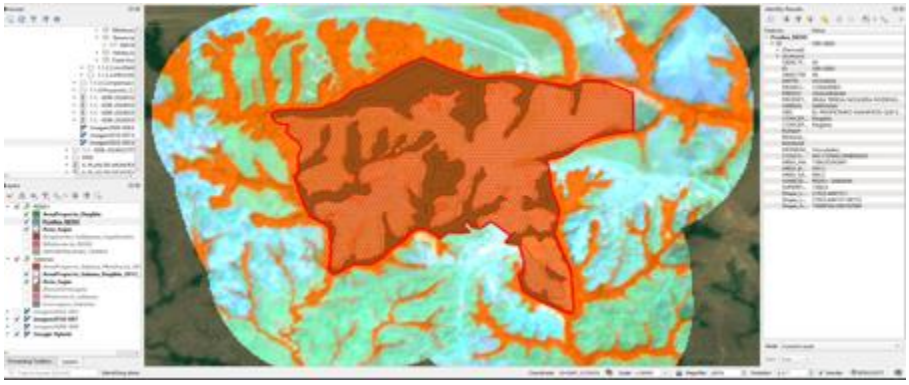
Source: Project developer.

According to the geodatabase provided by the project developer, the area of forest leakage corresponds to the diagonal flattening of the image, which overlaps with the information of forest area at the beginning of the project, where it is evident that the area of leakage includes other coverages different from forests, see image below;



Source: Project developer.

There are project areas that do not have leakage areas, see image below;



Source: Project developer.

Therefore, the forest leakage area must comply with Numeral 8.3 Leakage area of BCR0002 V3.1 below;

8.3 **Leakage area**

Area of a forest[14] where deforestation or forest degradation activity may be displaced, outside the REDD+ project holder's control. That is, areas to which deforestation or forest degradation agents may be displaced due to project activities.

The leakage area is delimited based on the following criteria:

(a) all areas in the forest that are a range of mobility of the agents identified in section **¡Error! No se encuentra el origen de la referencia.** (below).[15]

(b) exclude areas of restricted access to deforestation and forest degradation agents.

[14] The forest area shall meet the same eligibility criteria as the project area.
[15] The mobility distance of the agents can be determined from secondary studies or from the collection of primary information (participatory rural appraisal).

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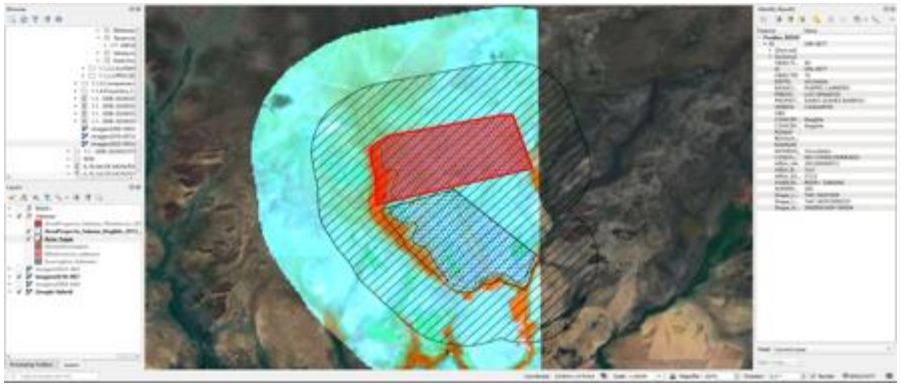
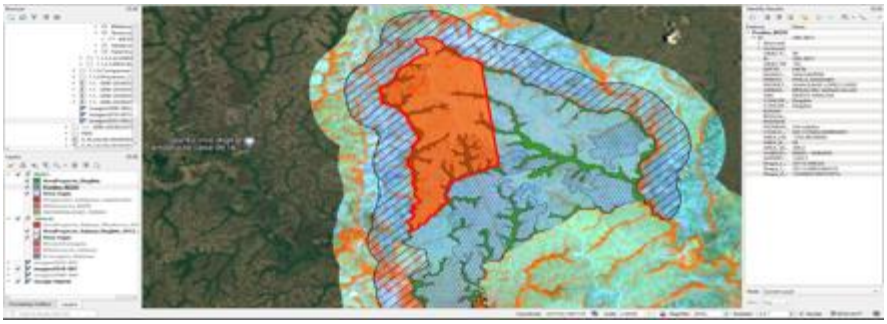
Source: Biocarbon Standard , 2022.



Source: Project developer.

Forest and savanna leakage areas overlap, therefore, the criteria established by each methodology must be met for each type of area;



Source: Project developer.

Therefore, the sheet leakage area must comply with BCR0005 V1.0 Numeral 7.1.4 Leakage Area V1.0 below;

7.1.4 **Leakage area**

Areas corresponding to the categories of herbaceous and shrublands, in the savanna biome, to which activities that generate land use changes may be displaced to, beyond the project holder's control. That is, the areas to which the agents that generate land-use change may be displaced as a consequence of project activities.

The leakage area is delimited on the basis of the following criteria:

a) all areas of herbaceous and shrubland that are within the mobility range of the agents identified in section 9 (below) should be included.

b) exclude areas of restricted access to agents that generate changes in land use.

7.1.5 **Temporal limits and analysis period**

The Project's temporal limits correspond to the periods during which project activities avoid land use changes, and GHG emission reductions are quantified.

Project temporal boundaries should be defined considering the following:

[redacted]

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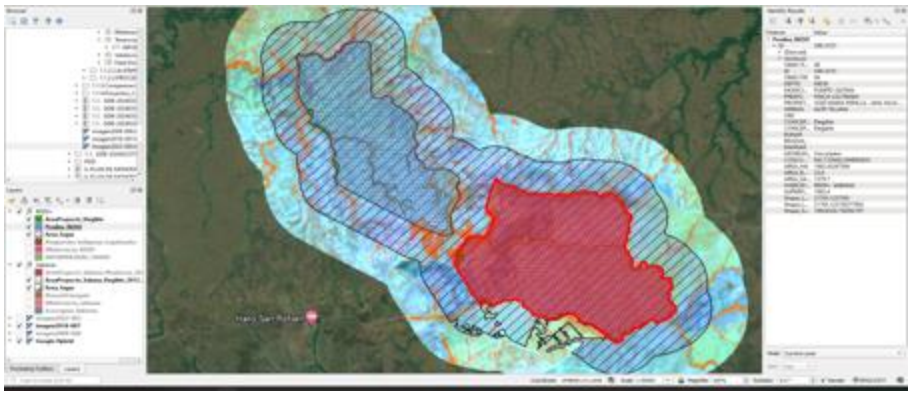
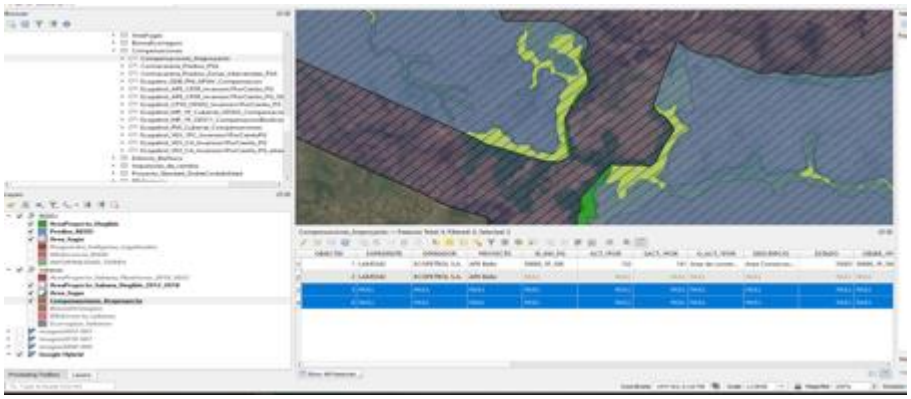
Source: Biocarbon Standard , 2022.

There is an overlap between project areas and leakage areas for forests and savannas. Therefore, the developer must ensure that the leakage areas meet the referenced criteria.

	 *Source: Project developer..* *Leakage areas overlap with compensation areas, which are excluded from intervention. Therefore, the developer must ensure that the leakage areas meet the referenced criteria.*  *Source: Project developer..*
Action plan:	To ensure that the audit team does not have complications with the visualization, the following procedure is described: a. Download the geodatabase for REDD+ and natural savannahs that are found independently. b. After downloading, unzip it. c. Visualization can be done from ArcGIS Desktop, ArcGIS Pro, QGIS or DivaGIS GIS software. d. To perform the opening in ArcGIS, look for the location of the geodatabase in the ArcCatalog of the same software, this allows visualizing the cartographic information. Meanwhile, to deploy the information in QGIS, we go to the navigation panel of the software and locate the geodatabase; this allows the visualization of the cartographic information stored in the same.

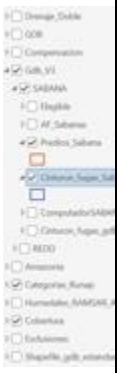
	Now, in relation to the information to be consulted within the savannah gdb and the forest gdb 1. *Base information layers and base information: the two gdb include the feature classes for REDD+ (Restricted Access, Leakage Area, Project Area, Biomes, Drivers of Change, Reference and Land Tenure). Sabanas Naturales features class (Restricted Access, Leakage Area, Project Area, Ecoregion Biome, Corine Land Cover, Drivers of Change, Plots, Reference Region and Land Tenure)* 2. ***The agents of deforestation and degradation cannot be determined:*** *They are represented in the vectorial information called "multitemporal analysis of savanna cover change 2009 - 2018".* 3. *Land figures: the layer from IGAC and SIPRA (Information System for Rural Agricultural Planning), corresponding to land informality. Information is also provided in the feature class "Restricted access - collective territories" has the layers (Community councils of black communities "CNT", community councils, Legalized and Intended Indigenous Reserves "RILP", categories of the National Register of Protected Areas "RUNAP", Peasant Reserve Zones (ZRC)), this feature class stores the figures of land, private properties, reserves, communities, natural areas.* 4. ***Roads and drains cannot be identified:*** - *Corresponds within the GDB to the feature class Change Drivers, vector information corresponding to roads and drainage.* 5. ***The procedure performed for the determination cannot be determined and does not meet the criteria of FULL COVERAGE and TRANSPARENCY to ensure that the process can be replicated:*** - *The procedure for land cover interpretation under the Corine Land Cover methodology is attached.* 6. ***The annexed document does not describe the procedure for determining the reference region for baseline determination:***

- *Section 3.2.1.1.2. Reference Region for Baseline Estimation The procedure for determining the reference region based on compliance with criterion 8.2 of BCR 0002 methodology and criterion 7.1.3 of BCR 0005 methodology is presented.*

ROUND 2

Adjustments were made to the overlapping areas in accordance with paragraphs 8.3 and 7.14 of methodologies BCR0002 V3.1 and BCR0005 V1.0 corresponding to the Leakage Area, and the activity data were updated in the quantification of project emissions.

1. *Adjustments were made in the areas where overlaps were detected, as well as in the REDD+ Sabanas geodatabases, specifically in the "Leakage Area" Feature Dataset and the "REDD+ Leakage Belt" and "Sabanas Leakage Belt" Feature Classes. It is important to note that the project encompasses properties that contain either the Sabanas component or the REDD+ component, or both. In this context, the leakage belt may have some overlap, but the leakage areas for forest and savanna do not overlap.*

REDD+	*Sabana*
	

Adjustments were made to the project areas. However, in this particular case, ORI-0019 includes the REDD+ Sabanas component, as well as the leakage belt. REDD and Sabanas areas converge within the same geographic space, but without overlap between them.

REDD+ Sabana

Leakage areas were incorporated according to the project delimitation. ORI-0083 borders on its eastern end with the legalized indigenous reserves "Cholobobo Matatu" and "Guacamayas Mamiyare", whose territories are not included as leakage areas because they have restricted access for deforestation/degradation agents and generate changes in land use.

REDD+ Sabana

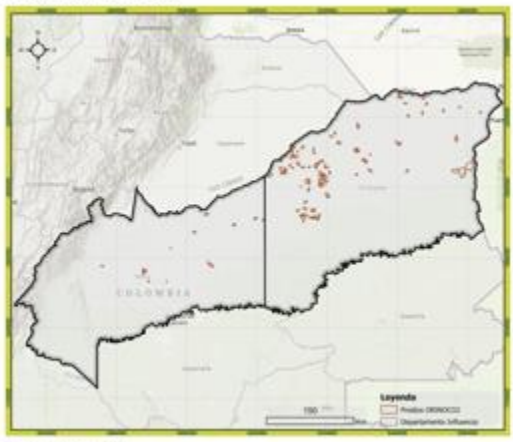
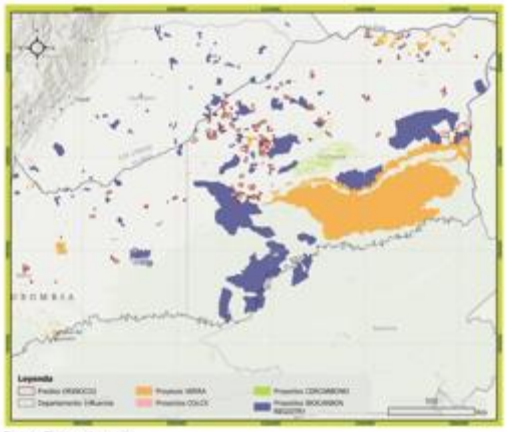
Adjustments were made to avoid overlap between REDD+ Sábanas leakage areas and offset areas.

REDD+ Sabana

	
OVV Evaluation:	The finding is closed, given that the project developer complies with the adjustment of overlapping areas in accordance with paragraphs 8.3 and 7.14 of methodologies BCR0002 V3.1 and BCR0005 V1.0 corresponding to the Leakage Area and updates the activity data for the quantification of project emissions.

Conclusion:	Close finding	X	Maintain finding		FAR	

Nº Finding:	*1 4*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*The project is not aligned with:* *Resolution 471 of 2020. ¨Through which the minimum technical specifications that the products of the official basic cartography of Colombia must have¨ are established.* *ISO 14064-2:2019. Numerals 4.4 CONSISTENCY, 4.7 CONSERVATIVE ATTITUDE.*					
Objective Evidence	*1. The presentation of the graphic outputs in some sections of the PdD and the Monitoring Report are not consistent with resolution 471 of 2020 of the IGAC. Article 4. General technical guidelines, ii. Level of detail.*					

	Figura 13. Localización del proyecto  Fuente: Elaboración propia Figura 2. Ubicación de las áreas del proyecto frente a otros estándares.  Fuente: Elaboración propia. *As can be seen in these figures the scale is empty, the project holder must ensure that the presentation of its base cartography complies with the technical specifications defined by resolution 471 of 2020.* 2. *The scale presented in numeral 2 is not conservative; currently the IGAC has secondary information on the department of Vichada with greater*

	detail than that presented in the PdD and in the Monitoring Report.  **Fuente:** Datos abiertos Cartografía y geografía. IGAC Elaboración Propia.
Action plan:	1. *We made the adjustments in accordance with Resolution 471 of 2020. Article 4. General technical guidelines, ii. Level of detail. The figures corresponding to the maps in the PDD v2.0 and Monitoring Report v2.0 are updated.* 2. *To improve the scale, the decision was made to place a working scale (cartography) of 1:100,000 and its representation in the bar chart. The cartographic information is found in 1.Emissions/1.1.GDB/1.1.1.1.Sabanas and 1.1.2.REDD. The information presented in the PDD and Monitoring Report is obtained from official sources such as: Colombia OT (https://www.colombiaot.gov.co/), IGAC (https://geoportal.igac.gov.co/contenido/datos-abiertos-agrologia), Colombia en mapas (https://www.colombiaenmapas.gov.co/),IDEAM(http://www.siac.gov.co/catalogo-de-mapas), Geonetwork Instituto von Humboldt (http://geonetwork.humboldt.org.co/geonetwork/srv/spa/catalog.search#/home). RUNAP (https://runap.parquesnacionales.gov.co/cifras), National Land Agency (https://data-agenciadetierras.opendata.arcgis.com/). SIPRA (https://sipra.upra.gov.co/nacional).*
OVV Evaluation	*The project developer provides documentary and cartographic evidence to bring closure to the finding.*

