BIOCARBON REGISTRY MONITORING REPORT TEMPLATE[1]

MONITORING REPORT REDD+ JIGRANTU PROJECT

Document prepared by Biotrade S.A.S

Date of issue V5.0 05/31/2024

[1] This form is for the monitoring report of projects using the BCR Program.

Monitoring Report Template (Version 1.1)[2]	
Name of project	REDD+ JIGRANTU Project
BCR Project ID	BCR-CO-296-14-001
Registration date of the project activity	10/19/2023
Project holder	Rio Jiguamiando Community Council La Grande Community Council Turriquitado Community Council Biotrade S.A.S
Contact	Ruby Acosta Bastidas Bogota, Colombia Phone: +57 301 6279136 gerencia@biotradeco2.com https://www.biotradeco2.com/
Version number of the Project Document applicable to this monitoring report	V 5.0 (05/31/2024)
Applied methodology	BioCarbon Registry Methodological document of the AFOLU sector Quantification of GHG Emissions Reduction REDD+ Projects BCR0002 Version 3.1 September 2022
Project location (Country, Region, City)	**Country:** Colombia **Department:** Choco **Municipalities:** Carmen del Darien and Riosucio
Project starting date	(02/01/2019)

[2] The instructions in this form are a guide. Do not represent an exhaustive list of the information the preparer shall provide under each section of the template.

Monitoring Report Template (Version 1.1)[2]	
Quantification period of GHG reductions/removals	(01/01/2019 to 01/01/2049); 30 years
Monitoring period number	1
Monitoring period	(01/01/2019 to 12/31/2022)
Amount of emission reductions or removals achieved by the project in this monitoring period	**Deforestation:** 391,258.40 tCO_2e /year 1,565,033.62 tCO_2e (total for monitoring period)
Contribution to Sustainable Development Goals	SDG 4, SDG 9, SDG 11, and SDG 15
Special category, related to co-benefits	Biodiversity conservation

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REDD+ JIGRANTU PROJECT GLOSSARY

Acronyms:

AFOLU stands for Agriculture, Livestock, Forestry and Other Land Use.
ASOMUJIGUA Women's associations
ASOMUNUVITE Asociacion de Mujeres de Nueva Esperanza en Defensa de la Vida y el Territorio.
ASOPESVIGRAN Association of fishermen of the community councils of Vigia de Curvarado, La Grande and Villanueva Montaño.
BCR BioCarbon Registry
bh-T tropical rain forest
CC Community Council
CCV Verified Carbon Credits
CH4 Methane
UNFCCC United Nations Framework Convention on Climate Change
CO2 Carbon dioxide
CODECHOCO Corporacion Autonoma Regional para el Desarrollo Sostenible del Choco (Regional Autonomous Corporation for the Sustainable Development of Choco)
DANE National Department of Statistics
DIAN National Customs and Taxes Directorate
ECDBC Colombian Low-Carbon Development Strategy
EICDGB Integral Strategy for the Control of Deforestation and Forest Management called *"Forests, Territories of Life".*
GHG Greenhouse Gas Gases
GFW Global Forest Watch
GLAD Global Land Analysis and Discovery
IGAC Agustin Codazzi Geographic Institute
IDEAM Instituto de Hidrologia, Meteorologia y Estudios Ambientales (Institute of Hydrology, Meteorology and Environmental Studies)
IPCC Intergovernmental Panel on Climate Change
JEP Special Justice for Peace
MADS Ministry of Environment and Sustainable Development
MFS Sustainable Forest Management.
MO Operating Manual
m.a.s.l. meters above sea level
NREF forest emissions reference level
NV Green Business
N_2 O Nitrous oxide
SDG Sustainable Development Goals
NGO Non-Governmental Organization, non-profit institution that does not depend on the government and carries out activities of social interest.
PEC Special Characterization Plans
PDI Digital Image Processing

PdD (Project Design Document)
PDET Development Programs with a Territorial Approach
AOP Annual Operating Plan
PPS Sustainable Production Projects
PQRS Petitions, Complaints, Claims, Requests.
RFN National Forest Reserve
REDD Reducing emissions from deforestation and forest degradation
REDD+ Reducing Emissions from Deforestation and Forest Degradation
RM Monitoring Report
SbN Nature-based solutions
SDB Distribution System Benefits
SENA National Apprenticeship Service
GIS Geographic Information System
SMByC Forest and Carbon Monitoring System
TCAFM. Compensatory Rate for Timber Forest Harvesting.
tCO2e unit of measurement in tons that calculates the emission of carbon dioxide equivalents.
ICT Information and Communication Technologies
UTCH protection measures
VCUs: Verifit Carbon Units (**VCUs**)

1 General description of project

The *REDD+ JIGRANTU Project* is being developed in the Pacific region of Colombia in the northeast of the department of Choco in the municipalities of Carmen del Darien (86%) and Riosucio (14%), mainly within the boundaries of the Community Councils of La Grande (13,455.53 ha Resolution 2806 of 22 November 2000), Rio Jiguamiando (51,870 ha Resolution 2159 of 22 August 2007) and Turriquitado (9,255.80 ha Resolution 2806 of 22 Nov 2000), with a total titled area of 77,836.23 hectares[3] . From the calculation of the areas that make up the project, an extension of 74,012.27 ha is obtained, of which 68,898.97[4] ha corresponds to forest eligible for the REDD+ project, i.e. the area in stable forest as of January 2, 2019.

The quantification period for Greenhouse Gas emission reductions is from 01/01/2019 to 01/01/2049, where an average annual reduction of 216,748.17 tCO_2e and a total reduction over the thirty-year life of the project of 6,502,445.05 tCO_2e is expected. In this monitoring report that goes from 01/01/2019 to 12/31/2022, an average annual reduction of 391,258.40 tCO_2e was obtained and a total reduction in the four years of the report of 1,565,033.62 tCO_2e, the values recorded in the monitoring period differ from those estimated in the project document, due to the difference in the estimation of reductions in the project area and leakage area. In this case, the increase in deforestation due to national circumstances was considered.

The project seeks to reverse the social and environmental situation through the implementation of four strategic lines of action: A. strengthening governance and culture, B. capacity building, C. actions for the sustainable development of the territory, and D. monitoring and control. The project is expected to generate positive impacts on biodiversity, integrity, and the provision of ecosystem services through the conservation and protection of species present in the project area. In addition to this, the communities will benefit from the project through the strengthening of governance and territorial governance, the rescue of cultural values, and the improvement of the good life of the inhabitants, the actions developed during this monitoring period contribute to the advancement of SDGs 4, 9, 11 and 15.

[3] The Shapefiles of the community councils used are from the National Land Agency and the area of each of the councils presents differences in comparison with the titled area related to the administrative acts.
[4] This area corresponds to the forest area at the beginning of the project, i.e., the forest area as of 2019.

During the first monitoring period, activities were implemented to advance the management of resources for the construction of self-government instruments such as the ethno-development plan and the environmental management plan; as well as actions aimed at strengthening cultural events, strengthening REDD technical capacities, sustainable productive actions and the conservation and monitoring of the manatee (*Trichechus manatus*); Progress is also presented in the diagnosis of the state of the ecosystems and ecosystem services and in the design and implementation of a community monitoring program for conservation, as well as the strategy for adaptation to climate change of the REDD+ JIGRANTU Project.

1.1 Sectoral scope and project type

AFOLU Sector

Type of project under which the project activities are developed.

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

1.2 Project start date

The start date of the project is January 2, 2019, see section 1.5.

1.3 Project quantification period

January 2, 2019, to January 1, 2049 (30 years).

1.4 Project location and project boundaries

The project is in the Pacific region of Colombia in the northeast of the department of Choco in the Community Councils of La Grande, Rio Jiguamiando and Turriquitado, with an area of 74,012.27 hectares in the municipalities of Carmen del Darien (86%) and Riosucio (14%) mainly. It is bordered to the north by the Community Council of Rio de Curvarado, to the west by the Community Council of Vigia de Curvarado and Santa Rosa de Limon, to the southeast by the Community Councils of Mayor del Medio Atrato Acia

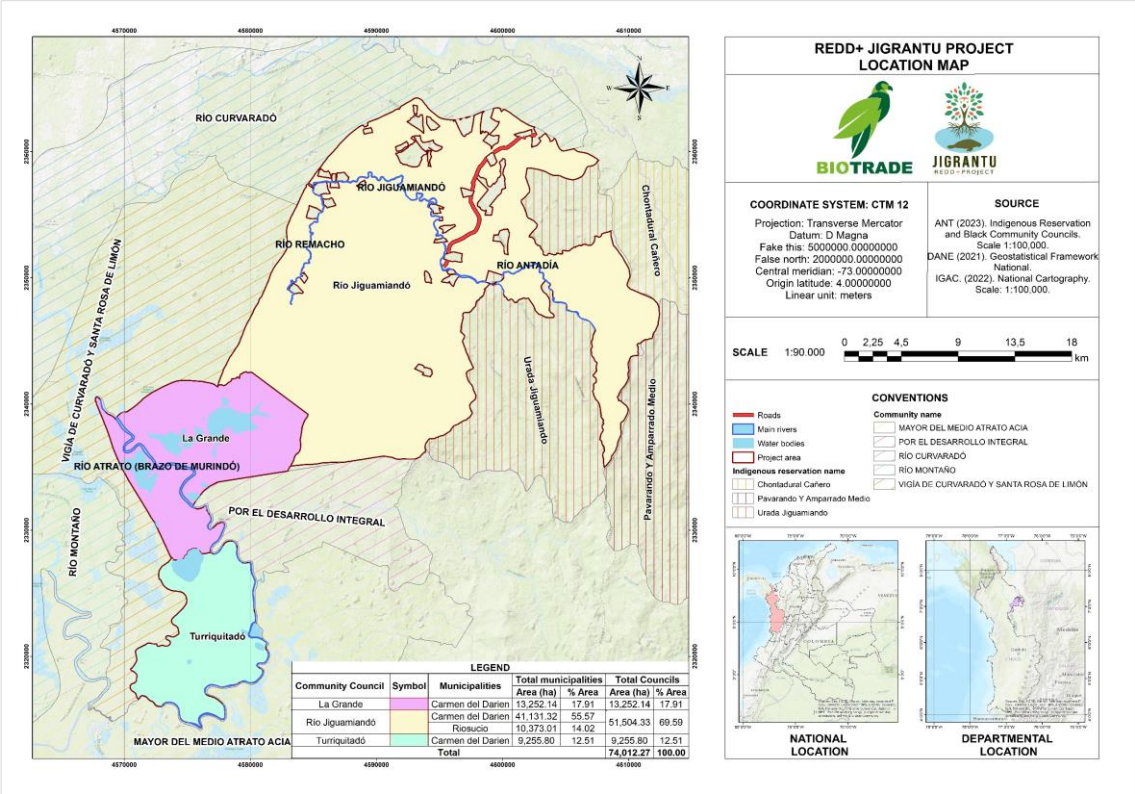
and Por el Desarrollo Integral, and to the east by the indigenous reserves of Urada Jiguamiando, Pavarando and Amparrado Medio and Chontadural Cañero.