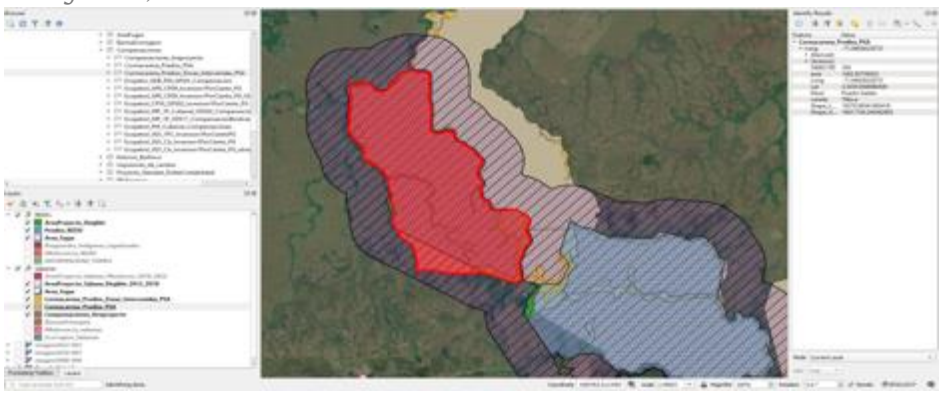
Conclusion :	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*15*	*Finding Type:*	*CAR*		*CL*	
Description:		*The project is not aligned with:*				

	BIOCARBON Standard BCR0005 ,7 Project boundaries, 7.1 Temporal and spatial boundaries, section 7.1.3 Reference Region for baseline estimation.
Objective Evidence	*Within the reference region with the baseline, it is not possible to determine how the reference area was determined, it is not possible to see the baseline information, the GDB does not make it possible to access the information to determine the reference region. The attached PDF does not describe the baseline determination process, it does not meet the replicability criterion, it does not meet the criterion of other characteristics of similarity of climate, geology, hydrology, flora and fauna.*
Action plan:	*The availability of access to information within the gdb is verified, so that the replicability criteria can be ensured..* - *In this sense, it is verified that the information is stored in the geodatabases of Sabanas and REDD+ 1.* - *Emissions/1.1.1.1. Gdb Savannah and 1.1.2.1. REDD+ 1.1.2.1.* *Compliance with the criteria for the definition of the reference region is described in section 3.2.1.2. Reference Region for Baseline estimation. Describing, justifying and evidencing compliance with each of them.* *Finally, given that the reference region and the project areas are part of the same ecoregion and taking into account that an ecoregion is a "Geographic Region with certain characteristics in terms of climate, geology, hydrology, flora and fauna. It can be determined that if characteristics of similarity of climate, geology, hydrology, flora and fauna are met. As described in footnote 19 of the BCR 005 methodology.*
OVV Evaluation:	*The project developer provides documentary and cartographic evidence to bring closure to the finding.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

№ Finding :	*16*	*Finding Type:*	*CAR*	*X*	*CL*	*4*
Description:	*The project is not aligned with:* *BIOCARBON Standard BCR0005, 7 Project boundaries, 7.1 Temporal and spatial boundaries, section 7.1.4 Leakage area.*					
Objective Evidence	***Round 1*** *Within the spatial limits, the leakage area does not meet the criteria included in numeral 9, in the context of 9.2, which involves the biophysical environment, the socio-cultural context, the economic context, and the historical context, key actors,*					

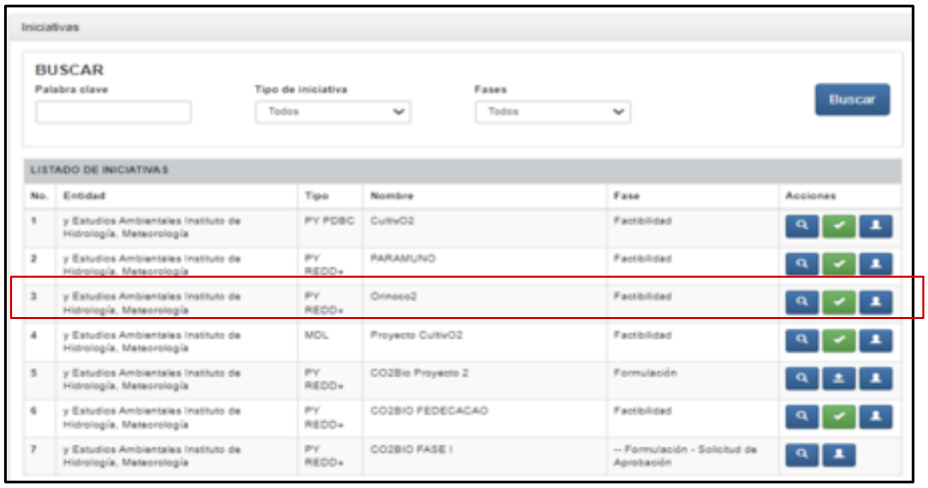
	economic activities and their importance, it does not meet the criterion of displacement of activities that generate pressures on the savanna ecosystem. ***ROUND 2*** *The criteria of; Numeral 8.3 Leakage area of BCR0002 V3.1 and Numeral 7.1.4 Leakage area of BCR0005 V1.0 are not being met, since there are overlapping areas and the selection criteria are not fully met.* *The following are the leakage areas for forests and savannas, where there is overlap between them, as well as with project areas and areas excluded from management, such as compensation areas. The cover type criteria must also be met for each leakage area;*  *Source: Project developer..*
Action plan:	*According to BIOCARBON Standard BCR 0005, 7 Project boundaries, 7.1 Temporal and spatial boundaries, section 7.1.4 Leakage area, states:* ***"Area corresponding to the categories of grasslands and shrublands, in the savanna biome, to which displacement of land-use change activities may occur, and which is beyond the control of the GHG project holder. That is, areas to which land-use change agents may be displaced as a result of project activities".*** *It also defines two criteria for delimiting the leakage area:* ***a. All areas of grasslands and shrublands that are within the range of mobility of the agents identified in section 9 (Drivers that generate land use change) must be included:***

	- In this regard, a buffer was established around the project areas totaling in 2018 (project start date) 70,476.5 ha of savannas and 25,921.5 ha forests which are monitored to determine if emissions are being displaced to these areas. As described in section 3.2.1.3. Leakage area *b. Exclude areas of restricted access to agents that generate changes in land use.* *- Exclude areas defined as collective territories (Legalized and Intended Indigenous Reserves, RUNAP conservation categories), areas linked to other payment for results projects in the carbon market (see Annex 1.1. GDB).* ***ROUND 2*** *In compliance with the criteria in 8.3 Leakage area of BCR0002 V3.1 and 7.1.4 Leakage area of BCR0005 V1.0, the areas with identified overlaps are adjusted. Consequently, the activity data for the leakage area within the emissions calculation is updated. Additionally, the REDD+ Sabanas geodatabases are updated, specifically in the Feature Dataset "Leakage Area" and the Feature Classes "REDD Leakage Belt" and "Sabanas Leakage Belt".*
OVV Evaluation:	*The finding is closed, given that the project developer complies with the numerals 8.3 Leakage area of BCR0002 V3.1 and Numeral 7.1.4 Leakage area of BCR0005 V1.0, and performs the adjustment of areas with identified overlaps.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding :	*17*	*Finding Type:*	*CAR*		*CL*	

Description:	*The project is not aligned with:* *1. BCR Standard from differentiated responsibility, to common responsibility V 3.2, numeral 10.7 Compliance with applicable legislation.* *2. Resolution 1447 of 2018 Articles: 18, 47 and 50.* *3. Social and environmental safeguards for REDD+ in Colombia. 1A Correspondence with national legislation*
Objective Evidence	***Validation:*** *1. There is no evidence related to how the ORINOCO2 CARBONO DEL ORINOCO Orinoco Carbon project defines activities to articulate with the BIOCARBONO Orinoquia sustainable low carbon landscapes project, which is a REDD+ program of the Ministry of Agriculture, in this sense the holder must demonstrate that the GHG project is not in a state of non-compatible overlap.* ***Verification:*** *1. There is no evidence related to how the ORINOCO2 CARBONO DEL ORINOCO Orinoco Carbon project for the monitoring period was*

	articulated with the BIOCARBONO Orinoquia low carbon sustainable landscapes program, which is a REDD+ program of the Ministry of Agriculture.
Action plan:	*VALIDATION* *The corroboration of any type of overlap according to resolution 1447 of 2018 requires the implementation of the RENARE platform, which is not currently operational. However to reduce the risk of incompatible overlaps, it is relevant to clarify that:* *a. The Orinoco2 CARBONO DEL ORINOCO project has a registered start on October 1, 2018 and was incorporated into the RENARE in 2022, where up to that time progress was made in the feasibility stage, subsequently the platform stopped functioning in 2022 to date.*  Iniciativas BUSCAR Palabra clave Tipo de iniciativa Todos Fases Todos Buscar LISTADO DE INICIATIVAS No. Entidad Tipo Nombre Fase Acciones 1 y Estudios Ambientales Instituto de Hidrología, Meteorología PY PDBC CultivO2 Factibilidad 2 y Estudios Ambientales Instituto de Hidrología, Meteorología PY REDD+ PARAMUNO Factibilidad 3 y Estudios Ambientales Instituto de Hidrología, Meteorología PY REDD+ Orinoco2 Factibilidad 4 y Estudios Ambientales Instituto de Hidrología, Meteorología MDL Proyecto CultivO2 Factibilidad 5 y Estudios Ambientales Instituto de Hidrología, Meteorología PY REDD+ CO2Bio Proyecto 2 Formulación 6 y Estudios Ambientales Instituto de Hidrología, Meteorología PY REDD+ CO2BIO FEDECACAO Factibilidad 7 y Estudios Ambientales Instituto de Hidrología, Meteorología PY REDD+ CO2BIO FASE I -- Formulación - Solicitud de Aprobación *b. The Orinoquia Biocarbon Emissions Reduction Program was recently formulated, as evidenced in the program document available at the following link: Link to document. This program presents its projected results from 2024 to 2029.*

2. OBJETIVOS DEL PRE BIOCARBONO

El PRE Biocarbono tiene como objetivo principal la implementación de acciones dirigidas a la región, con el propósito de lograr una reducción potencial de emisiones de hasta **50.861.179 tCO_2e^{-1}** en la Orinoquia Colombiana. Esta reducción se busca alcanzar en un lapso mínimo de **seis años (2024-2029)**, al respaldar actividades de reducción de emisiones de GEI asociadas a las principales fuentes de emisión en la región.

In this regard, Article 50 of Resolution 1447 mentions that:

"The overlap shall be non-compatible in the event that a REDD+ Program seeks to enroll in the feasibility phase, in a geographic area in which there is a REDD+ project enrolled in the implementation phase for the same period and for the same activities in accordance with the provisions of Article 18.

The holder of a REDD+ program in non-compatible overlapping status with one or more redd+ projects, shall proceed to offer the status of implementing partner for those redd+ projects that are in the implementation phase and that wish to opt for such status. This in accordance with its implementing partner involvement plan mentioned in article 33 and in accordance with the provisions of article 51 of this resolution. In case such condition is not accepted, the REDD+ program holder shall exclude the enrolled Redd+ project area from the implementation phase."

Therefore, given that Orinoco2 CARBONO DEL ORINOCO has a start date prior to the Emission Reduction Program, it should be the Emission Reduction Program who proceeds to offer the status of implementing partner, or exclude the areas. Actions that have not been taken by the Program in principle due to difficulties in the implementation of the Renare platform.

However, in order to prevent any potential non-compatible overlap from the Orinoco2 CARBONO DEL ORINOCO project, in the framework of the stakeholder and stakeholder consultation, the Biocarbon project was asked to exclude the Orinoco2 CARBONO DEL ORINOCO project areas from the future emission reduction program (see ANNEX 4.3 Exclusion Request).

These data underscore the importance of activating the RENARE platform for the proper assessment of any potential overlap.

	VERIFICATION 2018-2022 *Similarly for the 2018-2022 monitoring period the Biocarbon Emission Reduction Program did not exist. Therefore given that there is no overlap in periods and yes in activities, the potential overlap would be of a compatible type according to Article 18 overlap of GHG mitigation initiatives, option 1 as follows;* - *1. Compatible in the event that a GHG mitigation initiative is intended to be registered in the feasibility phase, in a geographic area in which there is an initiative registered in the implementation phase for the same period or for the same GHG mitigation activities.* *However, it is clear that the implementation of the platform is necessary to demonstrate the above. Once again these data underline the importance of the activation of such a platform for the evaluation of any possible overlap.*
OVV Evaluation:	*The project developer shall ensure that there is no overlapping of any kind according to the regulations in force during each verification.*

Conclusion:	*Close finding*		*Maintain finding*		*FAR*	*X*

№ Finding:	*18*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*The project is not aligned with:* *1. BCR standard from differentiated responsibility, to common responsibility V 3.2, numeral 10.7 Compliance with applicable legislation.* *2. Social and environmental safeguards for REDD+ in Colombia. 1A Correspondence with national legislation*					
Objective Evidence	*The Social and Environmental Safeguards, Law 274 of 2023 national development plan, in Article 230, paragraph 2 :* *"The holders of greenhouse gas mitigation initiatives shall comply with the provisions of the regulations on environmental, social and economic matters and, in the case of greenhouse gas mitigation initiatives in the Agriculture, Forestry and Other Land Use -AFOLU sector, comply with the social and environmental safeguards defined by the United Nations Framework Convention on Climate Change -CMNUCC, and aPDDted by the country through its National Interpretation of Social and Environmental Safeguards. It includes free and informed prior*					

consultation, if applicable, when the project involves areas with the presence of indigenous, black, Afro-Colombian, Raizal and Palenquero communities, and the other tools, conditions, criteria and requirements that are defined within the framework of the National System of Safeguards. All mitigation initiatives within their Monitoring, Reporting and Verification system must monitor, report and verify the implementation of environmental, social and economic regulations, and if applicable, the implementation of social and environmental safeguards, during all phases, which will be subject to conformity assessment.

Validation:

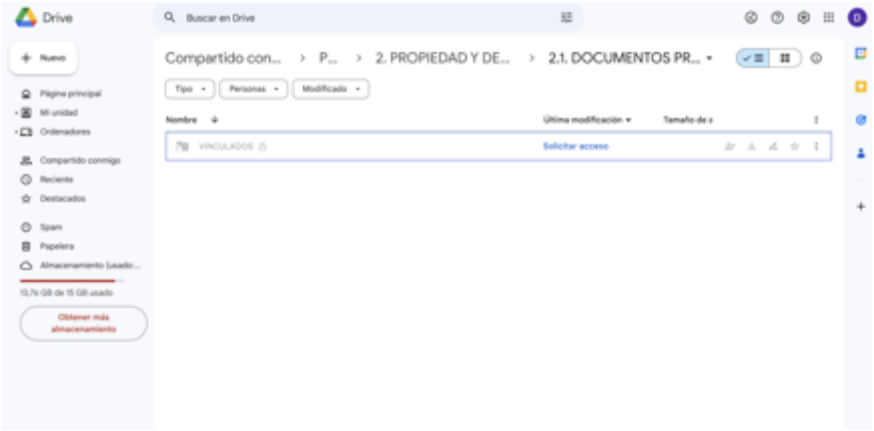
1. *The project manager must ensure full compliance and correlation of the project with the most recent and current policy and regulations in Colombia in relation to climate change. In the documentary analysis conducted, it was not observed how the project is integrated with certain relevant milestones within the Colombian legal framework applicable to this area. These milestones include the approval of the RAMSAR Convention (Law 357 of 1999), the National Plan to Combat Desertification (2005), the National Policy for the Management of Biodiversity and Ecosystem Services (2012), the "TERRITORIES OF LIFE FORESTS" strategy (2017), the update of the Nationally Determined Contributions (NDC) in 2020 and Law 2294 of 2023, among others. It is imperative that the project is aligned and adjusted to these legal frameworks to ensure its coherence and compliance with the relevant regulatory provisions on climate change in the Colombian context.*
2. *In Table 32. Normative provisions of the project, it is necessary to include a deeper and more complete analysis on how the initiative is articulated with the regulations aimed at climate change management in Colombia.*

PROYECTOS DE MITIGACION GEI	Resolución 1447 de 2018 - Sistema de Monitoreo, reporte de emisiones de GEI	Tiene por objeto reglamentar el Sistema de Monitoreo, Reporte y Verificación de las acciones de mitigación a nivel nacional, en lo relacionado con el Sistema de contabilidad de Reducción y Remoción de Emisiones de gases de efecto invernadero y el Registro nacional de Reducción de las Emisiones de Gases de Efecto Invernadero (GEI), el cual incluye el Registro Nacional de Programas y Proyectos de acciones para la Reducción de las Emisiones debidas a la Deforestación y la Degradación Forestal de Colombia (REDD+).	Esta resolución estableci procedimiento para el re nacional de emisiones de ORINOCO2 se encu registrado en la fase de factibi dejando constancia cumplimiento de la resol 1447.

Verification:

	1. *The project must ensure that it followed up on the most recent climate change policy and regulations in force in Colombia for the monitoring period. It is not clear because ORINOCO2 CARBONO DEL ORINOCO's legal compatibility matrix is more complete than the one reported in the PdD, however, it is clarified that it is not up to date.*
Action plan:	***Validation:*** 1. *Initially, environmental and social safeguards had been reported in section 12 of the PDD. Now, they have been moved to section 11 of the Monitoring Report v2.0, where compliance will be reported. For safeguard A, which deals with alignment with national forest programs and international agreements, Table 8 has been established. This table details how compliance with this safeguard was carried out (See 6.5.1.1.3.1.2. Legal Compatibility Matrix - Orinoco2 CARBONO DEL ORINOCO . A review of the legal and regulatory requirements related to climate change associated with the Orinoco2 CARBONO DEL ORINOCO project was carried out. This process included a detailed adjustment of current regulations to evaluate their specific applicability to the context of the project.* 2. *A thorough update and analysis of Table No. 32 of the Orinoco2 CARBONO DEL ORINOCO project document, designed to interpret and apply the legal requirements related to climate change in the context of the project, was carried out.* ***Verification:*** 1. *Cataruben has a procedure within its Integrated Information Management System called GJP-14 Management of Legal Requirements, through which it follows up on the updating and validity of the legal regulations on climate change, in order to update the matrix that compiles the information applicable to the project. Accordingly, the regulations were verified and updated in the matrix as well as in the PDD and MR.*
OVV Evaluation:	*The project developer submits the necessary documentation and supporting attachments to close the finding.*

Conclusion :	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*19*	*Finding Type:*	*CAR*	*x*	*CL*	*5*
Description:	*The project is not aligned with:* *1. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 12. Ownership and rights over carbon.*					
Objective Evidence	***ROUND 1*** ***Validation:*** *During the documentary review phase, it was not possible to corroborate information related to land tenure on the properties where the GHG project activities are carried out.*  ***Verification:*** *1. During the documentary review in numeral 7. Ownership and carbon rights of the MR, no evidence was found on how the project carried out monitoring activities on the current status of ownership and carbon rights, including tracking of agreements and documents that ensure compliance with carbon rights requirements during the monitoring period.* ***ROUND 2*** ***Validation:*** *The project developer lists for each of the properties the documentation related to the land tenure of the properties on which the GHG project activities are developed, see image below.*					

Source: Project developer..

Contracts:
The seventeenth clause differs with the project duration of forty (40) years consigned in literal D. Project Quantification Period of numeral 3.2.3. Time Limits and Periods of Analysis of the PDD V2.0. Said clause is indicated as follows;

"SEVENTEENTH. Term of Duration. This CONTRACT has a term of fifteen (15) years from the execution of this contract and a maximum crediting period of twenty (20) years, starting in 2018."

Verification:

No evidence on how the project conducted monitoring activities on the status of carbon ownership and rights was found in numeral 7 of the Monitoring report.

Action plan:

Validation

1. *In attention to numeral 5 of the project document, the information was reviewed and uploaded in the folder assigned to achieve the auditor's review, in the folder property and carbon rights/documents properties/linked.*

Verification

1. *In each folder of the linked properties, the document called Title Study was uploaded, which compiles the information on the tenure of the property and its identification according to the documents provided by the owners and analyzed by Cataruben, in order to determine the ownership of carbon according to paragraph 7 of the Monitoring Report.*

	ROUND 2 ***Validation:*** *Section 3.2.3 of the PDD V2.1. is updated and adjusted for time limits and analysis periods, specifically in the quantification periods, thus establishing renewable quantification periods with a duration of 10 years from the start date of the project.* *Likewise, with respect to contracts, their duration and the quantification period, the following is clarified:* ***Periods of quantification in contracts.*** 1. *According to BCR standard V3.3 Numeral 12. Ownership and carbon rights: "Project holders shall demonstrate carbon rights with agreements and documents that ensure that the requirement is met with at least the following information:* *- Parties signing the agreement,* *- Purpose of the agreement,* *- Date of agreement* *- Name of the project* *-Period of quantification,* *- Responsibility, obligations and rights of each of the signatory parties.* *Regarding the quantification period, in accordance with BCR standard V3.3 Numeral 10.5 Project Duration and Quantification Periods. The project holder must select the type of quantification period when applicable according to the type of project;* *In this regard, for REDD type projects, it establishes:* *"b). Renewable quantification periods, with a maximum of 10 years and will be renewed at least 3 times, with a minimum duration of 40 years.*

	In this sense, the "SEVENTEENTH" clause was agreed within the bonding agreement. Term of duration. This CONTRACT has a term of fifteen (15) years as of the execution of this contract and a maximum crediting period of twenty (20) years, as of 2018." *However, to meet the requirements of the standard, Cataruben and the ecosystem managers may renew the quantification periods, with a maximum of ten years each and renewable at least three times, with a total minimum duration of forty years.* *To ensure the duration of the project in a minimum of forty years, it is contemplated to extend the accreditation period up to three times between the parties, as established in the standard. This allows compliance within the project with the project duration requirements and ensures its continuity in the long term.* ***Verification:*** *Given that the validation and first verification of the project is performed simultaneously, the detailed analysis of carbon ownership and rights is performed prior to the validation and verification process ensuring compliance and ensuring carbon ownership and rights from the project start date to the validation date. Likewise, within the monitoring report, section 7 Ownership and rights is updated for the 2018-2022 monitoring period.*
OVV Evaluation:	*Close the finding, given that the project developer established the criteria that guarantee the homogeneity of the information consigned in paragraph D. Project quantification period of numeral 3.2.3. Time limits and analysis periods of the PDD V2.0, as well as what is required by the BCR standard in its numeral 10.5 Project duration and quantification periods and within the monitoring report updates section 7 Ownership and rights over carbon.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*20*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*The project is not aligned with:* *1. BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 12. Ownership and carbon rights.*					

	2. *BIOCARBON TEMPLATE V 2.1, numeral 5.2 Other project participants and 5.3 Agreements related to carbon rights*
Objective Evidence	***ROUND 1*** ***Validation:*** *No related evidence was found in the PDD on how the project developed items 5.2 and 5.3 of the BIOCARBON TEMPLATE V 2.1 template.* ***Verification:*** *Project beneficiaries are not clear about ECOPETROL's role in the GHG project.* ***ROUND 2*** ***Validation:*** *The project developer includes information that allows to establish the project participants;* 5.2. Participantes del proyecto - Gestores del Ecosistema Tabla 42. Participantes del proyecto - Gestores del Ecosistema.

Individuo U Organización	Persona Contacto	Rol	Dirección	Teléfono	Email
LAURA JIMENA ALFONSO MORENO	N/A	Propietario (s)	Cl 11 10 56	3112536862	lauramaestria2016@gma
JAVIER HUMBERTO CARDENAS PERILLA	N/A	Propietario (s)	Vereda Camareta	3008908629	malip00424@outlook.es
LUIS ARCADIO SANDOVAL ESCOBAR	N/A	Propietario (s)	CR 7 89 63	3125494139	edelmiragomezdominguez m
MARISOL FERNANDEZ GARCIA/ OCTAVIO DE JESUS PEREZ CANO	N/A	Propietario (s)	CL 1 C 8 25	3042528730	fernandezgarciamarisolo /octadeje@hotmail.com
SOCIEDAD LA TIGRA META SAS	ALFONSO RIASCOS VILLEGAS	R/L	CR 38 A 5 A 109 CS 410 TO B	3155500000	alfonso.riascos.admon@ .co
BARIAS SAS	ALFONSO RIASCOS VILLEGAS	R/L	CR 38 A 5 A 109 CS 410 TO B	3155500000	alfonso.riascos.admon@ .co
CLARA ISABEL HERRERA VALENCIA	N/A	Propietario (s)	CL 14 C 64 B 90 AP 301 A	3155500000	clara.isabel.herrera@gma
MOBARIAL SAS	ALFONSO RIASCOS VILLEGAS	R/L	Cra 38 a 5 a 109 cs 410 TO B	3155500000	mobarialsas@gmail.com
MARINA ESTELA VILLEGAS RAMIREZ	N/A	Propietario (s)	Cl 56 N 7 N 56	3155500000	friascos3@yahoo.com
ADIELA JIMENEZ ADAN	N/A	Propietario (s)	Carrera 5Z Nº 49G Sur - 24	3505579732	alexandral89@gmail.com

	Verification: *In the interviews with the communities conducted on Friday, April 5, 2024, the communities indicated the role of the different actors in the project. In this sense, the information related to ECOPETROL is included in the DpP V2.0 and monitoring report V2.0.*

Action plan:	*Validation* *Section 5.2. Project Participants within PDD V.2.0 in accordance with the BIOCARBON TEMPLATE V 2.2 guidelines which states "Provide contact information for GHG project participants" and adds the following table:* **5.2 Other project participants** *Provide contact information for GHG Project participants (add rows if necessary).* **Individual or organization** **Contact person** **Job position** **Address** **Phone number** **Email** *In addition, in PDD V2.0 it adds section 5.2.1 Other important stakeholders in the project - Ecopetrol. Describing Ecopetrol S.A.'s participation in the project and contact information: One of the fundamental project activities in charge of the Cataruben Foundation consisted of the search for a strategic ally to provide financial and technical resources. The objective of this collaboration was to generate the necessary enabling conditions to carry out the validation and first verification of the project, as well as to anticipate the identification of a final buyer for the carbon credits to be generated by the project.* *On the other hand, for the 5.3 . Agreements related to carbon rights. Access to evidence of compliance was ensured.* ***VERIFICATION:*** *The role of Ecopetrol is described in section 5.2.1 of the PDD, and it is also clarified that Ecopetrol's role is established in the agreements signed freely, voluntarily and informed by the project participants, specifically in clause 13 of the agreement. This commitment has been systematically reiterated in our communications with the landowners participating in the project.* *To address the lack of clarity that has been observed among some property owners, especially those located in geographic areas with communication limitations, meetings were held with property owners. (See 6.5.1.2.3.STRENGTHENING ACTIVITIES AND ROLES) As part of the reinforcement measures, we provided project participants with a detailed graphic description (evidence 6.5.1.2.3.1 Evidence) of the roles and activities involved in the project.*

	In addition, within risk management (section 7.1 of the DpP v2.0), we have identified mitigation actions aimed at avoiding loss of communication with some of the owners, recognizing the importance of maintaining an efficient and transparent flow of information. *In summary, we are committed to ensuring a clear and consistent understanding of Ecopetrol's role in the project, and have implemented concrete actions, such as field visits and explanatory graphic material, to address any lack of clarity with some stakeholders and strengthen communication with all of them, especially those in geographically challenging areas.*					
OVV Evaluation :	*The project developer presents the corresponding documentation, supports, as well as virtual meetings with communities to bring closure to the finding.*					
Conclusion :	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*21*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*The project is not aligned with:* *BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 10.8.*					
Objective Evidence	***ROUND 1*** ***Validation:*** *Not found within the PbD:* *1. How the proponent in general sustains with robust and clear criteria that its assertions around the contribution that the actions raised by the project are articulated with real and credible climate change adaptation actions.* *2. In the development of numeral a) it must identify the strategic line of the national policy with which the project articulates its measures aimed at adaptation to climate change.* ***ROUND 2*** ***Validation:*** *Adaptation to Climate Change of the PDD v 2.0 where compliance measures are established in terms of actions, which must be demonstrated in each verification period.*					

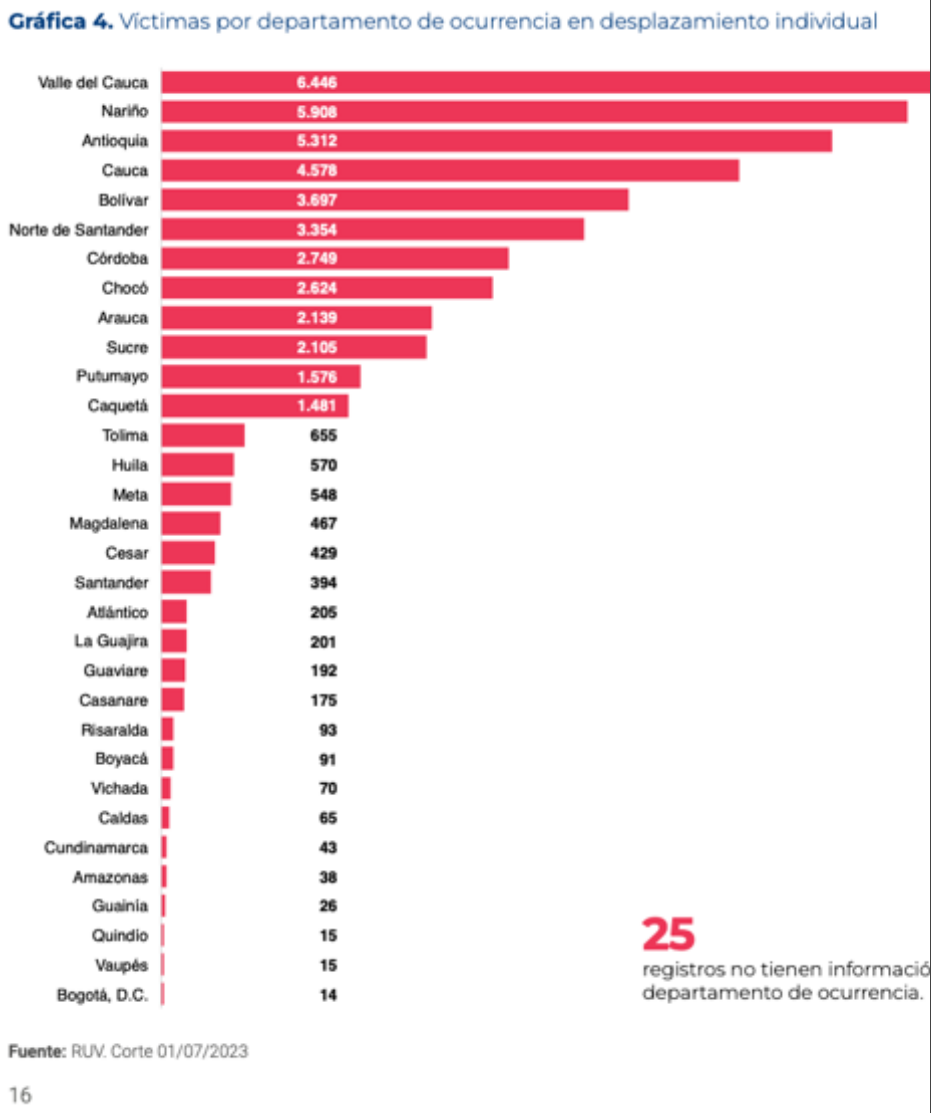
Action plan:	***Validation:*** *BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 10.8 Adaptation to Climate Change describes the contribution to adaptation as follows:* *"In this sense, in addition to having robust and clear criteria to demonstrate their contribution in MITIGATION OF GHGs, Project holders must carry out actions related to ADAPTATION TO CLIMATE CHANGE, demonstrating that these are derived from GHG project activities."* *From the above it can be concluded that, in addition to the robust and clear compliance presented by the Orinoco2 CARBONO DEL ORINOCO project in terms of GHG mitigation by reducing emissions from deforestation, forest degradation and avoiding land use change in natural savannah (described justified and evidenced throughout the Project Document), it must carry out actions of Adaptation to climate change and these actions must derive from the project activities.* *In this sense, section 6. Adaptation to Climate Change of the PDD v 2.0 establishes an analysis of how the project addresses compliance with the criteria, justifying and evidencing the relationship with the project activities from which these actions of adaptation to climate change derive. This is based on an analysis of the national climate change policy and planned adaptation actions.*					
OVV Evaluation:	*The project developer submits the corresponding documentation and supports to close the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*22*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:		*The project is not aligned with:* *BCR Standard From differentiated responsibility, to common responsibility V 3.2, numeral 13 Risk management.* *BIOCARBON TEMPLATE V 2.1, numeral 7. Risk management*				
Objective Evidence		***ROUND 1*** *Validation:* *The risks identified in table 32. Risk Analysis. do not correspond to the risks identified by the audit team in the field, such as, for example, the following:*				