The community council of La Grande has a titled area of 13,455.53 ha according to Resolution 2806 of November 22, 2000; the community council of Rio Jiguamiando has a titled area of 54,973.84 ha as defined in Resolution 2801 of November 22, 2000, and the community council of Turriquitado has an area of 9,406.86 ha according to Resolution 2799 of November 22, 2000. In total, the three community councils cover a titled area of 77,836.22 ha.

The areas of the community councils included in the project used for the analysis were downloaded from the Open Data Portal of the National Land Agency. However, the area calculated for each of the councils presents discrepancies in comparison with the titled area related in the administrative acts. From the calculation of the areas that make up the project, an extension of 74,012.27 ha is obtained, of which 68,898.97 ha correspond to forest eligible for the REDD+ project. In the Figure 1 details the location of the project with the occupation of the Community Councils[5] .

Figure 1. Location map of the REDD+ JIGRANTU project.

[5] Project location coordinates.



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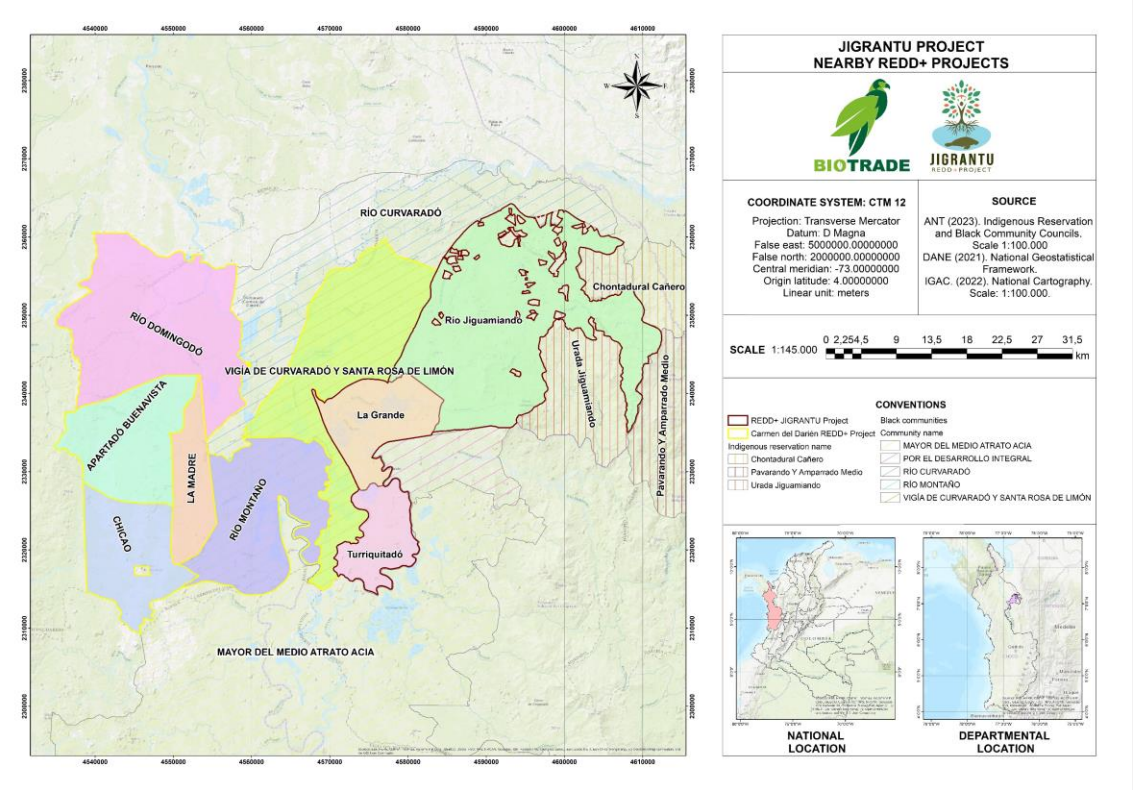
Near the project area is the Carmen del Darien REDD+ project composed of the community councils of Vigia de Curvarado and Santa Rosa de limon, Rio Montaño, Apartado-Buenavista, La Madre, Domingodo and Chicao[6], two of these bordering the area, adjacent to this is the Pedeguita and Mancilla REDD+ project[7], however, the boundaries are clear so there is no overlap. For verification, the shapes of the councils were downloaded from the National Land Agency's website[8].

Next to the project area is the Mutatá REDD+ Project that integrates the indigenous reservation of Chontadural Cañero and Jaikerazavi[9], despite the fact that the project description states that the area is in the department of Antioquia, About 76 ha overlapped

[6] Carmen del Darien REDD+ Project Summary
[7] Project information: Pedeguita and Mancilla REDD+
[8] Community Councils download portal
[9] Information: Mutata REDD+ Project

with the area of the REDD+ JIGRANTU Project (located in the department of Chocó on the border with Antioquia), to avoid double counting, the overlapping areas were eliminated as this was considered a topological error in the cartography used. Figure 2 shows the REDD+ projects mentioned, the KMZ of the areas of each project can be found in Folder 7 Cartography[10,11].

Figure 2. REDD+ projects near the JIGRANTU REDD+ Project Area



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[10] Location of Carmen del Darien REDD+ Project KMZ: JIGRANTU REDD+ PROJECT\7. CARTOGRAPHY\KMZ OF PROJECT AREAS\Nearby REDD+ Projects
[11] Location of the KMZ JIGRANTU REDD+ Project: JIGRANTU REDD+ PROJECT\7. CARTOGRAPHY\KMZ MAPPING OF PROJECT AREAS PROJECT\PROJECT AREA

1.5 Summary Description of the Implementation Status of the Project

The start date of the *JIGRANTU REDD+ Project is based on compliance with the BCR V standard.*3.2 where it states, "*the start date is when the project activities reduce emissions from deforestation and forest degradation. For example, this may involve the initiation of forest management strategies and, where appropriate, forest resource conservation plans, including agreements or contracts. In other words, concrete actions to reduce deforestation/degradation*."

For this reason, the start date is January 2, 2019 given by resolution No.0010 issued by CODECHOCO for Persistent Forest Exploitation (AFP) in the Community Council of Jiguamiando, this management plan was the first to be carried out in the project area, however, there are currently 5 resolutions (***Table 1***)[12] totaling an area of 2,161.5 ha as shown in the **Figure 18 ¡Error! No se encuentra el origen de la referencia.**. The actions of the AFP are carried out within the Community Council of Jiguamiando and are integrated into the community's sustainable forest management strategy within Pillar C, Sustainable Development; Program *i.* Sustainable productive projects; and activity 31, implementation of sustainable productive projects with an emphasis on adaptation to climate change.

The results on the dynamics of deforestation reduction attributed to Forest Management in the AFP areas executed in the Community Council of Jiguamiando (**Table 2**), were analyzed based on deforestation trends by means of a comparison between the area of the resolutions and the area of influence of the same based on a surrounding buffer of 1 Km, and the private properties overlapping or overlapping with the area of the resolution ***Figure 3***.

Table 1. *Data of resolutions implemented in the project area*

[12] Available in: 12. MONITORING EVIDENCE/34. Diagnosis of the state of ecosystems/Diagnosis of conservation actions/ Annexes of the Conservation Actions Report 23-29 June/Forest management of the Jiguamiando River

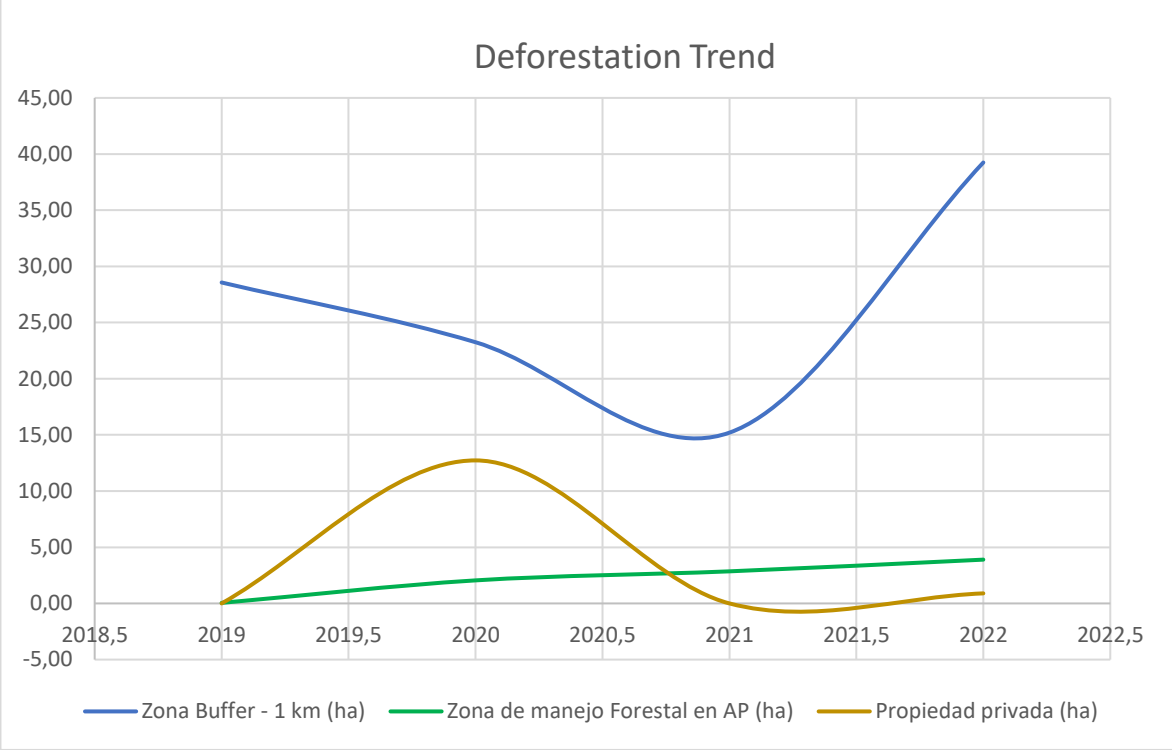
LEGEND						
Date	**Resolution No.**	**Symbol**	**Area within the Project (ha)**	**Area within Private Property (ha)**	**Total Area (ha)**	**% within the project**
2-ene-19	0010 of 2019		233,28	166,56	399,84	58,3%
26-dic-19	1712 of 2019		485,45	72,55	558,00	87,0%
26-dic-19	1713 of 2019		449,98	7,43	457,41	98,4%
17-nov-20	1310 of 2020		498,42	0,42	498,84	99,9%
17-nov-20	1311 of 2020		494,32	7,14	501,46	98,6%
Total			**2161,45**	**254,10**	**2415,55**	-
Area description		**Symbol**	**Area (ha)**			
Buffer (1 km)			5860,88			
Private property			254,10			

Table 2. Deforestation data in areas with Persistent Forest Harvesting resolution, in the project area (buffer zone) and private land.

LEGEND									
Date	**No. Resolution**	**Classification**	**Symbol**	**Area (ha)**	**% Area**	**Total area (ha)**	**% Total Area**	**Total Area Def (ha)**	**% Total Area Def**
January 2, 2019	0010 of 2019	REDD Project		233,28	10,79	399,84	16,55	0,70	0,17
		AP Deforestation		0,70	0,30				
		Private property		166,56	65,55				
		PP Deforestation		0,00	0,00				
December 26, 2019	1712 of 2019	REDD Project		485,45	22,46	558,00	23,10	87,43	15,67
		AP Deforestation		85,19	17,55				
		Private property		72,55	28,55				
		PP Deforestation		2,24	2,63				
December 26, 2019	1713 of 2019	REDD Project		449,98	20,82	457,41	18,94	4,36	0,95
		AP Deforestation		1,97	0,44				
		Private property		7,43	2,92				

		PP Deforestation		2,39	32,14				
November 17, 2020	1310 of 2020	REDD Project		498,42	23,06	498,84	20,65	0,50	0,10
		AP Deforestation		0,50	0,10				
		Private property		0,42	0,16				
		PP Deforestation		0,00	0,00				
November 17, 2020	1311 of 2020	REDD Project		494,32	22,87	501,46	20,76	5,98	1,19
		AP Deforestation		5,98	1,21				
		Private property		7,14	2,81				
		PP Deforestation		0,00	0,00				
Total						**2415,55**	**100,00**	**98,98**	**100,0**

Figure 3 *Deforestation Trend in Forest Management Areas in Persistent Use (PA), Buffer Zones and Privately Owned Properties with PA*



The graph shows the deforestation trend from 2019 to 2022 in three different areas: Buffer Zone - 1 km (ha), Forest Management Zone in Harvesting Areas (AP) (ha), Private Property (ha). It can be inferred that in the Buffer - 1 km zone (Blue Line) in 2019 deforestation begins in approximately 28 hectares. From 2019 to 2021, there is a steady decrease in deforestation, reaching a minimum around 2021 with approximately 15 hectares, but for 2021 to 2022, a significant increase in deforestation is observed, reaching a value close to 40 hectares by 2022. On Private Property (Yellow Line) in 2019, deforestation starts at 0 hectares, in the period from 2019 to 2020, deforestation increases rapidly, reaching a peak in 2020 with approximately 12 hectares. For the period from 2020 to 2021, a decrease in deforestation is observed, dropping to about 1 hectare and remains the same in the period from 2021 to 2022. In the Forest Management Zone in AP (Green Line) in 2019, deforestation is 0 hectares, in the period from 2019 to 2022, there is a gradual increase in deforestation, rising from approximately 0 to about 2 hectares in 2022, the general trend is of a slow and steady increase in deforestation. Although deforestation has increased, the increase is slow and controlled, which reflects effective management with forest management implemented.

It is expected that, with the benefit of the sale of the carbon credits obtained from the first verification of the project, a comprehensive strategy for sustainable forest management will be designed and implemented, where forest harvesting achieves greater effectiveness in controlling deforestation in conjunction with other actions such as enrichment of the natural forest with timber species, agroforestry arrangements, plantations, among others.

On the other hand, in the Councils of Turriquitado and La Grande, the actions of the *forest management strategy* focus on the implementation of the Environmental Action Plan for the protection and recovery of the Atrato River basin, within the framework of Judgment T-622 of November 2016 of the Constitutional Court, which responded to the action for the protection of the black communities that inhabit the Atrato River basin in in which the Community Councils of La Grande and Turriquitado actively participated through the Association of Community Councils of Bajo Atrato (ASCOBA).

The tutela action was based on the violation of the fundamental rights to life, resulting in effects on health, water, food security and the environment as a result of illegal mining activities. The ruling recognizes "*the Atrato River, its basin and tributaries as an entity subject to rights*." It then determines 13 orders to protect, conserve, maintain and restore the tributary and the definition of responsibilities to twenty-five entities to guarantee the protection, maintenance, conservation and restoration of the Atrato River and its communities. Compliance with the Judgment not only seeks the protection of the natural environment, but also advocates for the empowerment of local communities, thus ensuring a comprehensive and sustainable approach to the management of natural resources.

A strong element of this process of community and institutional articulation is the fulfillment of the fifth order of the Judgment, which states:

"FIFTH.- ORDER the Ministry of the Environment, the Ministry of Finance, the Ministry of Defense, Codechocó and Corpourabá, the Governors of Chocó and Antioquia, and the defendant municipalities, with the support of the Humboldt Institute, the Universities of Antioquia and Cartagena, the Institute of Environmental Research of the Pacific, WWF Colombia, and the other national and international organizations determined by the Office of the Attorney General of the Nation, and in conjunction with the communities Within one year of the notification of the judgment, a plan is designed and implemented to decontaminate the basin of the Atrato River and its tributaries, the riparian territories, recover their ecosystems and avoid further damage to the environment in the region. This plan will include measures such as: (i) the restoration of the Atrato Riverbed, (ii) the elimination of the area banks formed by mining activities and (iii) the reforestation of areas affected by legal and illegal mining. In addition, this plan will include a series of clear indicators to measure its effectiveness and must be designed and implemented in concert

with the inhabitants of the area, as well as guaranteeing the participation of the ethnic communities that settle there within the framework of ILO Convention 169."

Compliance actions for the formulation and implementation of the Environmental Action Plan of the fifth order of the T-622 judgment are described below and are set out in the **Figure 4**

1. July 26, 2018, first commission of Guardians of the Atrato River in which the structural guidelines for the collective construction of the comprehensive plan for the comprehensive recovery of the river were established, as well as the operational regulations of the commission. (MINAMBIENTE, 2019)

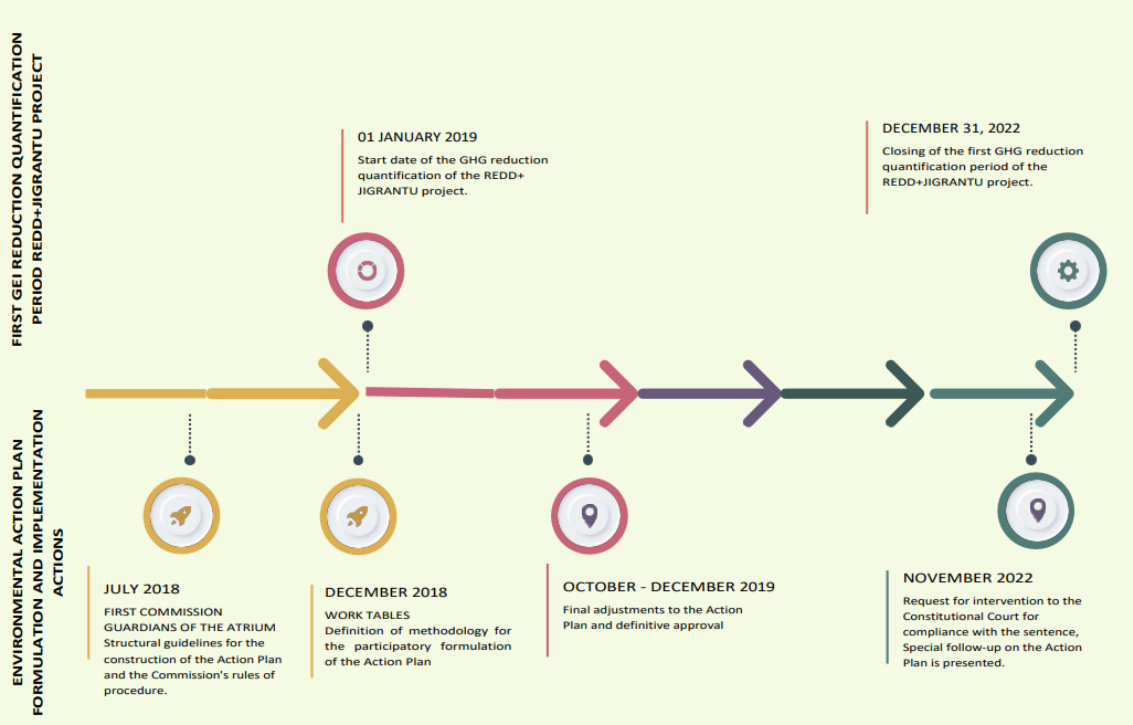
2. December 13, 2018, working groups, one with the technical team of the Collegiate Body of Guardians for the analysis of the matrix and articulating the construction of the action plan (MINAMBIENTE, 2018). In this working table, it was possible to reach an agreement between the Ministry of Environment and the Guardians on the importance of building a joint methodology for the participatory formulation of the action plan. The development of this methodology led to an unprecedented exercise in environmental governance that served as a reference for other orders, and is even an example for other processes in the country. (COCOMAPOCA, 2022)

3. October 2019: The Ministry of Environment and Sustainable Development delivers the first version of the Plan to the Collegiate Body. The guardians of the Atrato reviewed this proposal and issued significant comments. That they conjectured the holding of two other Technical Committees to agree on the adjustments, as well as the integration of a review team to the drafting of the plan. (COCOMAPOCA, 2022)

4. On 21 December 2019, having reached agreement on the document formulated, the action plan was approved at the 13th session of the Guardian Commission. (COCOMAPOCA, 2022)

5. November 03, 2022 Request for intervention by the Constitutional Court in the follow-up to judgment T-622. A special exercise is being carried out to comply with the provisions of the Plan of Action. The organization that is part of the Collegiate Body of the Guardians makes a decisive demand. (COCOMAPOCA, 2022)

Figure 4. Comparison of the start date and actions of the Environmental Action Plan



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The action to comply with Judgment T-622 is binding on the collective territories of La Grande and Turriquitadó as they are part of the Atrato River basin;[13]tags. The Community Councils of La Grande, Turriquitadó and the Jiguamiandó River have transversal processes of sustainable management of natural resources, associated with their cultural dynamics, as well as the movement of joint territorial defense actions that have taken years of resistance and organization to achieve the attention of the State in guaranteeing the protection of social and environmental rights.