	3. *Little active participation of landowners in project activities, the risk was classified as low. However, during the interviews, some beneficiaries stated that they are several hours away from internet signal points and that compliance with training activities is sometimes subject to environmental conditions since they do not have roads and in case of rain, it would be impossible to attend.* 4. *Loss of efficient communication among project participants was classified as medium. Some of the beneficiaries stated that contact with the Cataruben Foundation was exclusively by telephone and that they have not had visits from the project owner on their properties, in many cases they reported having a poor telephone signal. The risk is high.* 5. *Forced displacement due to security conditions was categorized as low. However, this scenario does not correspond to the current situation where the rates of forced displacement and insecurity have increased in a generalized manner throughout the country.* 6. *The landowners stated that one of the risks they often face and which generates the most conflict are invasions by neighbors (in many cases from indigenous reserves), who sometimes cause intentional fires, hunt on their land, and cut down trees without authorization. This risk is high and was not identified.* 7. *Overlaps with other initiatives (double counting) at present, the RENARE platform, which allows identifying this type of problem, is not operational. Therefore, this is a high risk, taking into account that some program platforms and standards do not make public the limits of the registerd projects.* 8. *Overlap with the Orinoco BioCarbon program. This is a high risk that was also not identified.* 9. *Loss of control over controlled burns carried out by beneficiaries is a high risk that was not identified.* ***ROUND 2*** *The document ANNEX 5.1. ORINOCO2 CARBONO DEL ORINOCO-VF Financial Model should reflect the duration of the project. The current version of the model includes only half of the annual flows to be generated by the project on sheet 1. Inventory sheet 8. Inventory should reflect the amount of credits currently generated by the project during the life of the project.*
Action plan:	***Validation:*** *Within the PDD V2.0 section 7. Risk management, a risk reassessment is performed following the guidelines of section 13 RISK MANAGEMENT of the BCR V 3.3 standard and the use of the Permanence and Risk and management tool V1.0 section 2. In this sense, many of the observations are integrated, including new mitigation measures and the following clarifications are made:* *1. Little active participation of landowners in project activities, the risk was classified as low.*

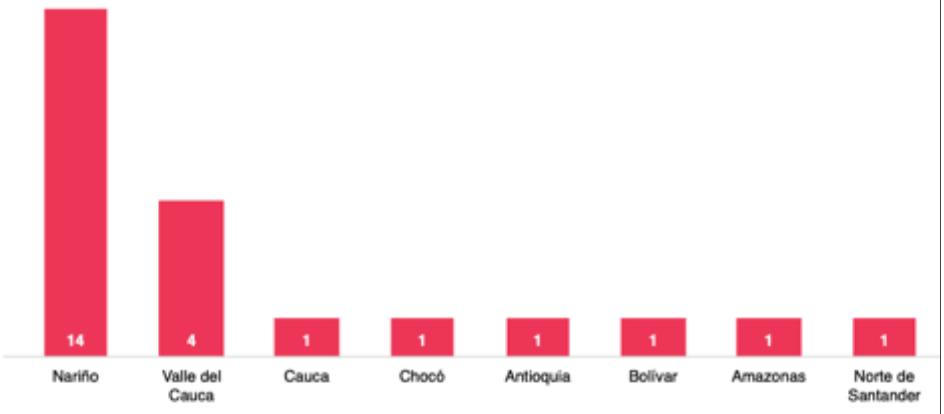
	The project group multiple properties (PDD v.2.0, Section 5.2 Project Participants) and it comprises multiple activities (PDD V2.0, Section 2.3.8.1 Design of Project Activities). *The assessment of the risk linked to the low active participation of the owners is performed in line with the rating system established in the corresponding section of the PDD. In this context, the impact of low participation is determined to be high. The likelihood of this scenario is supported by the audit team's verification, which evidenced that some beneficiaries face significant challenges, such as being several hours away from internet signal points and exposure to adverse environmental conditions that make it difficult for them to attend training activities, especially when lacking road access or in situations of heavy rain. Consequently, on a scale of 1 to 3, this risk is rated at a level 2, resulting in an overall rating of medium risk.* *In response to this assessment, mitigation measures have been put in place to counteract the risk of low landowner participation in project activities.* *These measures include:* *a.) On-site training and follow-up in remote properties with low road and telecommunications connectivity: Specific strategies, such as face-to-face sessions, have been designed to address low connectivity and lack of access to telecommunications in remote properties, thus ensuring effective participation of landowners even in challenging conditions.* *b). Ongoing monitoring system to the implementation of the predial implementation plans. The establishment of a continuous monitoring system contributes significantly to reducing this risk by providing constant supervision of project activities, ensuring the active participation of landowners.* *c). Clearly established responsibility agreements in the linkage contracts: The aim is to ensure mutual understanding and clear allocation of responsibilities among the participants through contractual agreements.* *d). Governance model for risk prevention and mitigation: The implementation of a sound governance model not only prevents adverse situations, but also acts as a mitigating element in the face of possible challenges to participation.* *These comprehensively structured measures are implemented with the objective of ensuring the success of the project and mitigating any obstacles associated with the low participation of some of the owners in the planned activities.* *2.* ***Loss of efficient communication among project participants was classified as medium.***

	The project groups multiple properties (PDD v.2.0, section 5.2 Project Participants), most of them have had efficient communication as expressed in the audit meetings (video audit), given that they are owners that are frequently in populated areas with telecommunications connection and accessible roads for field views. *In this sense, the impact is rated 3 given the importance of effective communication between the parties and the probability is 2 because only some may be affected by the lack of road access and poor telephone signal, so the risk is medium, and mitigation measures are planned.* *In order to avoid further loss of effective communication, mitigation measures are generated such as the identification of properties with telephone signal and limited access roads, which in the framework of the audit indicated that they had not been visited, and a reinforcement is made in everything related to activities and roles (Strengthening of Activities and Roles).* ***3. Forced displacement due to security conditions was categorized as low. However, this scenario does not correspond to the current situation where the rates of forced displacement and insecurity have increased in a generalized manner throughout the country.*** *To determine the risk of displacement in the context of the project, a thorough review of the Forced Displacement Report 2023 was conducted, accessible through the link: Displacement Report 2023. The report indicates that, although displacement events have been registered in Colombia, they tend to be concentrated in departments other than Meta and Vichada. It is relevant to note that in Vichada, where most of the project areas are located, individual displacements are low. Similarly, in Meta, where the lowest rates of individual displacement are registered, the incidence is low (see graph below).*



Now, if we evaluate joint forced displacement (forced displacement of ten (10) or more households, or fifty (50) or more people), which is the one that would affect the project the most in general terms. In the departments of Vichada and Meta, no such events were recorded. In contrast, other departments such as Nariño, Valle del Cauca, Cauca, Chocó, Antioquia, Bolívar, Amazonas and Norte de Santander have experienced significant events in this category.

Gráfica 11. Número de eventos de desplazamientos masivos por departamento



Fuente: RUV. Corte 01/07/2023

Mapa 4. Eventos masivos de desplazamiento forzado por municipio

Los desplazamientos masivos ocurrieron en **13 municipios,** de los cuales **6 pertenecen a la costa pacífica nariñense.** Los cinco municipios donde ocurrió el mayor número de eventos son Olaya Herrera (5), Buenaventura (4), Tumaco (3), Magüi Payán (2) y Roberto Payán (2).

Fuente: RUV. Corte 01/07/2023

It is important to note that, to date and during the execution of the project, no individual or mass displacement events have been reported in the intervention areas through the mail systems, telephone lines, web page designed for the project, as well as in communications with landowners.

In this context, the risk associated with displacement is assessed as low. However, constant risk identification is maintained to monitor the evolution of conditions and ensure a proactive response to any changes in the situation.

	4. The landowners stated that one of the risks they often face and which generates the most conflict are the invasions by neighbors (in many cases from indigenous reserves), who sometimes cause intentional fires, hunt on their land and cut down trees without authorization. *The burning of savannahs on some properties by members of indigenous communities had been considered as part of the risks associated with forest fires because these burns, if not controlled by the owners in a timely manner, could turn into major forest fires. However, in this update, it was decided to separate these aspects, recognizing that the burns could exacerbate the normal historical conflicts between the indigenous communities and some private landowners, given that there are differences in the development vision of the project participants and the indigenous communities.* *In order to mitigate this risk, during the current monitoring period, the project has initiated approaches and socialization processes with the indigenous communities. This initiative aims to reduce the potential risk through dialogue and mutual understanding. This proactive approach seeks to establish a common understanding between landowners and indigenous communities, promoting cooperation and reducing the potential for future conflict. The ongoing interaction and implementation of preventive measures demonstrates the project's commitment to effectively address and manage the identified challenges, thus contributing to harmony and sustainability in the region. (3.2.2 Ethnic Community Working Groups)* *Although during the monitoring period there have been burns at some points caused by some members of the indigenous communities, it is important to note that the owners of the participating properties have duly controlled them. This preventive control of forest fires is part of the project's planned activities, demonstrating the landowners' commitment to risk management.* ***5. Overlaps with other initiatives (double counting), the RENARE platform, which allows identifying this type of inconvenience, is not currently operational. Therefore, this is a high risk, considering that some program platforms and standards do not make public the limits of the projects that are registered.*** *It is included as a financial risk and establishes as a mitigation measure the monitoring of carbon standard databases which, according to BIOCARBON TEMPLATE V 2.2, is fully developed in the PDD v2.0 Section 16. Based on the review it was determined that for the current monitoring period there are no overlaps with the project areas.* ***6. Overlap with the Orinoco BioCarbon program. This is a high risk that was not identified either.*** *Biocarbono is a mitigation initiative like others, as was communicated by the program itself in the framework of the stakeholder consultation and response to a PQRS filed by Cataruben, see finding 17. However, given the magnitude of the future*

	program in the framework of the stakeholder consultation, a request was made to exclude areas, thus mitigating the risk of overlapping with biochar (see finding 17). ***7. Loss of control over controlled burns carried out by beneficiaries is a high risk that was not identified.*** *The loss of control over controlled burns is identified as a potential risk of forest fire and includes catastrophic fire events, whether natural or anthropogenic in origin. The risk and mitigation measures are set out in the CPD V2.0 Section 7.1 risk identification and management, table: Risk management. In this regard, during the current monitoring period, thanks to these activities, no forest fires were recorded in the project areas.* ***Finally, section 14.1.2. Monitoring and Risk Management is developed within the 2018-2022 Monitoring Report v2.0. Updating the assessment and mitigation actions within the adaptive management framework.*** ***ROUND 2*** ***The financial model is updated in the following components*** ***a.*** *Time: The inventory is projected for 10 years from the project start date, in compliance with the criterion of duration of the first quantification period of the project.* *b. The inventory is updated with the emission reduction results for the 2018-2022 period and complemented with the 2023-2028 projections of the baseline scenario with project….* *c. Given that the revenues from the sales of carbon credits generated by the monitoring period of 2027 and 2028 will be generated in 2030 and 2031, the financial model is projected to 2031. It is important to emphasize that this model will be updated as the project progresses, adjusting its components according to the adaptive management of the project in the risk management framework.* *d. Costs and expenses are updated according to the expected monitoring periods.* *e. Sales flows are defined according to the experience of the project owner and the agreements being worked with the preliminary client (Ecopetrol).*					
OVV Evaluation:	*The finding is closed as the project developer adjusts the financial analysis in terms of timing, GHG emission reductions, revenues, costs and expenses, as well as sales flows.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*23*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:		*The project is not aligned with:* *1. BCR Standard From differentiated responsibility, to common responsibility V 3.2, item 13 Risk management and 13.1.* *2. BIOCARBON TEMPLATE V 2.1, numeral 7. Risk management* *3. BCR_Monitoring-Report-Format. V 1.0, Numeral 14.1 Implementation status of the project*				
Objective Evidence		***ROUND 1*** ***Validation:*** 1. *The information supporting the project's actions could not be corroborated with respect to how the project ensures that the GHG project is sustained over time.* 2. *No evidence was found of the Conclusion of expected risks (direct and indirect) and consideration or mitigation measures as part of adaptive management. For example, one of the permanence risks identified in the field by the audit team is: scheduled fires out of control, which was not considered within this analysis.* ***Verification:*** *No related evidence was found on how the project monitors and manages:* ▪ *Leakage and Non-permanence risk factors.* ▪ *Provides descriptions on uncertainty management, applying the criteria and guidelines to comply with uncertainty management associated with models for estimating GHG emission reductions/removals in GHG Projects.* ▪ *Reports possible relevant changes.* ***ROUND 2*** ***Validation:*** ▪ ▪ *It was possible to corroborate the information supporting the project actions with respect to how the project ensures that the GHG project is sustained over time in section 13.1.3 Leakage and non-permanence risk monitoring of the Monitoring Report.* ▪ ▪ *Evidence of Conclusion of expected risks (direct and indirect) and consideration or mitigation measures as part of adaptive management was found within section 7. Risk Management of the updated PDD V2.0.* ***Verification:*** *In section 14.1.3. Monitoring and Risk Management of Leakage and Non-permanence, section 16.3 Leakage of the V2.0 monitoring report states the following;* *Initially, forest loss was assessed in the temporal boundaries of the REDD+ component baseline (2008 - 2018), using data from the Global Forest Change Global Forest Watch.*				

	However, the information in the information source link provided by the project developer (https://storage.googleapis.com/earthenginepartners-hansen/GFC-2022-v1.10/download.html), indicates the following; While the resulting map data are a largely viable relative indicator of trends, care must be taken when comparing change across any interval. Applying a temporal filter, for example a 3-year moving average useful in discerning trends. However, definitive area estimation should not be made using pixels count the forest loss layers. The Intergovernmental Panel on Climate Change (IPCC) provides guidance on reporting areal extent change of land cover and land use, requiring the use of estimators that neither over or underestimate to the degree possible, and that have known uncertainties. The maps provided by GLAD do not have properties. However, the maps can be leveraged to facilitate appropriate probability-based statistical deriving statistically valid areas of forest extent and change. Specifically, the maps may be used as a targeting forest extent and/or change by a probability sample. The team at GLAD has demonstrated approaches using the GLAD forest loss data in sample-based area estimation (Tyukavina et al., ERL, Turubanova et al., ERL, 2019, and Potapov et al., RSE, 2019, among others). *Therefore, the information related by the project proponent must comply with;* ▪ *literal a) BCR Standard in the most recent version, of section 5 normative references of the BCR 0002 V3.1 methodology,* ▪ *As well as literal c) of applicable national legislation on GHG projects,* ▪ *Article 41 on the establishment of baselines for REDD+ projects of the Resolution of 1447 of 2018. Specifically the project developer shall ensure that the project baseline reconstruction methodology complies with the consistent use of the variables employed by the NERF;* ▪