These legal acts are understood as socio-environmental processes that have an effective impact on the conservation of forests, by promoting the construction of support networks between communities and institutions to guarantee command-control measures in the restitution of environmental and social rights to the territory, which

[13] 4. START DATE

improves territorial governance in a framework of joint action that promotes the participation and effective action of communities.

The community councils of La Grande, Río Jiguamiandó and Turriquitadó explored economic options to manage their territory independently. Its main objective has been to protect its territory, preserve biological diversity, develop sustainable production projects, improve access roads and strengthen social infrastructure, as well as public services. However, despite their efforts, the actions undertaken have not had enough impact to achieve the goals set by the community.

For this reason, these councils partnered with Biotrade SAS to manage a Reduced Emissions from Deforestation and Forest Degradation REDD project. This partnership was formalized through the signing of alliance contracts with each of the legal representatives of the community councils, which took place on October 23, 2022[14] . Through the General Assemblies, participatory rural diagnosis PRA, surveys, interviews, and field visits, which took place from October 19 to 31, 2022[15] , the inputs for the participatory structuring of the project called "REDD+ JIGRANTU Project" were achieved, in these workspaces the Governance System and the Benefit Sharing System SDB were built, and principles and rules for the proper implementation of the project were established.

2 Title, reference and version of the baseline and monitoring methodology applied to the project

BioCarbon Registry
Methodological document of the AFOLU sector[16]
Quantification of GHG Emission Reductions REDD+ Projects
BCR0002
Version 3.1
September 2022

To monitor the project, the following were used:

[14] 6. LEGAL COMPLIANCE\REDD+ project alliance agreement
[15] 16. EVIDENCE OF FORMULATION
[16] Document available in: REDD+ JIGRANTU PROJECT\3.METHODOLOGIES AND TOOLS\BCR\Methodological Document Sector AFOLU

BCR tool. Monitoring, Reporting and Verification (MRV). Version 1.0 dated February 13, 2023.

Subject	Tool
Methodological document of the AFOLU sector	Methodological Document AFOLU Sector. Quantification of GHG Emission Reductions. REDD+ Projects. BCR0002. Version 3.1 (BCR, 2022)[17]
BCR Standard	BCR STANDARD. From differentiated responsibility to common responsibility. Version 3.2 (BCR, 2023)[18] .
Avoidance of double counting	Avoiding Double Counting (ADC). BCR avoid double counting of emissions reductions/removals. Version 1.0 (BCR, 2023)[19]
Baseline and additionality	Baseline And Additionality. BCR projects generate verified carbon credits (VCC) that represent emissions reductions, avoidance, or removals that are additional. Version 1.2 (BCR, 2023)[20]
Monitoring, reporting and verification	Monitoring, Reporting and Verification (MRV). BCR carbon credits are quantified, monitored, reported and verified. Version 1.0. (BCR, 2023)[21]
ODS	BCR Tool. Sustainable Development Goals (SDGs). Version 1.0 (BCR, 2023)[22]
Risk and permanence	BCR Tool. Permanence And Risk Management. BCR project holder take actions to ensure the project benefits are maintained over time. Version 1.0 (BCR, 2023)[23]
Safeguards	Tool to demonstrate compliance with REDD+ safeguards. Version 1.1. (Brigard & Urrutia, BCR, 2023).[24]
	No Net Harm Environmental and Social Safeguards (NNH). BCR project activities do not cause any net-harm to the environment or to local communities and society in general. Version 1.0 (BCR, 2023)[25]

[17] BCR0002 Methodological document REDD Projects
[18] BCR Standard
[19] Avoiding Double Counting
[20] Additionality
[21] Monitoring, Reporting and Verification (MRV)
[22] SDG Tool is
[23] Risk and permanence
[24] BCR REDD+ Safeguards Tool
[25] No Net Harm

3 Registry or participation under other GHG Programs/Registries

The JIGRANTU REDD+ Project has not been registered in another GHG program or registry.

4 Contribution to Sustainable Development Goals (SGD)

This section was developed using the BCR Tool. Sustainable Development Goals (SDGs). Version 1.0 (BCR, 2023)[26] . The tool proposes several indicators, and the project has chosen to use some of them to inform its contributions, as detailed in the PdD. A summary of the activities contributing to the achievement of the different SDGs for this monitoring period is presented below (Table 3)[27] .

Table 3 Contribution of activities to the SDGs

[26] SDG-Tool.pdf
[27] The development of the tool is available at: 2. TECHNICAL ANNEXES 3. SDG-Tool-SDG_REDD+JIGRANTU-V3

ODS	Contributing activities	Contribution	Consolidation of supports (Current verification period)
4. Quality education	Be8. Strengthening of REDD technical capacities with emphasis on increasing socio-ecosystemic resilience for climate change adaptation.	This activity contributes to facilitating the effective integration of education for communities and the development of the REDD+ JIGRANTU Project.	The workshops, meetings and socialization spaces held with the community councils during the project formulation process are reported.
	Bf12. Capacity building in sustainable productive actions with emphasis on increasing socio-ecosystemic resilience.	Promotes sustainable job creation, local economic development, resilience to environmental challenges, economic diversification, training and skills development, adoption of sustainable technologies and economic inclusion.	In this monitoring period, 2 actions are reported that contribute to the strengthening of PPS: Progress ASOPESVIGRAN Jiguamiando plantain project
9. Industry, innovation and infrastructure	Ch26. Construction and maintenance of bridges and roads	Improves connectivity and accessibility, facilitating planned and sustainable urban development	A report on the construction and maintenance of bridges and roads in the Jiguamiando River Community Council is reported.
11. Sustainable cities and communities	Ac6. Strengthening of cultural events with the participation of different generations.	It fosters social cohesion and community identity, promoting an inclusive and sustainable environment.	Events related to cultural events, rescue and multiplication of ancestral knowledge.
15. Life of terrestrial ecosystems	Dj34. Diagnosis of the state of ecosystems, ecosystem services and vulnerability to the effects of climate change.	This activity provides key information for the planning and development of sustainable infrastructure. This activity can boost research and development of environmentally friendly solutions by highlighting the presence of researchers in the region.	Documents related to the development of this activity: Diagnostic of conservation actions Article Traditional use of poultry
	Dj37. Design and implementation of a community monitoring program for the conservation and enhancement of ecosystem resilience.	This activity seeks to reduce emissions by focusing on ecosystem conservation, preventing deforestation and promoting sustainable practices.	A community monitoring report is presented detailing the follow-up of the restoration of the Jiguamiando River unclogging process in the La Grande CC.
	Bf12. Capacity building in sustainable productive actions with emphasis on increasing socio-ecosystemic resilience.	Promotes sustainable job creation, local economic development, resilience to environmental challenges, economic diversification, training and skills development, adoption of sustainable technologies and economic inclusion.	In this monitoring period, 2 actions are reported that contribute to the strengthening of PPS: Progress ASOPESVIGRAN Jiguamiando Plantain Project

ODS	Contributing activities	Contribution	Consolidation of supports (Current verification period)
	Dj36. Strengthening the conservation and monitoring of the manatee (*Trichechus manatus*) and the slider turtle (*Trachemys callirostris*).	Strengthening the conservation of these species contributes to this indicator through the preservation of endangered species, data collection, habitat and ecosystem protection, community collaboration and contribution to biodiversity.	Manatee sighting report within the territory of La Grande and Turriquitado
	Aa1. Formulation of the ethno-development plan.	These plans focus on the needs and aspirations of the communities, seeking to promote participation in decision-making and legal and regulatory frameworks that promote a fair and equitable distribution of the benefits derived from the use of natural resources. The REDD+ JIGRANTU Project formulation document is reported for the management of own resources to advance in the construction of these instruments of self-governance.	REDD+ JIGRANTU Project Document

5 Compliance with Applicable Legislation

In the Table 4 the national and international laws and regulations that are relevant to the project during the monitoring period are specified for more details, the legal compliance matrix is available for the audit at[28] .