	Artículo 41. Establecimiento de líneas base para Proyectos REDD+. El tit Proyecto REDD+ deberá establecer su línea base a partir del NREF más actualiza haya sido sometido formalmente por Colombia y evaluado por la CMNUCC, y que in área geográfica del proyecto, así como actividades REDD+, periodos y depósitos de c en los cuales se pretenda implementar la iniciativa. El establecimiento de la línea base del Proyecto REDD+ a partir del NREF consist reconstrucción metodológica del NREF sobre el área del proyecto demostrando cons con el mismo. La reconstrucción metodológica es el cálculo de las emisiones esperadas en el área del Proyecto REDD+ con el uso consistente de las variables emp en el NREF, a partir de la información suministrada por el SMByC: la definición de b los potenciales de calentamiento global, los factores de emisión por tipo de bosque, lo históricos de deforestación para el área del Proyecto y su método de estimación emisiones y su proyección en el tiempo. **Parágrafo 1.** El titular de un Proyecto REDD+ que haya validado su línea base previa a la expedición de la presente Resolución deberá acogerse a las disposiciones del A 40 sobre el potencial máximo de mitigación de GEI objeto de contabilidad nacio reducción de emisiones y remoción de GEI para el periodo comprendido entre enero de y diciembre de 2019, para las actividades REDD+ y depósitos de carbono incluidos NREF sometidos por Colombia ante la CMNUCC. **Parágrafo 2.** Con el objeto de realizar la verificación de reducciones de emisio remociones de GEI generadas desde enero de 2020 en adelante, el titular del Pr REDD+ que haya validado su línea base previamente a la expedición de la pr Resolución, deberá ajustar y validar su línea base a partir del NREF más actualiza ajuste de la línea base consiste en la reconstrucción metodológica del NREF más actua aplicable al proyecto, sobre el área geográfica del mismo. ▪ *Regarding the NERF 2024 document, the project developer must establish the baseline with section 8 that deals with the Construction of the reference level of national forest emissions. This document establishes the scale of the information, deforestation activity data with the Galindo et. al. (2014) Protocol, masking filters, as well as the algorithms used to reconstruct the reference level.* *In the event that the project developer is unable to access the NERF algorithms, he/she must demonstrate that he/she has arranged with the corresponding entity to obtain this information.* *However, the project developer can also make use of open access platforms such as GitHub where the IDEAM SMByC publishes the algorithms used for the analyses; https://github.com/SMByC where AcATaMa is located and has been used by the project developer.*
Action plan:	*Validation* 1. *The information contained in the annexes is verified to be consulted by the audit team.* 2. *Within the PDD V2.0 section 7. Risk management a risk reassessment is performed following the guidelines of section 13 RISK MANAGEMENT of the BCR V 3.3 standard and the use of the Permanence and Risk and management tool V1.0 section 2. Many of the observations, including new*

	mitigation measures, are integrated into the adaptive management framework. *Verification* 1. *Section 13.1.3 Monitoring of leakage and non-permanence risks is developed in the Monitoring Report.* 2. *Section 13.1.4.1 Uncertainty of activity data is developed in the Monitoring Report. Incorporating more clearly the descriptions of the uncertainty management associated with the models for estimating reductions. The Instructions for Supervised Classification Processing, item 14 validation of the classification model sets out the results, in addition the AcATaMa Instructions; Inventory Design Procedure and the validation of the classification model from field data are annexed.* 3. *Section 13.2 Deviation request applied to this monitoring period is developed. Clarifying that no methodological deviations are presented for the present monitoring period. nor changes requested against the project document, given that this is presented simultaneously.* *ROUND 2* *The base Lb is updated according to the methodological requirements BCR002, of the BCR V3.1 standard and normative (article 41 of resolution 1447 of 2018) regarding the reconstruction of the reference level. It is clarified that, a request was made to the Forest and Carbon Monitoring System - SMBYC of the Ecosystems and Environmental Information Subdirectorate that is managed from IDEAM, inquiring about the algorithm used for the classification of forest and non-forest cover (Radicado IDEAM 20249910046184).* *The response (20245000028221) indicates that the SMByC uses certain algorithms https://github.com/SMByC under the PDI protocol for the quantification of deforestation in Colombia (Protocolo de procesamiento digital de imágenes para la cuantificación de la deforestación en Colombia. V2.0, Galindo et al 2014.) But from the Set of algorithms none performs the classification of non-forest forest.* *It was decided to use Machine Learning techniques using the Random Forest (RF) classifier. This choice is based on the abundant scientific literature that points out that RF outperforms most classifiers due to its robustness, ease of parameterization and speed (Kawzoglu, 2017). Moreover, studies such as those by Fagua et al. (2021), Olofsson et al. (2006), Fauvel et al. (2022), Mudereri et al. (2019) and Kpienbaareh et al. (2021) show that RF offers high accuracy and is widely recommended for classification of thematic series or satellite imagery. Therefore, this choice satisfies that criterion.*

	From the set of algorithms available in Git hub (https://github.com/SMByC), AcATaMa is used to evaluate the accuracy of the maps and determine the level of uncertainty. *Likewise, the baseline is updated in accordance with the BCR standard V 3.3 update of March 1 in relation to numeral 10.2 Duration and quantification periods. In this regard, with respect to REDD type projects, it establishes that:* *"b). Renewable quantification periods, with a maximum of 10 years and will be renewed at least 3 times, with a minimum duration of 40 years. Therefore the quantification is established for the period 2018-2028. (10 years, first quantification period).* *Kavzoglu, T., (2017). Object-Oriented Random Forest for High Resolution Land Cover Mapping Using Quickbird-2 Imagery. In: Handbook of Neural Computation, edited by Samui, P., Roy, S.S., and Balas, V.E. Elseiver, Amsterdam.* *Fagua, J., Jantz, P., Burns, P., Massey, R., Buitrago, J., Saatchi, S., Hakkenberg, C., Goetz, S. (2021). Mapping tree diversity in the tropical forest region of Chocó-Colombia. Environmental Research Letters, http://dx.doi.org/10.1088/1748-9326/abf58a* *Olofsson, P., Holden, C. E., Bullock, E. L., & Woodcock, C. E. (2016). Time series analysis of satellite data reveals continuous deforestation of New England since the 1980s. Environmental Research Letters, 11(6), 064002* *Fauvel, K., Fromont, E., Masson, V., Faverdin, P., & Termier, A. (2022). XEM: An explainable-by-design ensemble method for multivariate time series classification.Data Mining and Knowledge Discovery, 36(3), 917-957.* *Mudereri, B. T., Dube, T., Adel-Rahman, E. M., Niassy, S., Kimathi, E., Khan, Z., & Landmann, T. (2019). A comparative analysis of PlanetScope and Sentinel-2 space-borne sensors in mapping Striga weed using Guided Regularised Random Forest classification ensemble. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 42(2/W13).* *Kpienbaareh, D., Sun, X., Wang, J., Luginaah, I., Bezner Kerr, R., Lupafya, E., & Dakishoni, L. (2021). Crop type and land cover mapping in northern Malawi using the integration of sentinel-1, sentinel-2, and planetscope satellite data. Remote Sensing, 13(4), 700.*
OVV Evaluation :	*The finding is closed, since the project developer demonstrates through documentary and methodological evidence, that he established the project baseline adhering to the requirements of methodological BCR002, of the BCR V3.1 standard and normative (article 41 of resolution 1447 of 2018) regarding the reconstruction of the reference level.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

№ Finding:	*24*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:		*The project is not aligned with:* *1. BIOCARBON TEMPLATE V 2.1, numeral 9. Socio-economic aspects* *2. BCR_Monitoring-Report-Format. V 1.0, Item 9. Socio-economic aspects*				
Objective Evidence		***Validation:*** *The owner does not include within this analysis risks that during the interviews conducted as part of the validation activities the audit team identified. For example:* *1. It was found that the owners stated that one of the risks they often face and that generates more conflict are the recurrent invasions of their neighbors (in many cases they are indigenous reserves) in their properties, which sometimes cause intentional fires, hunt in their properties and cut down trees without authorization.* *This conflict generates a negative impact, as the situation could worsen in order to comply with the commitments assumed in the implementation of project activities and was not considered as part of the analysis.* *2. The landowners perceive the Jaguar (tiger) as an imminent risk to their livestock and stated that it was necessary to kill them.* ***Verification:*** *1. The project must ensure that it has defined mechanisms in place to monitor the identified impacts that the project may generate in the community at large.*				
Action plan:		*Validation:* *1. Within section 8 and 9 of the PDD V. 2.0, there is the matrix of environmental and socioeconomic impacts (See 5.1. ORINOCO2 CARBONO DEL ORINOCO Environmental Assessment Matrix), this matrix was adjusted, for which the environmental and socioeconomic impacts were consolidated into a single matrix. This matrix now incorporates the analysis of possible conflicts that could increase the relationship between neighbors (Indigenous communities and Ecosystem Managers), in addition, it is included in its social, financial and environmental dimension, along with mitigation actions following the strategy of dialogue and non-intervention in indigenous reserves.* *2. In section 8 and 9 of the PDD V. 2.0, there is a matrix of environmental and socioeconomic impacts (See 5.1. ORINOCO Environmental Assessment Matrix), which now incorporates the possible environmental impact derived from the interaction with the jaguar, as perceived by the ecosystem managers. Based on this, the biodiversity team has formulated mitigation actions such as the use of appropriate*				

	enclosures to control the births in a more hygienic space to prevent the jaguar from being attracted to these spaces, as well as communication channels between the territorial entities that manage the diversity, all of which is included in a management plan (See 6.5.1.3.5.4. Management plan for felines). *Verification:* **1.** *Within the analysis of the matrix of environmental and socioeconomic aspects (See 5.1. ORINOCO Environmental Assessment Matrix), 2 negative environmental impacts were identified, especially related to the conservation of natural ecosystems and biodiversity.* *In this sense, the mechanism used to mitigate and monitor these negative impacts is through the safeguards monitoring plan tool, which is found in section 11 of the Monitoring Report v2.0, (See 6.2 Safeguards Monitoring Plan), specifically in relation to safeguard E, which deals with the conservation of forests and their biodiversity.*
OVV Evaluation:	*The project developer relates the information and supporting documentation to respond to each of the points established in the finding, which generates its closure.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*25*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*El proyecto no está alineado con:* *1. PLANTILLA BIOCARBÓN V 2.1, numeral 10. Consulta con las partes interesadas (stakeholders).* *2. BCR_Monitoring-Report-Format. V 1.0, 10. Consulta con las partes interesadas (stakeholders).*					
Objective Evidence	***Validation:*** *1. It was not possible to interview the relevant stakeholders of the project, such as Corporinoquia and the BioCarbon program.* *2. It was not possible to corroborate the comments received as part of this exercise during the field visit and document review.* ***Verification:*** *1. We were not able to interview relevant stakeholders such as: Corporinoquia and the BioCarbon program.*					
Action plan:	*Validation - Verification* *1. According to BIOCARBON TEMPLATE V 2.2, numeral 10. Consultation with interested parties (stakeholders). and BCR_Monitoring-Report-Format. V 1.1, 10.*					

	2. *Consultation with interested parties (stakeholders). Describe the process and results of ongoing stakeholder communication conducted prior to verification. Include details on the procedures or methods used to engage local stakeholders, document the results of stakeholder feedback and the mechanism for ongoing communication with local stakeholders."* - *In this regard, section 10 of the PDD v 2.0 established the procedure related to stakeholder consultation.* *On the other hand, with respect to local stakeholders particularly mentioned in the nonconformity, the following is clarified:* ***CORPORINOQUIA:** The corporation has been invited to comment on the project or to meet with us and so far the corporation has not commented, we will continue to approach the corporation to participate and articulate the project. The following is the evidence of the presentation of the project and the invitation for comments.* *- 14/07/2023-02/01/2024: Within the framework of the stakeholder consultation, a letter was sent to the Vichada Sectional CE 23-538 - Corporación Autónoma Regional de la Orinoquia. pdf, later a request for PQRs was sent which has not been answered yet. (corres a corporación)* *- 29/11/2023: Mail is sent to the director of climate change of the corporation (Mail to Julie Paez Corporation).* *From the foundation we have shared different spaces with the corporation and we hope to continue establishing closer ties to articulate and generate synergies that improve the results of climate change mitigation in the framework of project implementation.* ***PROGRAMA BIOCARBONO*** *Consultations with Biocarbono have taken place in the framework of avoiding transplants that are not compatible with the future program once it has started. In this sense, Finding No. 17 describes how Biocarbon has been taken into account in the execution of the Orinoco2 CARBONO DEL ORINOCO project.*
OVV Evaluation:	*The project developer relates the information and supporting documentation to respond to each of the points established in the finding, which generates its closure.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*		

Nº Finding:	*26*	*Finding Type:*	*CAR*	*x*	*CL*	

Description:	*The project is not aligned with:* *1. BIOCARBON TEMPLATE V 2.1, numeral 11. ODS.* *2. BCR_Monitoring-Report-Format. V 1.0, numeral 11.ODS*
Objective Evidence	***Validation:*** *1. The description of activities to comply with the SDGs in the PdD fails to demonstrate compliance with this requirement. The relevant criteria and indicators defined by the project owner to comply with the SDGs are not clear.* *2. No evidence was found on how the project implemented the tool for determining contributions to the SDGs in the PDD.*
Action plan:	*Validation:* *1. In the PDD v2.0, section 11 Sustainable Development Goals is developed using the two tools Sustainable Development Goals (SDG) Version 1.0 and the SDG Tool (2023). In this regard, it describes how some of the project activities contribute to the achievement of SDG 6, 13 and 15 targets. In addition, the following clarifications are made regarding SDG 6 and 15:* - *SDG 6: A modification has been made to project activity G7, related to the creation of a "Plan for the Efficient Use and Saving of Water in Households (PUEAA)". This activity has been relocated and merged into activity G2 and S2, focused on: "Technical Capacity Building Plan" and "Implementation of Sustainable Productive Practices in Natural Savannas", in order to optimize compliance with SDG 6 indicator 6.1.1. This adjustment seeks to ensure greater alignment with the targets set and strengthen the impact of the project in terms of quality, preservation and efficient use of water resources.* - *-SDG15: Whose main objective is to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss, through the protection, restoration and sustainable use of terrestrial ecosystems and biodiversity. The project contributes to the goals:* - *15.1 focused on the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services.* - *15.5 which focuses on aPDDting measures to reduce the degradation of natural habitats along with avoiding biodiversity loss and 15.6 which focuses on the conservation and restoration of natural habitats.* - *15.a which focuses on mobilizing financial resources to conserve biodiversity and its ecosystems.* - *In this sense, the project activities that directly contribute to the SDG targets are G2, G5, S2, B1, B2 and B3. These activities revolve around the*

	delimitation of strategic ecosystems, as well as the identification and monitoring of HCVs present in the project area along with globally threatened species, adding the economic effect and resource mobilization, which go hand in hand and help to meet both SDG 15 and its goals and targets. 2. *In Section 11 of the PoD V2.0 the evidence of the use of the tool is presented, as well as described:* - *Clarification of how the SDG Tool was applied (Excel)* - *Results of the application of the tool, contributing to the SDGs (6, 13 and 15),* - *The project activities contributing to them, the scope of the contribution, the periodicity, the unit of measurement and the evidence of the contribution.* *On the other hand, after reviewing in detail the PDD V2.0, the monitoring report V2.0 and the documentation provided, it is assured that the SDG 2023 tool has been used to assess and determine the project's direct contributions to the specified SDGs and their corresponding indicators.*
OVV Evaluation:	*The project developer relates the information and supporting documentation to respond to each of the points established in the finding, which generates its closure.*
Conclusion:	*Close finding* | *X* | *Maintain finding* | | *FAR* |

Nº Finding:	*27*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:	*El proyecto no está alineado con:* 1. *BIOCARBON TEMPLATE V 2.1, numeral 12. Salvaguardas REDD+ (para Proyectos REDD+).* 2. *BCR_Monitoreo-Informe-Formato. V 1.0, numeral 12. Salvaguardas REDD+ (para Proyectos REDD+*					
Objective Evidence	***Validation:*** 1. *The description of activities to comply with the national interpretation of safeguards fails to demonstrate compliance with this requirement.* 2. *No evidence was found to support compliance with the interpretation of the safeguards in the PDD.* ***Verification:*** 1. *The description of the activities developed during the monitoring period is not sufficient to ensure that the project complied with the guidelines of the national interpretation of the safeguards.* 2. *No evidence was found to support compliance with the interpretation of the safeguards in the MR.*					

Action plan:	*Validation:* 1. *Section 12 Safeguards of the PDD V2.0 was adjusted, adding a table for each safeguard, clearly explaining how the project activities will contribute to the fulfillment of each one of them, as follows:* *- Table 46. Projection of Safeguard A approach,* *- Table 47. Projection of Safeguard B approach,* *- Table 48. Projection of Safeguard C approach,* *- Table 49 Projection of Safeguard D approach,* *- Table 50 Projection of Safeguard E approach,* *- Table 51 Projection of Safeguard F approach,* *- Table 52 Approach projection for Safeguard G)* 2. *With the objective of ensuring compliance with the national interpretation of safeguards Within these tables 46-52, the relationship between the Cancun Safeguards and each of the elements of the national interpretation of the safeguards for Colombia is presented. It also details how each of these elements will be addressed in the framework of project implementation..* *Verification:* 1. *n section 11 of the Monitoring Report v2.0, the numerals 11.1, 11.2, 11.3, 11.4, 11.5, 11.6 and 11.7 have been integrated; with the objective of being able to specifically develop the activities or actions that led to demonstrate compliance with the safeguards, in conjunction with the elements of the national interpretation during the monitoring period.* 2. *Tables 8, 10, 12, 12, 14, 14, 16, 18 and 20 of section 11 of the Monitoring Report v2.0 contain the evidence that demonstrates compliance with the safeguards and their elements of the corresponding national interpretation.* *Tables 9, 11, 13, 15, 15, 17, 18 and 19 of the same section report the percentage of progress made in complying with each of the safeguards.* *A safeguards monitoring plan and report was also prepared, which shows how safeguards compliance monitoring and reporting will be carried out (See 6.2. SAFEGUARDS MONITORING PLAN AND REPORT).*					
OVV Evaluation:	*The project developer relates the information and supporting documentation to respond to each of the points established in the finding, which generates its closure*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*28*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:		*The project is not aligned with:* *Resolution 1447 of 2018 chapter 1 paragraph 3, chapter 2 article 10.*				
Objective Evidence		***Validation:*** *No evidence was found regarding the mechanisms and processes contemplated by the project manager to follow up on the supports to be submitted to RENARE in the PDD.* ***Verification:*** *No evidence was found regarding the mechanisms and processes contemplated by the project manager to follow up on the supports to be submitted to RENARE in the RM.*				
Action plan:		***Validation:*** ***In compliance with Article 10 of Resolution 1447 of 2018 which deals with the duty to register the project in the RENARE platform, such management is addressed in the PDD Section 16. avoiding double counting. Where it is described, justified and evidenced that the RENARE platform is not operational since 2022, but the project is registered. and is included within the risk management section with mitigation actions, such as constant monitoring to the evolution and implementation of the platform, while monitoring GHG project registration platforms to avoid any type of non-compatible overlap.*** ***Verification:*** ***The monitoring of the information to be uploaded to RENARE is mentioned in PDD Section 16.2, where it is described, justified and evidenced that the RENARE platform has not been operational since 2022. Therefore the risk management mechanism of monitoring the implementation of the platform continues.***				
		The project developer relates the information and supporting documentation to respond to each of the points established in the finding, which generates its closure.				
Conclusion:		*Close finding*	*X*	*Maintain finding*		*FAR*

Nº Finding:	*29*	*Finding Type:*	*CAR*	*x*	*CL*	
Description:		*The project is not aligned with:* *BCR Standard From differentiated accountability, to common accountability V 3.2, numeral 26. Double counting.* *BIOCARBON TEMPLATE V 2.1, numeral 16. Double counting avoidance*				
Objective Evidence		***ROUND 1*** ***Validation:*** *No related evidence was found on how the project has procedures to ensure that it does not present double counting in the PDD and implements the BCR Tool "Avoiding Double Counting (ADC)".* ***Verification:*** *No related evidence was found on how the project performed procedures to follow up and ensure that it does not present double counting in the RM and implements the BCR Tool "Avoiding Double Counting (ADC)".* ***ROUND 2*** *The PDD V2.0 indicates the following in section 16.2 Review of other projects;* *systematic search of the standards present in the region of influence is carried out. VERRA, COLCX, CERCARBONO and BIOCARBONO REGISTRY 1.4.4.1. Cartographic information. Following the identification, the cartographic information of each carbon project present in the area is downloaded directly from the website of the corresponding standard. This information is organized in shapefiles for vector analysis.* *However, there are other records such as Gold Standard, where the following projects are found for the department of Vichada, municipalities of Cumaribo and* *https://registry.goldstandard.org/projects/details/1806*				

https://registry.goldstandard.org/projects/details/4104

Therefore, the project developer must ensure that the project site areas do not overlap with other project areas in other carbon registries.

Action plan:

Validation

Section 16. Avoiding Double Counting is developed, implementing the BCR Tool "Avoiding Double Counting (ADC)". In this sense, it is determined that the project can reduce the risk of double counting by registering the project in Renare, but since the platform is not operational, a systematic sweep of GHG mitigation projects in the different registration platforms is performed, demonstrating and evidencing that the project does not have any incompatible overlap with other initiatives.

Verification

Since validation and verification are presented simultaneously, the PDD information corresponds to the verification-monitoring period.

ROUND 2

	We searched for maps or shapes of project areas in the gold standard registry; however, the standard does not publish this type of information. A review of the project documents of those projects was carried out and no properties were found with names similar to those that are part of our project; however, it is clarified that for double accounting to exist, there must be a non-compatible overlap, i.e. the project activities must be the same and/or the periods must be the same. In this sense, Gold's standard projects are AR type activities and Orinoco2 CARBONO DEL ORINOCO has REDD+ type activities (reducing emissions from deforestation and forest degradation), therefore the risk of double counting is practically nil.
OVV Evaluation:	*The finding is closed, given that the project developer provides information showing that there is no double counting in different carbon registries related to project activities, therefore carbon pools and eligible land areas.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

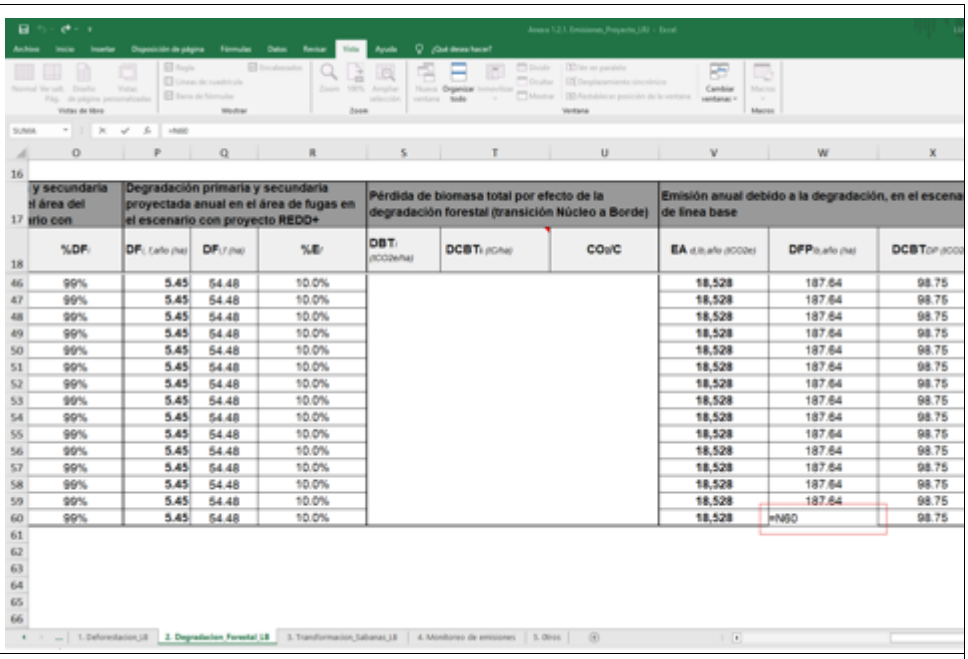
№ Finding:	*30*	*Finding Type:*	*CAR*	*x*	*CL*	

Description:	*The project is not aligned with:* *Resolution 1447:2018. Articles 34 and 39.*
Objective Evidence	***ROUND 1*** ***Validation:*** *No related evidence was found on how the project has procedures in place to ensure that the uncertainty does not exceed 10%.* ***Verification:*** *No related evidence was found on how the project implemented procedures during monitoring activities to ensure that the uncertainty was not greater than 10%.* ***ROUND 2*** *The project developer shall ensure that the baseline reconstruction in accordance with the NERF is complied with to ensure that the uncertainty does not exceed 10%.*
Action plan:	*Validation:* *In accordance with resolution 1447:2018.* *Article 34: Use of methodologies for the formulation of sectoral GHG mitigation projects: Holders of sectoral GHG mitigation projects shall use methodologies that comply with one of the following characteristics.:*

	1. *Be one of the methodologies proposed and approved to be used under the UNFCCC GHG mitigation mechanisms applicable to Colombia.* 2. *Be one of the methodologies elaborated by GHG certification programs or carbon standards.* 3. *Be a methodology developed by a national public entity that has been reviewed by the Technical Committee of the intersectoral commission on climate change.* - *In this sense, according to option 2, the project complies since it uses methodologies developed by a certification program..* *Article 39: Use of Methodologies for the formulation and implementation of REDD+ projects. The REDD+ project holder shall use methodologies that comply with the following characteristics.* 1. *Follow UNFCCC guidelines related to REDD+.* 2. *Have a mechanism in place to manage the risk of leakage of GHG emission reductions.* 3. *Have a mechanism for managing the risk of non-permanence of emission reductions.* 4. *To have a mechanism for managing uncertainty in the quantification of baseline and mitigation results.* - *The methodology used is BCR 0002 which incorporates together with the BCR V 3.3 standard all the characteristics of article 39 of resolution 1447 of 2018. Likewise, the criteria related to these characteristics are described, justified and evidenced in the PDD V2.0..* *Now, in relation to the uncertainty management applied by the project, section 3.5 Uncertainty management of the PDD v2.0 is adjusted, relating the procedures for the calculation of uncertainty in the emission factors and calculation of the accuracy of the maps used* *Verification:* *Section 13.1.4 uncertainty management of the 2018-2022 Monitoring Report is adjusted, detailing the application of the procedures for assessing uncertainty in the data sources used.* *ROUND 2* *It is verified that the baseline construction complies with the NERF deconstruction methodology over the project areas.*
OVV Evaluation:	*The finding is closed, given that the project developer demonstrates that it complies with the NREF baseline reconstruction procedures to ensure that the uncertainty does not exceed 10%. Since in numeral 3.5. Uncertainty management of the PD establishes that the accuracy results for forest-non-forest maps were as follows: 2008 (96%), 2018 (95%) and 2022 (94%), as well as for savannah*

	coverages the accuracy result was 98% and the emission factors for natural savannahs registered a value of 9%. For forests, the project developer applied the emission factors presented in the country's reference level.					
Conclusion:	Close finding	X	Maintain finding		FAR	

Nº Finding:	31	Finding Type:	CAR	x	CL	
Description:	The project is not aligned with: ISO 14064-2:2019 numerals 6.3 and section A.3.2;					
Objective Evidence	**ROUND 1** **Validation:** The documentary review shows that the PDD does not explain or justify which GHG SRFs were identified as relevant to the project. No evidence was found regarding the criteria and procedures established to identify which GHG FSRs are controlled by the project, which are related and which would be affected by the GHG project. The explanation and justification of the criteria and procedures for determining the GHG baseline according to the identified FSRs is not clear. No evidence was found regarding the availability, reliability and limitations of the data. **Verification:** The documentary review shows that the PDD does not explain or justify which GHG SRFs were identified as relevant to the project. No evidence was found regarding the criteria and procedures established to identify which GHG FSRs are controlled by the project, which are related and which would be affected by the GHG project. The explanation and justification of the criteria and procedures for determining the GHG baseline according to the identified FSRs is not clear. No evidence was found regarding the availability, reliability and limitations of the data. **ROUND 2** **Validation:** The quantification of emissions and reductions should be adjusted for the last year according to the number of months the project operates in the last year, in a similar way as it is adjusted for the first year with 3 months.					

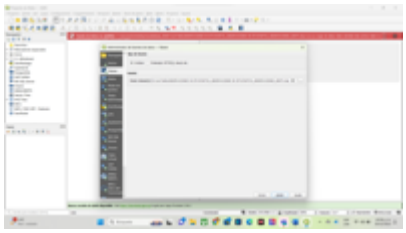
	
Action plan:	*ROUND 1* *Section 3.2.2. Carbon pools and GHG sources of the PDD, which describes the carbon pools and GHG sources applicable to the project, is adjusted. This selection was made taking into account the guidelines of methodologies BCR0002 V3.1 (section 7) and BCR0005 V1.0 (section 7.2), and the internal procedure FC-GOP-23 Inventory design procedure for biomass growth monitoring (section 7.1). In this sense, the identified carbon pools are mainly considered as Controlled, since the conservation activities proposed by the project may directly influence their carbon levels.* *Similarly, section 3.7.3 Emission Reduction/Removals in the Baseline scenario of the PDD describes in detail the procedures applied and data sources used to determine the baseline GHG emissions, according to the selected carbon pools.* *ROUND 2* *The project's quantification period is adjusted according to the guidelines of BCR Standard V 3.3 (section 10.5). Thus, a period of 9.25 years (01/10/2018 - 31/12/2027) is established. Consequently, in the spreadsheet for the first quantification period, the months are adjusted in year 1 (3 months). (Annex 1. Emissions / 1.2. Quantification of emissions / Annex 1.2.1. Emissions_Project / Sheet 1. Deforestation_LB; Sheet 2. Degradation_Forest_LB and Sheet 3. Deforestation_LB).*
OVV Evaluation:	*Keep open until the quantification of emission reductions is adjusted in the final year to the number of months the project operates.*

Conclusion :	*Close finding*	*X*	*Maintain finding*		*FAR*	

Nº Finding:	*32*	*Finding Type:*	*CAR*	*X*	*CL*	
Description:	*BIOCARBON Standard BCR 0005 ,11 Quantification of GHG emission reductions, 11.2 Activity data; 11.2.1 Estimation of land use changes.*					
Objective Evidence	***Validation y Verification:*** *The project is not aligned with:* *a. Collect the data used to analyze land use changes over land covers over savanna vegetation covers, during the historical reference period between the project boundaries. It is a good practice to do it at least in three points in time, with 3 to 5 years of difference, the information of the satellite images used for the generation of the extra layer that does not correspond to those of IDEAM of Corine Land Cover of 2010 - 2012, 2018 was not found. Without knowing the source images, it is not clear how the image processing was performed, it is not found within the PDD.* *b. Select medium resolution spatial data (from 10 meters to a maximum of 30 meters spatial resolution), from optical and radar sensor systems, such as (but not limited to) Landsat, SPOT, ALOS, AVNIR2, ASTER, Sentinel 1 and 2, among others. It covered the last 5 - 10 years, and display them in tabular format (Table 3), provide the information on the data collected, within the PDD, the table requested by the standard, called Characterization of cartographic inputs, is not registered within the PDD.*  *Tabla de caracterización de insumos* *a. Collect high resolution data from remote sensing (less than 5 x 5 meters per pixel) and/or direct field observations for validation of field maps. Describe the type of data, coordinates and the sampling design used to collect it, within the PDD, the information of the description of the high resolution satellite images was not found. The GDB delivered does not allow to visualize the layers, does not allow to see the structure of the information, there is no evidence of the existence of the validation of the quality of the layer. Quality control.* *b. The validation processes for the treatment of satellite images and geographic data should be supported by international standards such as ISO, OGC or the American Society for Photogrammetry and Remote Sensing. Within the*				

PDD there is no evidence of treatment and processing of images of any kind, there is no evidence of images, processing or description of how the coverage was generated.