[28] 6. LEGAL COMPLIANCE/REDD+JIGRANTU Legal Compliance Matrix

Table 4 Matrix of legal compliance in the monitoring period of the REDD+ JIGRANTU Project

Standard Level	Legislation or another requirement	Purpose and description	Direct Execution	Compliance Officer	Related document	Folder where the evidence is kept
NATIONAL	RESOLUTION 1447	Regulates the system for monitoring, reporting and verification of mitigation actions at the national level referred to in Article 175 of Law 1753 of 2015.	Compliance with the provisions of Article 40 and 41 regarding methodological reconstruction, to analyze and interpret satellite images of the project area and the definition of limits and emission factors. Compliance with the provisions of Article 43 regarding additionality conditions.	GIS and Coordination Professional	Definition of reference area, calculations of emission reductions.	Carbon Calculations
	Methodological reference document	Reference Level of Forest Emissions from Deforestation in Colombia. Presents the reference level of forest emissions (NREF) to be included in the technical evaluation process required to qualify for the results-based payment mechanism for reducing emissions from deforestation and forest degradation, forest conservation, sustainable forest management and enhancement of carbon contents in developing countries (REDD +) before the UNFCCC.	Compliance. Methodological application of the provisions of the NRE, especially regarding the selection of emission factors and cartographic analysis.	GIS Professional, and Coordination	Project document	Carbon calculations and Cartography Folder 7.
		Estimation of forest degradation in Colombia through fragmentation analysis: elaborated in 2018, it presents in detail the results of one of the methodologies prioritized by the Forest and Carbon Monitoring System (SMByC), to estimate forest degradation in Colombia.	Compliance. Reference degradation and fragmentation thresholds.	GIS Professional, and Coordination	Project document, cartographic products	Folder 7. Cartography
		Methodological and conceptual guide to adequately characterize the causes and agents of deforestation, so that the information is comparable and interoperable, at different spatial and temporal scales. It determines the scope of a study to characterize the causes and agents of deforestation, which depends on a set of criteria to be taken into account when planning its development. The evaluation of these criteria defines the most appropriate approach in terms of resources, capacity and objectives of the study and the project.	Compliance. Application of the methodological reference to define the causes and agents of deforestation that were identified based on the documentary review and the participation of the communities in the workshops. The causes and agents were recorded in the project document.	Biotrade S.A.S-Coordination	Project document and evidence of formulation	Folder 1 PPD and RM, Folder 10. Stakeholder Consultation and Folder 16. Evidence of Formulation
		Guidelines established by the IPCC in 2006 and 2019 for national greenhouse gas inventories - Volume 4. Agriculture, forestry and other land uses: define guidelines for estimating and reporting GHG emissions and removals, incorporating good practices and uncertainty management in national GHG inventories.	The quantification of emissions uses methodological elements defined by the IPCC. This guide will also be used during project monitoring.	GIS Professional, and Coordination	Project document, Monitoring plan	PDD and RM

Standard Level	Legislation or another requirement	Purpose and description	Direct Execution	Compliance Officer	Related document	Folder where the evidence is kept
	CONPES 4021	National policy for the control of deforestation and sustainable forest management: Policy guidelines to counteract deforestation and promote sustainable forest management: approved in 2020 (CONPES 4021), with the objective of reducing deforestation and forest degradation through measures that promote forest management in Colombia, with a focus on integrated rural development.	Compliance. The project is aimed at consolidating a strategy for the conservation and management of forests by exercising control and governance over the territory, as well as the generation of sustainable productive alternatives for the families that make up the CC, strengthening the monitoring and follow-up system for an efficient administration of the territory.	The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers, Steering Committees and Biotrade S.A.S.	Project Document	PDD and RM
	DECREE 926	Establishes the procedure for the Non Causation of the National Carbon Tax. Its purpose is to stimulate the formulation and implementation of mitigation initiatives that generate GHG emission reductions or removals in exchange for the non-payment of the tax.	The decree indicates the characteristics of the emission reductions that allow the establishment of carbon neutral projects, as well as establishes the relevant methodologies and carbon standards to be used for this, which must be recognized by the national government to be used in the REDD registry. In addition, it is the regulatory framework for carbon credits to be traded by the REDD+ project that can be sold to other agents so that they can credit the non-causation of the carbon tax.	Biotrade S.A.S	Project document, application of the methodology	PDD and RM; Folder 3. Methodology and Tools; Folder 4.
	LAW 2169	Whereby the low carbon development of the country is promoted through the establishment of minimum goals and measures in terms of carbon neutrality and climate resilience and other provisions are enacted.	The REDD+ project contributes to the national objective of reducing emissions from deforestation and forest degradation.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document	PDD and RM
	DECREE 2811	National Natural Resources Code	REDD+ activities are aligned with the rational use of natural resources and no environmental licensing application is required. The activities contribute to the conservation of natural resources.	The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers, Steering Committees and Biotrade S.A.S.	Project document	PDD and RM

Standard Level	Legislation or another requirement	Purpose and description	Direct Execution	Compliance Officer	Related document	Folder where the evidence is kept
	LAW 164	The "United Nations Framework Convention on Climate Change", adopted in New York on May 9, 1992.	REDD+ activities contribute to the conservation of natural resources and the maintenance of the country's forest cover.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document	PDD and RM
	LAW 52	Whereby the Organic Law of the Development Plan is established.	REDD+ activities are aligned with local and departmental planning instruments. They contribute to the conservation of natural resources and the maintenance of forest cover. The strategic line of the project "Strengthening governance" includes the development of the ethno-development plan for each community council.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document; SDB	PDD and RM; Folder 2. Technical annexes_folder 4.
	LAW 21	Approving Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries, adopted by the 76th session of the General Conference of the International Labour Organization.	The REDD+ project is developed on lands titled to the Community Councils and used by the communities.	The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers.	Project Document	Folder 6. Legal Compliance_Documents Legal Representation
	LAW 99	Whereby the MINISTRY OF THE ENVIRONMENT is created, the Public Sector in charge of the management and conservation of the environment and renewable natural resources is reorganized, the National Environmental System - SINA is organized and other provisions are enacted.	The REDD+ project develops activities that are agreed with the communities and do not affect natural resources or the provision of environmental services, while contributing to the protection of the forests of the Colombian Choco. The initiatives also protect the cultural and social elements associated with traditional forest management within the Community Councils.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document, SDGs, SDGs and Safeguards	PDD and RM; Folder 1. PDD and RM; Folder 2.
	LAW 1700	To regulate the sustainable use and protection of forests and forest lands for the benefit of present and future generations, harmonizing the social, economic and ecological interests of the country.	The main objective of the REDD+ project is to promote the sustainable use of forests in the territory of the Community Councils, thus contributing to the implementation of community forest management schemes as a model for forest conservation.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document	PDD and RM

Standard Level	Legislation or another requirement	Purpose and description	Direct Execution	Compliance Officer	Related document	Folder where the evidence is kept
	DECREE 3570	Whereby the objectives and structure of the Ministry of Environment and Sustainable Development are modified and the Administrative Sector of Environment and Sustainable Development is integrated.	The project is aligned with the policies and guidelines issued by the Ministry of the Environment and Sustainable Development, respecting and recognizing its role as the leading entity in environmental and resource management.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document	PDD and RM
	LAW 1955	NATIONAL DEVELOPMENT PLAN 2018-2022. Defines the national REDD strategy and the mechanisms for its development.	The project is framed within national strategies for the conservation of forests and the avoidance of GHG emissions associated with the loss of forest cover, through local strategies led by empowered communities willing to protect their territory.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document and SDGs Operational Manual, SDGs and Safeguards	PDD and RM; Folder 1. PDD and RM; Folder 2.
	DECREE 1076	Sole Regulatory Decree of the Environment and Sustainable Development Sector.	The project is being developed in compliance with all regulations related to the use and management of natural resources, and does not require any type of environmental permit or license application to carry out the proposed activities.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document	PDD and RM
	LAW 1454, 1455, 1456	Organic Law of Territorial Planning (1454 of 2011), LOOT, establishes that "The purpose of territorial planning is to promote the increase in the capacity for decentralization, planning, management and administration of their own interests for the entities and instances of territorial integration, to promote the transfer of competencies and decision-making power from central or decentralized government bodies at the national level to the relevant territorial level, with the corresponding allocation of resources".	The project in strict compliance with the special mechanisms of prior consultation, with the participation of the representatives of the Community Councils and the communities affected or benefited in this process.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document	Stakeholders' Consultation
	LAW 70	The purpose of this law is to recognize the black communities that have been occupying uncultivated lands in the rural areas along the rivers of the Pacific Basin, in accordance with their traditional production practices, the right to collective property.	The purpose of the project, through the "Sustainable Development" strategic line and the "Strengthening Governance and Culture" strategic line, is to establish mechanisms for the protection of the cultural identity and rights of the black communities of the proponent Community Councils as an ethnic group, and the promotion of their economic and	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document, SDB Operational Manual, SDGs and Safeguards	PDD and RM; Folder 2. Technical Annexes

Standard Level	Legislation or another requirement	Purpose and description	Direct Execution	Compliance Officer	Related document	Folder where the evidence is kept
			social development, in order to ensure that these communities obtain real conditions of equal opportunities compared to the rest of Colombian society.			
	DECREE 1745	Whereby Chapter III of Law 70 of 1993 is regulated, the procedure for the recognition of the right to collective ownership of the "Lands of the Black Communities" is adopted and other provisions are enacted. In accordance with Law 70 of 1993 and in compliance with the social and ecological function of property, the Black Communities are recognized the right to collective ownership of the uncultivated lands they have been occupying in the rural areas bordering the rivers of the Pacific Basin, and in other areas of the country, in accordance with the provisions of the second paragraph of Article 1.	The project is proposed by the black communities of the Rio Jiguamiando, La Grande and Turriquitado Community Councils, recognized by the Ministry of the Interior as owners of the collective territory.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers	Project Document	Folder 6. Legal Compliance_Documents Legal Representation
	DECREE 4633	Whereby measures of assistance, attention, comprehensive reparation and restitution of territorial rights to the victims belonging to the indigenous, Rom (gypsy), black, Afro-Colombian, Raizal and Palenquero peoples and communities are dictated. It generates the legal and institutional framework of the public policy of integral attention, protection, integral reparation and restitution of territorial rights for the indigenous peoples and communities as collective subjects and their members individually considered, in accordance with the Political Constitution.	The project is proposed by the black communities of the Rio Jiguamiando, La Grande and Turriquitado Community Councils, which are recognized by the Ministry of the Interior as owners of the collective territory. In the strategic line of the project "Strengthening Governance and Culture".	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers	Project Document	PDD and RM
	DECREE 2893	Whereby the objectives, organizational structure and functions of the Ministry of the Interior are modified and the Administrative Sector of the Interior is integrated. It provides that the Ministry of the Interior will have the objective within the framework of its competencies and the law to formulate, adopt, direct, coordinate and execute public policy, plans, programs and projects in the areas of human rights, international humanitarian law, integration of the Nation with the territorial entities, security and citizen coexistence, for ethnic issues, within its directorates are the Directorate of Indigenous Affairs, Rom and Minorities, and the Directorate of Prior Consultation.	The project ensures compliance with the provisions of the Ministry of the Interior. The territorial legal entities are the representatives of the territorial councils proposing the project.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers	Project Document	PDD and RM