Layers delivered in the GDB folder are not allowed to be uploaded,



Does not allow to see the GDB wi REDD

a. *Inside the GDB, it is not possible to visualize the information delivered, it is empty when loading, it does not comply with the ISO 19131 standard, technical specifications of the product according to the specifications of the data product.*
b. *There is no compliance with ISO 19115-1 Geographic Metadata, there is no relation of the metadata, nor evidence of the presence of these formats filled out for each of the layers that cannot be visualized.*
c. *There is no evidence of compliance with the ISO 19157 data quality standard; the data delivered cannot be viewed.*
d. *There is no compliance with ISO 19157 Data quality, the quality processing used for this process is not clear, it is not understood how the coverages were defined, which is the classification criteria, an explanation is required not only to deliver standard procedures, which are part of quality protocols, but do not correspond to the requirements of the certifying program.*
e. *Within the PDD and the annexes delivered in the GDB folder, in the procedures described there is no indication of the type of image, its source, and date of acquisition of the remote sensing data, geometric, radiometric and other types of corrections made (combination of bands used, indices used are not evident in the protocols delivered, there is no evidence of the estimation of the geometric correction.*
f. *Land cover and land use classes, categories of change, classification approach, ground truthing data, were not found in the PDD, nor described in the procedures.*

	 *Matriz de cambios de la cobertura terrestre*
Action plan:	*Section 11.2.1. Estimation of changes in land use changes is updated:* *a. The numeral indicates that the project owner must perform the land use analysis for the years 2009 and 2018, using as input the available cartographic information such as land cover maps, Corine Land Cover-IDEAM methodology (http://www.siac.gov.co/catalogo-de-mapas). It also recommends doing the analysis for at least 3 to 5 points in time. This analysis is performed in the project areas. Geodatabase/1.1.1.1.1.1.Sabana Feature Dataset Reference region and project areas.* *b. The spatial data were of medium resolution, the Sentinel 2AB sensor was used. Geodatabase/1.1.1.1.1.1.Sabana Feature Dataset project areas and Corine Land Cover Interpretation, in the attribute table the code/nomenclature of the image used is listed.* *c. Field data were used, i.e. direct observations on the territory for the year 2022, so it was not necessary to corroborate with higher resolution images. The information is available in section 1.1.1.3.3 Field Formats. The format contains coordinates, coordinate type and coverages. This information is also found in the .Geodatabase/1.1.1.1.1.Sabana Feature Dataset Validation Confusion Matrix, Sampling points field.shp.* *d. The characterization of cartographic inputs was carried out in the monitoring period, that is, in the elaboration of the land cover map for the year 2022, which is related to 14.1.4.1 Uncertainty of activity data. Table 39 Characterization of cartographic inputs. National inputs were used to generate eligibility.* *e. According to the information provided by you, it is not that it is empty. It happens that the method you use in QGIS is not ideal to open a geodatabase. The following information is provided: In the browser panel of QGIS, go to the location of the destination folder, click on the folder, which will display the cartographic information, by this method it, will not be possible to see the feature dataset, ie the folders of the geodatabase, on the contrary you will see all the vector information loaded. The use of ArcMap - ArcGIS Pro is recommended.* *f. Since it was not possible to access the cartographic information of the different geodatabase, it is not possible to show the metadata. Therefore, it is recommended to open gdb as explained in item e.* *g. Perform the opening according to item e. The data present a spatial reference system, with Transversa Mercato cartographic projection, also called CTM*

	12, aPDDted for Colombia. The cartographic information has a tabular file containing the information of the geographic entities. The cartographic information has topological analysis and verification of geometric errors, as well as their validation. *h. Instructions on how to classify land cover according to the Corine Land Cover methodology adapted for Colombia. The adaptation for Colombia defines the land covers in the national territory. Under this adaptation, the methodology defines the land cover pertaining to natural savannahs such as grasslands and shrublands. In item 1.1.1.1.2. Procedures, there are the instructions developed to interpret coverages at the required scale, the characterization of inputs, the information validation matrix.* *i. The PDD indicates that the data used are those generated by IDEAM, specifically the Corine Land Cover 2009 and 2018 land cover maps. The attached instructions indicate that according to the Corine methodology it is not necessary to make environmental corrections to the image (because the terrain is flat), in these instructions are the necessary steps to identify coverages. Additionally, the characterization of the inputs used can be found in the monitoring report, where the type of satellite used is listed by nomenclature.* *j. Changes in land use in natural savannas, Matrix of changes in land cover and land use.*
OVV Evaluation:	*The project developer provides documentary evidence to bring closure to the finding.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

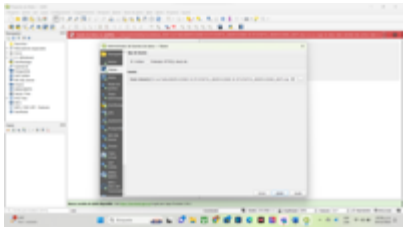
No. Finding:	*33*	*Finding Type:*	*CAR*		*CL*	
Description:	*BIOCARBON Standard BCR0005 ,11 Quantification of GHG emission reductions, 11.2 Activity data; 11.2.1 Estimation of land use changes.*					
Objective Evidence	*Verification* *The project is not aligned with:* *a. Collect the data used to analyze land use changes over land covers over savanna vegetation covers, during the historical reference period between the project boundaries. It is a good practice to do it at least in three points in time, with 3 to 5 years of difference, the information of the satellite images used for the generation of the extra layer that does not correspond to those of IDEAM of Corine Land Cover of 2010 - 2012, 2018 was not found. Without knowing the source images, it is not clear how the images were processed, it is not found within the PDD.* *b. Select medium resolution spatial data (from 10 meters to a maximum of 30 meters spatial resolution), from optical and radar sensor systems, such as (but not limited to) Landsat, SPOT, ALOS, AVNIR2, ASTER, Sentinel 1 and*					

2, among others. It covers the last 5 - 10 years, and display them in tabular format (Table 3), provide information about the data collected, within the PDD, I am not found within the PDD, registered the table requested by the standard, called Characterization of cartographic inputs.

Tabla de caracterización de insumos

a. *Collect high resolution data from remote sensing (less than 5 x 5 meters per pixel) and/or direct field observations for validation of field maps. Describe the type of data, coordinates and the sampling design used to collect it, within the PDD, the information of the description of the high resolution satellite images was not found. The GDB delivered does not allow to visualize the layers, does not allow to see the structure of the information, there is no evidence of the existence of the validation of the quality of the layer. Quality control.*
b. *The validation processes for the treatment of satellite images and geographic data should be supported by international standards such as ISO, OGC or the American Society for Photogrammetry and Remote Sensing. Within the PDD there is no evidence of treatment and processing of images of any kind, there is no evidence of images, processing or description of how the coverage was generated..*

No se permite el cargue de capas, entregadas en la carpeta GDB,



Does not allow to see the GDB wi REDD

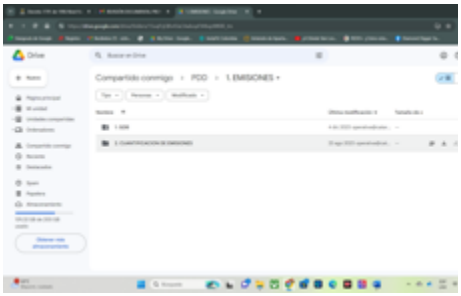
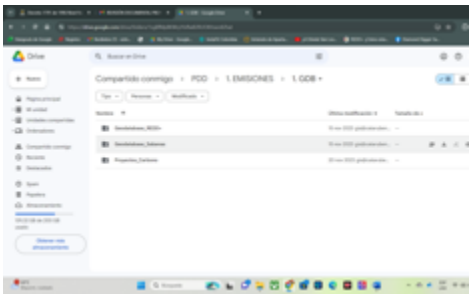
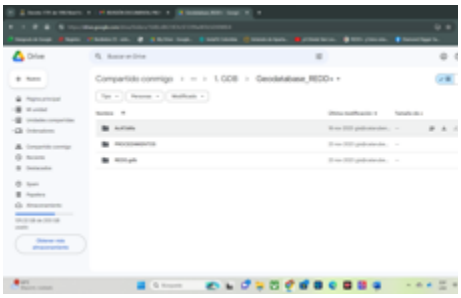
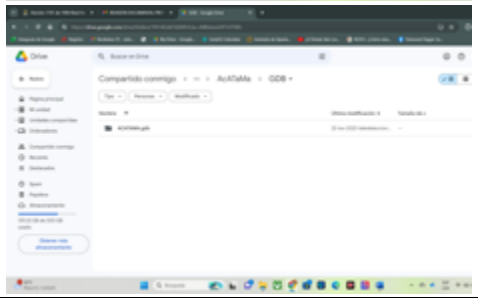
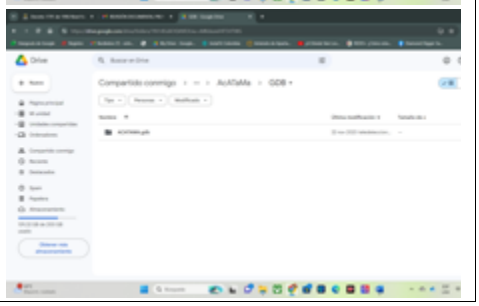
a. *Inside the GDB, it is not possible to visualize the information delivered, it is empty when loading, it is not in compliance with the ISO 19131 standard, technical specifications of the product according to the specifications of the data product.*

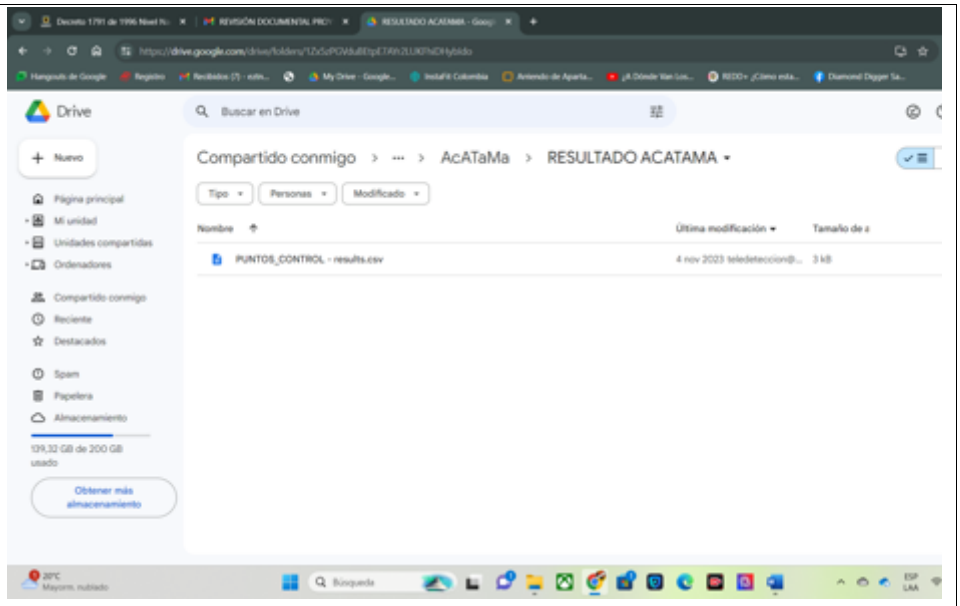
	b. *There is no compliance with ISO 19115-1 Geographic Metadata, there is no relation of the metadata, nor evidence of the presence of these formats filled out for each of the layers that cannot be visualized.* c. *There is no evidence of compliance with the ISO 19157 data quality standard; the data delivered cannot be viewed.* d. *There is no compliance with ISO 19157 Data quality, the quality processing used for this process is not clear, it is not understood how the coverages were defined, which is the classification criteria, an explanation is required not only to deliver standard procedures, which are part of quality protocols, but do not correspond to the requirements of the certification program.* e. *Within the PDD and the annexes delivered in the GDB folder, in the procedures described, it is not found what type of image corresponds, what is its source, and date of acquisition of the remote sensing data, geometric, radiometric and other types of corrections made (combination of bands used, indices used are not evident in the protocols delivered, there is no evidence of the estimation of the geometric correction.* f. *Land cover and land use classes, categories of change, classification approach, ground truthing data were not found neither in the PDD, nor in described in the procedures..*  *Matriz de cambios de la cobertura terrestre*
Action plan:	a. *The numeral indicates that the project owner must perform the land use analysis for the years 2009 and 2018, using as input the available cartographic information such as land cover maps, Corine Land Cover-IDEAM methodology (http://www.siac.gov.co/catalogo-de-mapas). It also recommends doing the analysis for at least 3 to 5 points in time. This analysis is performed in the project areas. Geodatabase/1.1.1.1.1.1.Sabana Feature Dataset Reference region and project areas.* b. *The spatial data were of medium resolution, the Sentinel 2AB sensor was used. Geodatabase/1.1.1.1.1.1.Sabana Feature Dataset project areas and Corine Land Cover Interpretation, in the attribute table the code/nomenclature of the image used is listed.* c. *Field data were used, i.e. direct observations on the territory for the year 2022, so it was not necessary to corroborate with higher resolution images. The information is available in section 1.1.1.3.3 Field Formats. The format contains coordinates, coordinate type and coverages. This information is also available in the .Geodatabase/1.1.1.1.1.Sabana Feature Dataset Validation Confusion Matrix, Sampling points field.shp.*

	d. *The characterization of cartographic inputs was carried out in the monitoring period, that is, in the elaboration of the land cover map for the year 2022, which is related to 14.1.4.1 Uncertainty of activity data. Table 39 Characterization of cartographic inputs. National inputs were used to generate eligibility.* e. *According to the information provided by you, it is not that it is empty. It happens that the method you use in QGIS is not ideal to open a geodatabase. The following information is provided: In the browser panel of QGIS, go to the location of the destination folder, click on the folder, which will display the cartographic information, by this method it, will not be possible to see the feature dataset, ie the folders of the geodatabase, on the contrary you will see all the vector information loaded. The use of ArcMap - ArcGIS Pro is recommended.* f. *Since it was not possible to access the cartographic information of the different geodatabase, it is not possible to show the metadata. Therefore, it is recommended to open gdb as explained in item e..* g. *Perform the opening in accordance with item e. The data present a spatial reference system, with a Transeral Mercato cartographic projection also called CTM 12, aPDDted for Colombia. The cartographic information has a tabular file containing the information of the geographic entities. The cartographic information has topological analysis and verification of geometric errors, as well as their validation.* h. *Instructions on how to classify land cover according to the Corine Land Cover methodology adapted for Colombia. The adaptation for Colombia defines the land cover in the national territory. Under this adaptation, the methodology defines what are the land covers pertaining to natural savannahs such as grasslands and shrublands. In item 1.1.1.1.2. Procedures, there are the instructions developed to interpret coverages at the required scale, the characterization of inputs, the information validation matrix.* i. *The PDD indicates that the data used are those generated by IDEAM, specifically the Corine Land Cover 2009 and 2018 land cover maps. The attached instructions indicate that according to the Corine methodology it is not necessary to make environmental corrections to the image (because the terrain is flat), in these instructions are the necessary steps to identify coverages. In addition, the characterization of the inputs used in the image is made in the following steps.* j. *Changes in land use in natural savannas, Matrix of changes in land cover and its use.*
OVV Evaluation:	*El promotor del proyecto aporta pruebas documentales y cartográficas para respaldar el cierre del hallazgo.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

No. Finding:	*34*	*Finding Type:*	*CAR*		*CL*	

Description:	*BIOCARBON Standard BCR0002, v3.1 Numeral 13 GHG emission reductions from REDD+ activities.* *BIOCARBON Standard BCR0005, v1.0. Numeral 11 quantification of GHG emission reductions.*
Objective Evidence	*No information on how forest stratification is determined in the PDD, nor in the monitoring report, nor in the GDB of REDD+ or savannas.*   *PDD document, provided by Catarruben* *Information route*    

	 *Information route where there is no evidence of how the project was stratified.*
Action plan:	*Section 3.7.2 Stratification of the PDD is adjusted, describing the criteria applied for the stratification of eligible project areas. Thus, based on the methodological documents and the coverages to be managed, two components are established: Natural Savannas and Forests.* *Now, the forest is stratified according to the NREF proposal for the period 2023 - 2027, delimiting Core Edge and Forest Edge areas using the Morphological Spatial Patterns Analysis (MSPA) algorithm. Technical details are described in section 3.7.2. The stratification mapping information is found in the respective REDD Geodatabase, and 1.1.2.1.1.2. Stratification, the inputs (National non-forest forest maps 2005, 2018) and the parameters of the stratification through the MSPA algorithm are available.* *As for savannas, it was not stratified because there are no significant differences between the carbon contents of the Herbazal and Arbustal. Therefore, the cover with the greatest presence in the territory is the grassland and not the shrubland.* *GDB / 1.1.1.1.1.1. Savannas and 1.1.2.REDD, features class project area/eligible areas.*
OVV Evaluation:	*Project developer provides documentary, Morphological Spatial Patterns Analysis (MSPA) algorithm and cartographic evidence to support closure to the finding.*

Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

No. Finding:	*35*	*Finding Type:*	*CAR*	*X*	*CL*	
Description:		*Article 40 of Resolution 1447 of 2018.*				

	BIOCARBON Standard BCR0002, v3.1, numerals: 13.3 Emission factors, section 13.3.2 Degradation. *BIOCARBON Standard BCR0005, v1.0, numeral 11.3 emission factors.*					
Objective Evidence	*The emission factors must be aligned with Article 40 of Resolution 1447 of 2018, where it is established that the emission factors for REDD+ projects, currently the emission factors are not aligned with the current NREF. The value presented by the project holders is higher than that presented by the NREF.*					
Action plan:	*The emission factors for REDD+ activities are adjusted based on the proposed reference level of forest emissions for Colombia for the period 2023-2027, specifically the estimated values for the Orinoco biome, where the project is being developed (Ministry of Environment and Sustainable Development - IDEAM, 2024).*					
OVV Evaluation:	*The project developer provides documentary evidence to close the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

No. Finding:	*36*	*Finding Type:*	*CAR*		*CL*	
Description:	*BIOCARBON Standard BCR0002, v3.1. Numeral: 13 reduction of GHG emissions from REDD+ activities.* *BIOCARBON Standard BCR0005, v1.0. Numeral 11 quantification of GHG emission reductions.*					
Objective Evidence	*Deforestation calculations are not found, a comprehensive methodology is found in the PDD, but there is no report of deforestation, and as seen in finding 20, there are no documents.*					
Action plan:	*ROUND 1* *Sections 3.7.3 and 3.7.4 of the PDD are adjusted, including estimated deforestation values. The detailed breakdown of the calculations is described in Annex 1. Emissions / 2. Quantification of emissions / 2.1. Emissions_Orinoco2 CARBONO DEL ORINOCO Orinoco Carbon / Sheet 1. Deforestation_LB.* *ROUND 2* *Calculations for the deforestation component are adjusted, considering the national guidelines for REDD+ projects (Resolution 1447 of 2018, Article 41). For the 2018-2022 period, the baseline projection and emissions monitoring follow the NREF 2020 guidelines. For the period 2023-2027, the baseline projection uses the NREF 2024 (under evaluation), adjusting aspects such as stratification, emission factors and national conditions. These projections will be revised in the next verification if the NREF conditions are updated.* *On the other hand, following the guidelines of the BCR V 3.3 standard and the applicability range of the national reference levels, a quantification period of 9.25 years (01/10/2018 - 31/12/2027) is established. Accordingly, in the spreadsheet for*					

	the first quantification period, months are adjusted in year 1 (3 months). (Annex 1. Emissions / 1.2. Emissions quantification / Annex 1.2.1. Emissions_Project / Sheet 1. Deforestation_LB).					
OVV Evaluation:	Keep open until the quantification of emission reductions is adjusted in the final year to the number of months the project operates.					
Conclusion:	Close finding	X	Maintain finding		FAR	

No. Finding:	37	Finding Type:	CAR		CL	
Description:	BIOCARBON Standard BCR0002, v3.1, clause 13.3 Emission factors, section 13.3.2 Degradation. BIOCARBON Standard BCR0005, v1.0, numeral 11.3 emission factors.					
Objective Evidence	Within the PDD, the project's emission factors, it is not clear how the sampling intensity was determined for the clusters, there is no evidence of how the sampling intensity is determined (see finding 20), for the calculation of the emission factors.					
Action plan:	Section 3.7.3.2 Emission factors was adjusted in the project's PDD, specifying the procedure for calculating the sample size for savanna ecosystems. Likewise, the spreadsheet detailing the step-by-step calculation is listed (Annex 1.2.2.2.3.1 calculation of the number of clusters). In the case of forests, under the BCR0002 methodology, the information is not included, taking into account that the emission factors are established from reference data.					
OVV Evaluation:	The project developer provides documentary evidence to close the finding.					
Conclusion:	Close finding	X	Maintain finding		FAR	

No. Finding:	38	Finding Type:	CAR		CL	
Description:	BIOCARBON Standard BCR0002. V3.1, clauses 14.6.1 review of information processing and 14.6.2 data recording and archiving system.					
Objective Evidence	***Validation:*** No evidence was found related to the development of items 14.6.1 and 14.6.2 Quality Control Procedures. ***Verification:*** No evidence was found related to the development of items 14.6.1 and 14.6.2 Quality Control Procedures.					
Action plan:	Evidence is uploaded to the corresponding folders.					

OVV Evaluation:	*The project developer provides documentary evidence of data quality control to close the finding.*					
Conclusion:	*Close finding*	*X*	*Maintain finding*		*FAR*	

Annex 3. Documentation review

N°	*Document Title / Version*	*Author*	*Organization*	*Document provider (if applicable)*
1	*Documento de Description del Proyecto (DdP) versión 2.4.*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
2	*Reporte de Monitoreo (RM) versión 2.4.*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
3	*Geodatabase del Proyecto para REDD y sabanas*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
4	*Anexo 1.2.1. Emisiones_Proyecto*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
5	*Factores de emisión* *Procedimientos y bibliografía* *Soportes de campo* *Análisis de datos* *Resultados de laboratorio*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
6	*Cartas de intención*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
7	*Predios vinculados*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
8	*Matriz de Evaluación Ambiental y Socioeconomico/Medidas*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*

	de Salvaguarda ORINOCO2			
9	*Matriz de evaluación de aspectos socioeconómicos ORINOCO2*	*Fundación Cataruben*	*Fundación Cataruben, Febrero de 2024*	*Project Holder*
10	*Consultas a partes interesadas*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
11	*Consulta pública*	*Fundación Cataruben*	*Fundación Cataruben, Noviembre de 2023*	*Project Holder*
12	*Solicitud de exclusión*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
13	*Modelo Financiero ORINOCO2-VF*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
14	*Plan de monitoreo actividades de proyecto*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
15	*Plan de monitoreo salvaguardas*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*
16	*Herramienta-ods-2023*	*Fundación Cataruben*	*Fundación Cataruben, Junio de 2024*	*Project Holder*
17	*Analisis y gestion de riesgos*	*Fundación Cataruben*	*Fundación Cataruben, Mayo de 2024*	*Project Holder*
18	*Radicado RENARE en Ministerio de Ambiente*	*Fundación Cataruben*	*Fundación Cataruben, Abril de 2024*	*Project Holder*

19	*Control y Aseguramiento de la Calidad*	*Fundación Cataruben*	*Fundación Cataruben, Marzo de 2024*	*Project Holder*
20	*Additional documents*			
21	*PROPOSED REFERENCE LEVEL OF FOREST EMISSIONS FROM DEFORESTATION IN COLOMBIA FOR PAYMENT FOR REDD+ RESULTS UNDER THE CMNUCC2018-2022*	*MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT - ENVIRONMENT* *INSTITUTE OF HYDROLOGY, METEOROLOGY AND ENVIRONMENTAL STUDIES - IDEAM*	*MADS - IDEAM*	*NA*
22	*Proposal for Colombia's forest emissions reference level for the period 2023-2027 as a mechanism to qualify for payment for REDD+ results under the UNFCCC.*	*MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT - ENVIRONMENT* *INSTITUTE OF HYDROLOGY, METEOROLOGY AND ENVIRONMENTAL STUDIES - IDEAM*	*MADS - IDEAM*	*NA*
23	*Soil carbon storage potential of acid soils of Colombia's Eastern High Plains2022*	*Glenn Hyman, Aracely Castro, Mayesse Da Silva,Miguel Arango, Jaime Bernal, Otoniel Pérez*	*International Center for Tropical Agriculture (CIAT) - Colombian Corporation forAgricultural Research (AGROSAVIA)*	*NA*

		andIdupulapati Madhusudana Rao		
24	*NATURAL CARBON SINKS: A CASE STUDY IN MORICHALES OF THE HIGHLANDS COLOMBIANA2022*	*Daniela Orozco-Hueje, Diana Milena Barreto-Rojas, Juan Manuel Trujillo-González, Amanda Silva-Parra, Marlon Serrano-Gómez , Edgar Fernando Castillo-Monroy, Marco Aurelio Torres-Mora*	*Journal of Agricultural and Environmental Research*	*NA*
25	*Departmental Economic and Social Development Plan "Let's Make Meta Great" for the period 2020 – 2023*	*DEPARTMENTAL ASSEMBLY OF META*	*NA*	*NA*
26	*Comprehensive Regional Climate Change Plan for the Orinoquía 2018*	*Corporation for the Sustainable Development of the La Macarena Special Management Area (Cormacarena), Regional Autonomous Corporation of the Orinoquía (Corporinoquia), ECOPETROL and the International*	*NA*	*NA*

		Center for Tropical Agriculture (CIAT)		
27	*INSTITUTIONAL ACTION PLAN 2020 - 2023 WE ARE LIFE, WE ARE META CORMACARENA*	*MINAMBIENTE*	*NA*	*NA*
28	*Cartilla Interpretación Nacional de Salvaguardas REDD+*	*MINAMBIENTE*	*NA*	*NA*
29	*BioCarbon Standard Version 3.4 June 28, 2024*	*BioCarbon Standard*	*BioCarbon Standard*	*NA*
30	*VALIDATION AND VERIFICATION MANUAL GREENHOUSE GAS PROJECTS Version 2.4 March 23, 2024*	*BioCarbon Standard*	*BioCarbon Standard*	*NA*
31	*BCR0002 GHG Emissions Reductions quantification. REDD+ Projects version 4.0, May 27, 2024.*	*BioCarbon Standard*	*BioCarbon Standard*	*NA*
32	BCR0005 GHG Emission Reductions quantification. Activities that Prevent Land Use Change in Natural Savannas version 1.0, October 21, 2022.	*BioCarbon Standard*	*BioCarbon Standard*	*NA*

Annex 4. Abbreviations

Use the table to list all the abbreviations used in this report.

Abbreviations	Full texts
AFOLU	Agriculture, forestry and other land uses
BCR	Biocarbon Standard
CARs	Corrective action requests
CCV	Verified carbon certificates
CLs	Clarification requests
tCO2e	Tons of carbon dioxide equivalent
PDD	Project description document
FARs	Future recommendations
GEI	Greenhouse gases (Spanish abbreviation)
GHG	Greenhouse gases
IGAC	Instituto geográfico agusítn codazzi
ISO	International Organization for Standardization
MRV	Monitoring, reporting and verification
NREF	Reference level of forestry emissions
ODS	Sustainable Development Goals (Spanish abbreviation)
OEC	Conformity Assessment Body

Abbreviations	*Full texts*
PDI	*Digital image processing*
PMBOOK	*Guide to project management fundamentals*
PQRD	*Petition, complaint, grievance and denunciation*
REDD+	*Reducing emissions from deforestation and forest degradation*
RM	*Monitoring report*
SDGs	*Sustainable Development Goals*
AcATaMa	*Accuracy assessment of thematic maps*
SIG/GIS	*Geographic information systems*
SMByC	*Forest and carbon monitoring system*

Annex 5. List of Assistance

Fecha: 1/12/2023 Hora Inicio: 11:40 Hora Fin: 17:30
Proyecto: Orinoquia Carbono del Orinoco
Lugar: Fundacion cataruben Responsable:
Temas:

#	Nombre y Apellido	Cédula	Cargo	Entidad	Firma
1	Adriana Gabán	1.116.347.358.	Lider unidad Gob.	Fund. Cataruben	AB
2	Angela Vergara	1116662881	Gestor implementación	Fun. Cataruben	AVGA
3	María Camila Repizo	1.116.793.498	Líder Unidad Implem.	Fund. Cataruben	
4	Beatriz H Villanueva	53164736	Experto técnico	Versu	
5	Diana Rauchwerger	52713652	A. Lider	VERSA.	
6	Sandra Durán Ch	1118546172	Supervisor Carbono	Cataruben	
7	Shirley Jiraldo	1.118.553.013	Gerente Geografía	Cataruben.	
8					

Fecha: 05/12/2023 Hora Inicio: Hora Fin:
Proyecto: Orinoco Carbono del Orinoco
Lugar: Predio Hermita - Waikiki Responsable:
Temas: Auditoria de campo validacion - Verificacion

#	Nombre y Apellido	Cédula	Municipio / Vereda	Celular	Correo	Firma
1	Jaib Gallo	80.066.682.	In. San José Ocuné	313 3279785		
2	Jose Ramirez P	1007651126	araguatos	3504962614		
3	Miguel S	3276499	Aracaitomo			Miguel S
4	Noilia Narvaez	93392605	Arrendatos	3104692251	alirionaz@Hd.com	
5	Javier cardenas	11280955	Cimaretos	3008908624		
6	Blanca Edilia Urrea R	20749858	insp. tuparro	3008908627	blancaurrea1970@gmail.com	Blanca E. Urrea R.
7	Jesus Daniel Noguera	1124989785	Veraguiana - Insp. Tres Matas	3504132700	noguera...	
8	Maricel Fernandez G	40392167	La Gran Reforma Tres M	3042529730	...gmail.com	
9	Diany Gallo Barrera	40403069	Insp. S. José de Ocuné	3232735651		Diany Gallo B
10	Julio Gallo R	6.846.297	Insp. S. José O.	3508444816		Julio Gallo R.
11	Duver Javier Guayapero	1125000156	Valle Sugiana	3114663380	J.Guayapero@hotmail...	
12	Hector Guayero	3293597	Garijiana	3134572073		

Fecha: 01/12/2023 Hora Inicio: Hora Fin:
Proyecto: Orinoco, carbono del Orinoco
Lugar: Oficinas Cataruben Responsable: Jose Luis Rodriguez
Temas: Auditoria documental validacion y verificación

#	Nombre y Apellido	Cédula	Municipio / Vereda	Celular	Correo	Firma
1	William Barragán	80.076858	Yopal	3148263382	[illegible]	
2	Sandra Duarte	1118546172	Yopal	3204998929	[illegible]	
3	Shirley [illegible]	1116553013	Yopal	313342350X	[illegible]	
4	Angela Patricia Vergara	1116662881	Yopal	[illegible]	[illegible]	
5	Benilda Granados	1006441989	Yopal	3203862120	[illegible]	
6	Juan David Arevalo Carrasco	1136881248	Yopal	3103240656	[illegible]	
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9	Miguel A. Williams F.	1118574249	Yopal	3505205999	[illegible]	
10	Maria Camila Fajardo	1116793498	Yopal	3165342973	[illegible]	
11	Adriana Galán H.	[illegible]	Yopal	[illegible]	[illegible]	
12	Juan Felipe C. Guzmán A.	1118560260	Yopal	3116098759	[illegible]	

Fecha:	1/12/2023	Hora Inicio:	11:40	Hora Final:	12:30	Acta N°	
Lugar:	Fundacion Cataruben						
Objetivo:	Reunion Apertura de Auditoria						
Proyecto:	Orinoco, carbono del Orinoco.						

Asistentes

Nombre y Apellido	Cargo	Entidad	Firma
Jose Luis Rodriguez	Director Orinoco	Fundacion Cataruben	
Laura Sanabria	Lider Unidad Cuantificación	Fundación Cataruben	
Juan David Arevalo	Lider monitoreo biodiversidad	Fundación Cataruben	
Efrain Arenas	SC Biodiversidad	Fundacion Cataruben	
Benilda Granados	lider SOC	Fundación Cataruben	

Fecha: 03/11/2023 Hora Inicio: 11:00 Hora Fin: 1:00 pm
Proyecto: Arroca carbono del [illegible]
Lugar: Finca el Beul, San Isidro, Primavera Responsable:
Temas: auditoría de campo validación - verificación

#	Nombre y Apellido	Cédula	Municipio / Vereda	Celular	Correo	Firma
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2	Edelmira Gómez	41.250656	Flor Amarilla	3125494139	[illegible]@gmail.com	Edelmira Gómez
3	Susana Torres H	1077628893	LA LADERA Sta Rosalia	3132016315	[illegible]	[illegible]
4	Vilmar Baquero	18256178	Sta Rosalia Nazareth	3117332501		[illegible]
5	Pablo Colino	7760210	Santa Rosalia	3124424544		Pablo Colino
6	Gonzalo Sanchez	11182570	La Primavera	3222940002	gonzosan221@gmail.com	[illegible]
7	José Leider Cabrera	18255541	Sta Rosalia	3125219615	jolecabi@hotmail.com	[illegible]
8	Luis Enrique Castillo	79 960 151	La Primavera - Santa Rosalia	3222352306	luisacastillo2772@gmail.com	[illegible]
9	Aimer Perez	18255578	La Primavera	3104886500		Aimer
10	Ever Ortiz Correa	7.760.492	Santa Rosalia Vereda La Ladera	3207909836	llanerito3392@gmail.com	[illegible]
11	Marida Santos	1129111	Santa Rosalia Flor amarilla	3125757367	maridasantos250@gmail.com	Marida Santos
12	Samuel Perez P	18255330	Primavera	3118623240	Samueltoribio1909@	[illegible]