Standard Level	Legislation or another requirement	Purpose and description	Direct Execution	Compliance Officer	Related document	Folder where the evidence is kept
	MINISTRY OF ENVIRONMENT PROGRAM	National Program for the Conservation and Management of Manatees (Trichechus sp) in Colombia. Omacha Foundation and the Ministry of Environment, Housing and Territorial Development whose purpose is through the Directorate of Ecosystems, in the context of its responsibility for the recovery and conservation of endangered species in the country, has the function of promoting environmental management concerning the line of focal species (threatened, endemic, migratory and invasive exotic) within its work program of Conservation and Sustainable Use of Biodiversity.	REDD+ project activities are aligned with manatee conservation, with a ban on hunting and monitoring in their natural habitat in the marshes of the La Grande and Turriquitado Community Councils.	"The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers, Steering Committees and Biotrade S.A.S".	Project Document and Monitoring Report	PDD and RM
	NATIONAL POLICY FOR INLAND WETLANDS OF COLOMBIA	The Policy for Inland Wetlands in Colombia is formulated in the context of the National Environmental Policy, Collective Environmental Project, whose central axis is water. The objectives and actions proposed are aimed at promoting the rational use, conservation, and recovery of the country's wetlands at the national, regional, and local levels. It also highlights the global importance of the Pacific Basin, which has been distinguished as one of the most important wetlands in the world. area of considerable cultural and biological richness and promotes for the Colombian Pacific.	REDD+ project activities are aligned with the preservation and care of wetlands, ensuring the conservation of ecosystems, the permanence of artisanal fishing as a source of food and economic activity for the communities in the project area.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers	Project Document and Monitoring Report	PDD and RM
INTERNATIONAL	LAW 165	Approves the "Convention on Biological Diversity", done in Rio de Janeiro on June 5, 1992. Conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the utilization of resources.	REDD+ activities contribute to the conservation of natural resources, the maintenance of forest cover, the care of water sources and their monitoring. For the protection of biodiversity present in the territory.	The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers, Steering Committees and Biotrade S.A.S.	Project Document	PDD and RM
	LAW 17	Approving the "Convention on International Trade in Endangered Species of Wild Fauna and Flora", signed in Washington, D.C. on March 3, 1973.	REDD+ activities contribute to the conservation of existing ecosystems in the territory. Restoration and monitoring activities of the manatee species (*Trichechus manatus*) in VU conservation status present in the marshes of the Community Councils of La Grande and Turriquitado.	The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers, Steering Committees and Biotrade S.A.S.	Project Document	PDD and RM

Standard Level	Legislation or another requirement	Purpose and description	Direct Execution	Compliance Officer	Related document	Folder where the evidence is kept
	LAW 22	Approving "The International Convention on the Elimination of All Forms of Racial Discrimination", adopted by the United Nations General Assembly in Resolution 2106 of December 21, 1965.	REDD+ project activities are aligned with the elimination of all forms of discrimination.	Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers and Biotrade S.A.S.	Project Document	PDD and RM; Folder 2. Technical Annexes _ Folder 2.SDB and Folder 3.
	LAW 31	LAW 31 OF 1967. Approving the International Labor Convention concerning the Protection and Integration of Indigenous and Tribal Populations in Independent Countries, adopted by the Fortieth Session of the General Conference of the International Labor Organization (Geneva, 1957).	Approves the International Labor Convention concerning the Protection and Integration of Tribal Populations in Independent Countries, adopted by the Fortieth Session of the General Conference of the International Labor Organization (Geneva, 1957). Part II, Article 11 "...recognizes the right of collective or individual ownership by members of tribal peoples of lands traditionally occupied by them".	The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers, Steering Committees and Biotrade S.A.S.	Project Document	Folder 6. Legal Compliance Documents Legal Representation
	LAW 145	Approving the "Agreement Establishing the Fund for the Development of Indigenous Peoples of Latin America and the Caribbean", signed in Madrid on July 24, 1992.	Approves the "Convention on Biological Diversity", done in Rio de Janeiro on June 5, 1992. Conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the utilization of resources.	The Community Councils of the Jiguamiando, La Grande and Turriquitado Rivers, Steering Committees and Biotrade S.A.S.	Project Document	Folder 1 PPD and RM

6 Climate change adaptation

The National Plan for Adaptation to Climate Change - PNACC, was born in 2012, from the starting point it has had an evolution at a technical and conceptual level, product of this there is today a methodological toolbox that is the product of the accompaniment of planning and implementation processes for adaptation in different territories and productive sectors. The objectives of the PNACC are closely related to the Colombian Low Carbon Development Strategy and the Integral Strategy for the Control of Deforestation and Forest Management called "Territories of Life Forests" (EICDGB), since the implementation of any of the country's climate change strategies can contribute to the achievement of the PNACC's objectives.

The four strategies to achieve sustainable development in the face of Climate Change in Colombia are:

- The National Plan for Adaptation to Climate Change -PNACC
- The Colombian strategy for Low Carbon Development -ECDBC
- The Integrated Strategy for the Control of Deforestation and Forest Management - "Forests, Territories of Life" (EICDGB)
- The Disaster Financial Protection Strategy

In a complementary manner, document CONPES 3700 of 2011 established the Institutional Strategy for the articulation of policies and actions on climate change in Colombia. According to this policy, the purpose of the PNACC is *"to build a comprehensive vision of adaptation in Colombia, making use of the available tools to achieve the resilience of socioeconomic and ecological systems, with the objective of guaranteeing the sustainability of development"* (DNP, 2011). More recently, the PND 2014-2018 defined the Green Growth envelope strategy as the general framework in which it sought to *"strengthen development planning with climate change adaptation criteria"*, through concerted actions with the entities responsible for knowledge management on the process of climate change and its impacts, and development planning for climate change adaptation.

In addition, Article 170 of Law 1753 of 2015, by which the PND 2014-2018 is issued, establishes that the sectors of Agriculture and Rural Development, Mines and Energy, Transportation, Health and Social Protection, Housing, City and Territory, and Commerce, Industry and Tourism formulate and implement sectoral plans for adaptation to climate change, in order to know the implications of climate change on their performance, as well as to initiate the implementation of adaptation actions.

The *REDD+ JIGRANTU Project* presents in this first verification period January 2019 to December 2022, a base strategy for adaptation to climate change that contains the key

general guidelines involving actions in the strategic lines of sustainable development, capacity building, monitoring and ecosystem restoration, which at the same time is in line with the National Plan for Adaptation to Climate Change and the objectives of the *REDD+ JIGRANTU Project*, in the Table 5 shows the coherence between the SDB and the objectives of the PNACC.

Table 5. Relationship between the Benefit Sharing System and the strategies of the National Climate Change Adaptation Plan.

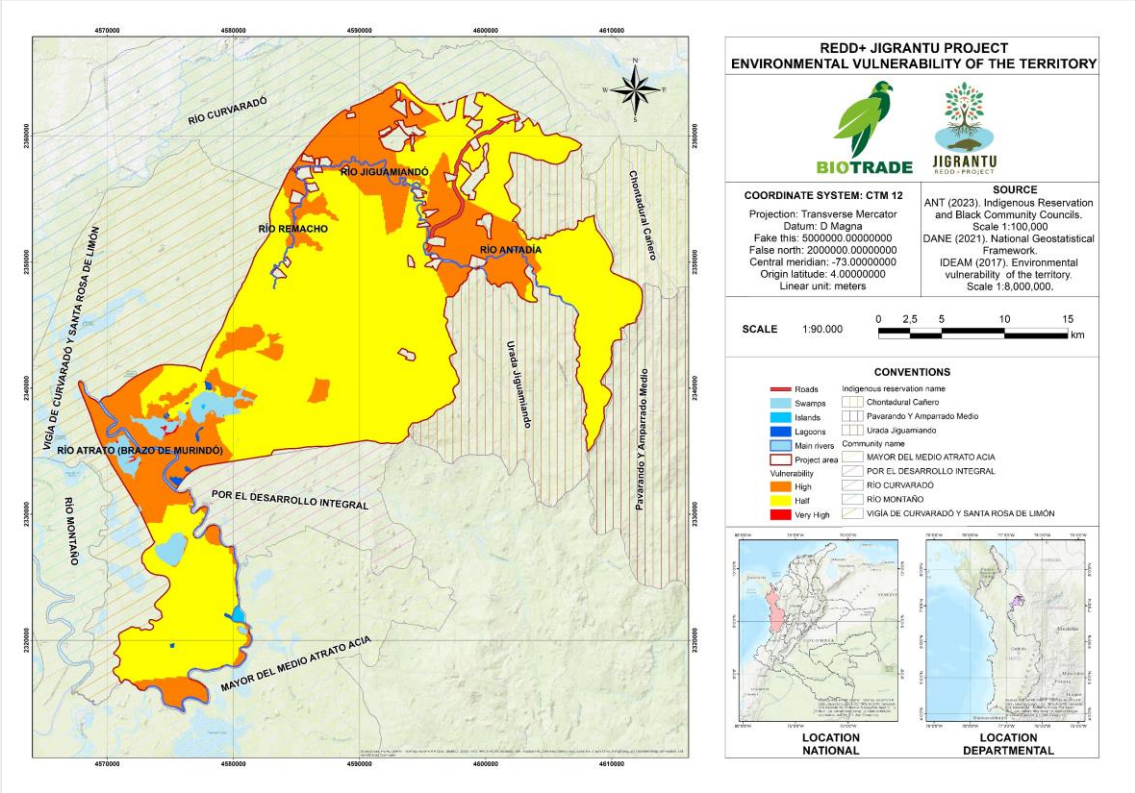
NNACC OBJECTIVES	NNACC STRATEGIES	SDB RELATED ACTION LINES, PROGRAMS AND ACTIONS.	OBSERVATION
KNOWLEDGE	1A. Strengthening knowledge management hydrological, hydrological and oceanographic, and on the potential impacts of its variations on the context of climate change	B. Capacity Building: Be. Capacity building for REDD project implementation. Be8. Strengthening of REDD technical capacities with emphasis on increasing socio-ecosystemic resilience for climate change adaptation.	Considering that the EICDGB and the PNACC are strongly linked, it is necessary to build capacity for resilience building both in the restoration approach and in productive strategies to effectively adapt to climate change.
	1B. Education, training, communication and public awareness of the change. climatic	B. Capacity Building: Be. Capacity building for REDD project implementation. Bf12. Capacity building in sustainable productive actions with emphasis on increasing socio-ecosystemic resilience.	The communities perceive an increase in pests, crop diseases and changes in the rainy and summer seasons, as well as an increase in temperature, which directly affects agricultural production. Education on the effects of climate change is included in the process of strengthening training for the design and implementation of PPS.
PLANNING	2 A. Incorporation of variability and change climate change in planning instruments of the State	A. Strengthening Governance and Culture: Aa. Formulation and development of governance tools Aa1. Formulation of the Ethnodevelopment Plan Aa2. Construction of the environmental management plan of the community councils.	Decree 1384 of August 25, 2023, which regulates Chapter IV and other environmental provisions contained in Law 70 of 1993, in relation to renewable natural resources and the environment, in the collective territories adjudicated, in process or ancestrally and/or traditionally occupied by black, Afro-Colombian, Raizal and Palenquero communities, and is added to Title 12 of Part 2 of Book 2 of Decree 1076 of 2015 - Sole Regulatory Decree of the Administrative Sector of the Environment and Sustainable Development Sector and other provisions are issued." Determines that environmental stewardship councils must perform: ARTICLE 2.2.12.2.2.1. Ethno-development plan and ARTICLE 2.2.12.2.2.2. Environmental management plan of the collective territories awarded in process or ancestrally and/or traditionally occupied. For the development of these two actions, activities Aa1 and Aa2 are contemplated in the SDB, where the EACC and the Risk and vulnerability analysis will be contemplated.

NNACC OBJECTIVES	NNACC STRATEGIES	SDB RELATED ACTION LINES, PROGRAMS AND ACTIONS.	OBSERVATION
	2B. Development of resilient investment projects	D. Sustainable development Ch. Improvement of social, cultural and productive infrastructure for sustainable development.	In order to increase both ecosystemic and social resilience, it is necessary that the productive systems increase their biodiversity, so that this biodiversity increases the socio-ecosystemic functions and thus can more easily absorb and assimilate the impacts caused by climate variability and change, due to this, the project has a sustainable biodiverse production strategy that generates diverse income for families but at the same time is in accordance with the environmental supply of the territory and social needs.
DEVELOPMENT TRANSFORMATION	3A. Management of climate change impacts on biodiversity and the supply of services ecosystem	D. Conservation and Monitoring. Dj34. Diagnosis of the state of ecosystems, ecosystem services and vulnerability to the effects of climate change. Dj37. Design and implementation of a community monitoring program for the conservation and enhancement of ecosystem resilience.	Without an in-depth diagnosis of socio-ecosystemic vulnerability, management plans and actions to avoid the impacts of increasingly frequent extreme weather events cannot be developed. Once strategies, management plans and actions are designed, it is necessary to carry out monitoring schemes in order to continuously improve them based on the experience generated, which is why the design and evaluation is a continuous process for climate change adaptation strategies to evolve and adapt over time.
	3B. Agricultural production and food security, adapted to climate change.	C. Sustainable development Ci31. Implementation of PPS with emphasis on climate change adaptation.	PPS is a strategy that can not only help to improve ES and ecosystem conservation, but can also contribute to building capacity and new knowledge that can help to generate diversity in income sources.
	3C. Prospective risk reduction in basic infrastructures	D. Conservation and Monitoring. Dn41. Risk management plan in accordance with Nature-based Solutions (NBS).	The risk assessment will help us to identify zones with greater vulnerability such as areas susceptible to landslides, places where it is necessary to implement restoration actions to avoid landslide events, productive and restoration actions can be used to minimize territorial risk.
	3D. Green growth of human habitats	Ch. Improvement of social, cultural and productive infrastructure for sustainable development. Ci. Sustainable Productive Projects	The PPS will help increase socio-ecosystem resilience.

6.1 Proposal for the EACC Climate Change Adaptation Strategy.

The Climate Change Adaptation Strategy EACC of the *REDD+ JIGRANTU Project*, took into account for its design the information generated by the local participatory diagnosis, interviews, surveys, environmental risk analysis, baseline information on land use change and land cover change, as well as the distribution of population centers, this information generated a preliminary diagnosis of the areas with greater socio-ecosystemic vulnerability in the project area (Figure 5).

Figure 5. Environmental vulnerability map of the territory in the JIGRANTU REDD+ Project area.



Prepared by Biotrade S.A.S. (2023)

Three zones were determined where different strategies for increasing socio-ecosystem resilience were identified, using the GIS tool for the analysis of non-forest areas with more active deforestation and with deforestation in consolidation, i.e. areas that have been in a cover other than forest beyond the baseline period, cover analysis, other analyses such as loss of water regulation variables, loss of biodiversity, soil erosion, presence of anthropic activities with high impact on the ecosystem such as mining, illicit crops, agricultural production systems that generate degradation, concentration of rural

population among others, which resulted in the generation of three action nuclei that are described in greater detail in section 6.2.

The proposal for adaptation to climate effects and variability has the particularity of being adaptive and evolving over time, in order to create adaptation strategies consistent with the increasing strengthening of technical, ecosystemic and productive knowledge in the area of adaptation to climate change and variability, by leaders and communities in general, for this reason the actions of Formulation of the Ethnodevelopment Plan (Aa1), Construction of the Environmental Management Plan of the community councils (Aa2), the program of sustainable productive projects (Ci), the strategic line of capacity building (B), capacity building in Community Monitoring (Bf16) among others, is aimed at building socio-ecosystemic resilience in the area of the *REDD+ JIGRANTU Project*.

6.2 Methodology

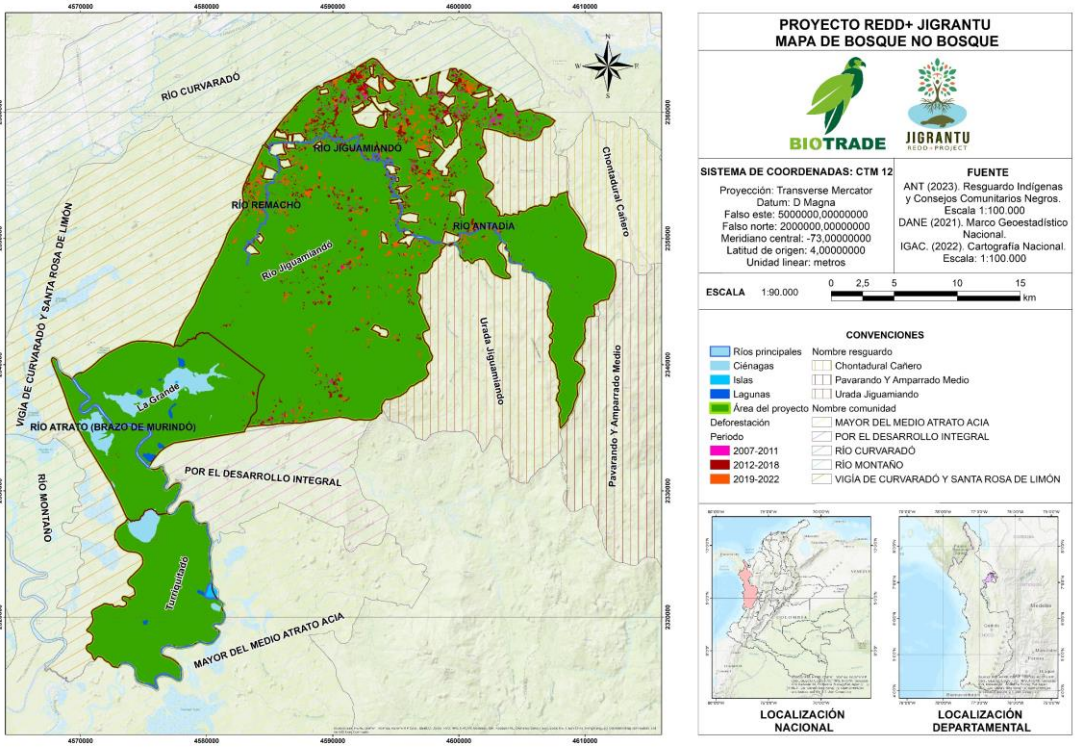
In the first instance, analysis of deforestation data provided by the Global Land Analysis and Discovery Laboratory (GLAD) at the University of Maryland, in collaboration with Global Forest Watch (GFW), was considered. These data provide an updated view of global forest loss, using Landsat-type imagery at 30x30 meter resolution[29] and the Land Cover Map. Adapted from Corine Land Cover. Republic of Colombia. Scale of 1:100,000 for the year 2018[30] .

Using this information as a basis, we proceeded to design the methodology and conducted analyses in the project area, focusing especially on the Jiguamiando River Community Council, which was selected as the priority area due to its high level of intervention (Figure 6). In this territory, analyses related to connectivity, deforestation and forest cover were carried out, which allowed us to establish a zoning for REDD+ activities.

Figure 6 Map of forest and non-forest by community council in the JIGRANTU REDD+ Project.

[29] Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J. (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. *SCIENCE*, *342*(6160), 850-853. DOI: 10.1126/science.1244693.

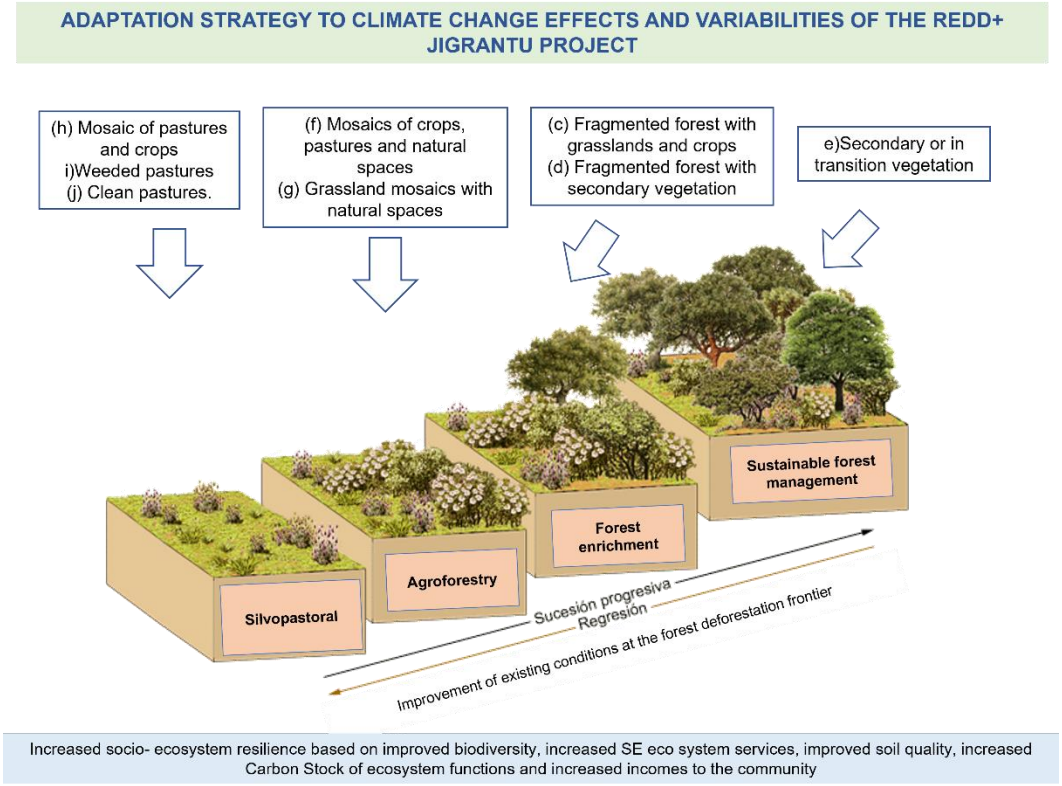
[30] IDEAM. (2021). Land Cover Map. Adaptation Corine Land Cover. Republic of Colombia. Scale 1:100.000. Periodo 2018. https://www.colombiaenmapas.gov.co/?e=-87.3432432910149,-6.8252789476359625,-61.15183704102185,16.691694111645152,4686&b=igac&u=0&t=43&servicio=881



Prepared by Biotrade S.A.S. (2023)

The selection of activities to be implemented under the REDD+ approach began with an analysis of the environmental supply in the area. This analysis was based on the use of the land cover map and consideration of the fundamental principles of REDD, which include: i) halting deforestation, ii) preventing forest degradation, iii) supporting natural regeneration or restoration, iv) conserving forests if they have not experienced deforestation or significant degradation, and v) promoting sustainable forest management.

The zoning was carried out as part of an intervention strategy based on an analysis of the environmental supply of the territory and the existing land cover, with which sustainable productive strategies were designed to increase the supply of ecosystem services such as biodiversity, connectivity and ecosystem functionality, and carbon stock. Actions such as forest enrichment and agroforestry systems seek to support natural succession for the restoration of highly degraded areas in order to improve the income and quality of life of local inhabitants, thus slowing the trend of deforestation and forest degradation.



The data related to the intervention area was obtained through the creation of a buffer of 2 kilometers around the Jiguamiando and Remacho rivers, thus highlighting the importance of their conservation and restoration, which also contributes to increase the supply and quality of water and regional water regulation, aspects that have been lost due to the active deforestation that occurs around these water sources, in this way also the process of adaptation to climate change in this buffer contributes to increasing the connectivity of the area; in addition to this connectivity corridor two key cores were created: the first focuses on the creation of an area for the implementation of forest plantations, this core is a consolidated area of deforestation that mostly predates the baseline of the *REDD+ JIGRANTU Project*.

A second successional agroforestry core, based on the deforestation that occurred in the monitoring period (2019-2022). Subsequently, clustering of the spatial land cover units was performed, and costs and revenues were calculated based on a review of available literature.

Determination of the proposed area for intervention of REDD+ activities

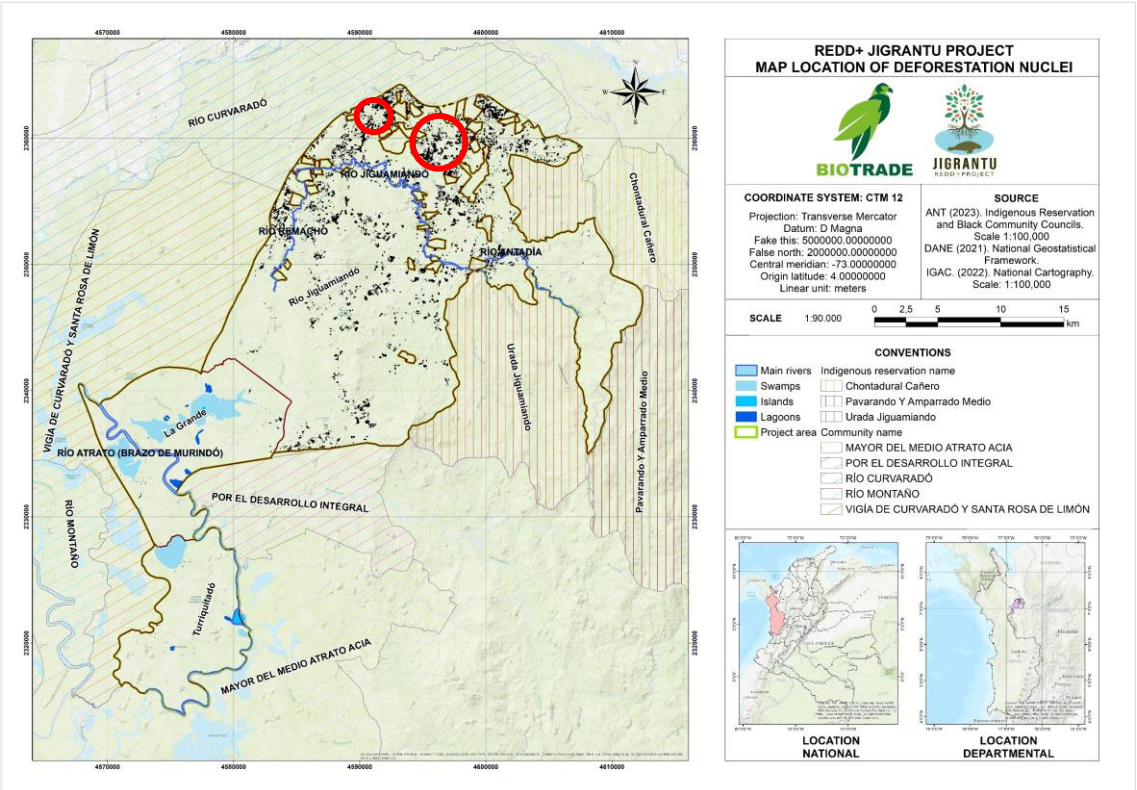
Considering REDD+ principles, intervention areas were selected:

Phase 1. i) location of rivers and realization of a 2 km buffer ii) exclusion of eligible areas for implementations in areas where it is required to increase diversity, carbon stocks, connectivity, water regulation, among other ecosystem services iv) identification of deforested areas and crossing of the land cover map.

Phase 2*.* i) analysis of deforestation nuclei ii) potential areas for the establishment of plantation and successional agroforestry strategies.

For Phase 1 there is a total of 8,104.85 hectares, of which 7,092.12 hectares are forest in 2022 and 1,012.73 hectares are other types of cover other than forest, among which 721.21 ha are potential areas for the definition of strategies (such as clean pastures, fragmented forest, among others) and 291.52 ha of non-potential cover (such as rivers, swampy areas, among others). In phase two, 2 key deforestation nuclei are identified as shown in the following Figure 7, due to the high pressure and proximity between patches.

Figure 7. Map showing the location of deforestation nuclei in the JIGRANTU REDD+ Project.



Prepared by Biotrade S.A.S. (2023)

a) Step 2. Definition of REDD+ activities for climate change adaptation in the sustainable development strategy and in the Ci program. sustainable productive projects.

Our objective is to promote agro-successional restoration as an approach to forest restoration, with general agroforestry models that are compatible with restoration, the approach seeks ecological and socioeconomic benefits. In this model, agricultural crops are planted at the same time as early successional native tree species. They are managed simultaneously, as similar techniques are used. During this initial period, which can vary from 3 to 20 years depending on the system, crops are harvested, forest species regenerate naturally, and some mid-successional species may be introduced. Over time, as the canopy closes, agricultural production will decrease, as most agricultural annual and biennial crops are light, while light, soil and moisture conditions will be more favorable for later successional species. At this point, agricultural crops are eliminated.

An important benefit of agro-successional restoration is that it can extend the restoration time period. Often, restoration budgets are allocated from year to year or for relatively short periods (e.g., 1 to 3 years), forcing restorers to plant all species simultaneously. However, later successional species that should be the focus of restoration efforts because they are less likely to colonize naturally need an established canopy under which they tend to establish. Agro-successional restoration can help overcome this temporary mismatch. Where ongoing management methods are similar for farmers, the temporal scale of restoration can be extended so that later successional species can be introduced 5, 10, or even 20 years into the restoration.

Table 6. Description of activities identified within the connectivity core.

Name of the activity	Description of the agroforestry activity
1. Sustainable management of dense forest	The natural forest can form part of the production system of a property or farm and generate income for families through a sustainable forest management plan (PMFS). This is achieved through the permanent harvesting of different forest and non-forest products. For this it is necessary to cultivate and manage the natural forest in a sustainable manner taking into account the development of zoning and generation of management plans. 2. Carrying out a forest inventory. 3. Obtaining a harvesting permit or *"license"* from CODECHOCO. Obtaining tools and equipment. 5. Definition of the markets for the products.
2. Enrichment of forests and stubble.	The most susceptible areas for deforestation are the areas of highly disturbed forests and forests in succession. Some of these areas can already be classified as forests because they have more than one hectare in size, more than 30% canopy cover and more than 5 meters in height, which means that they are areas that must be protected through efficient and

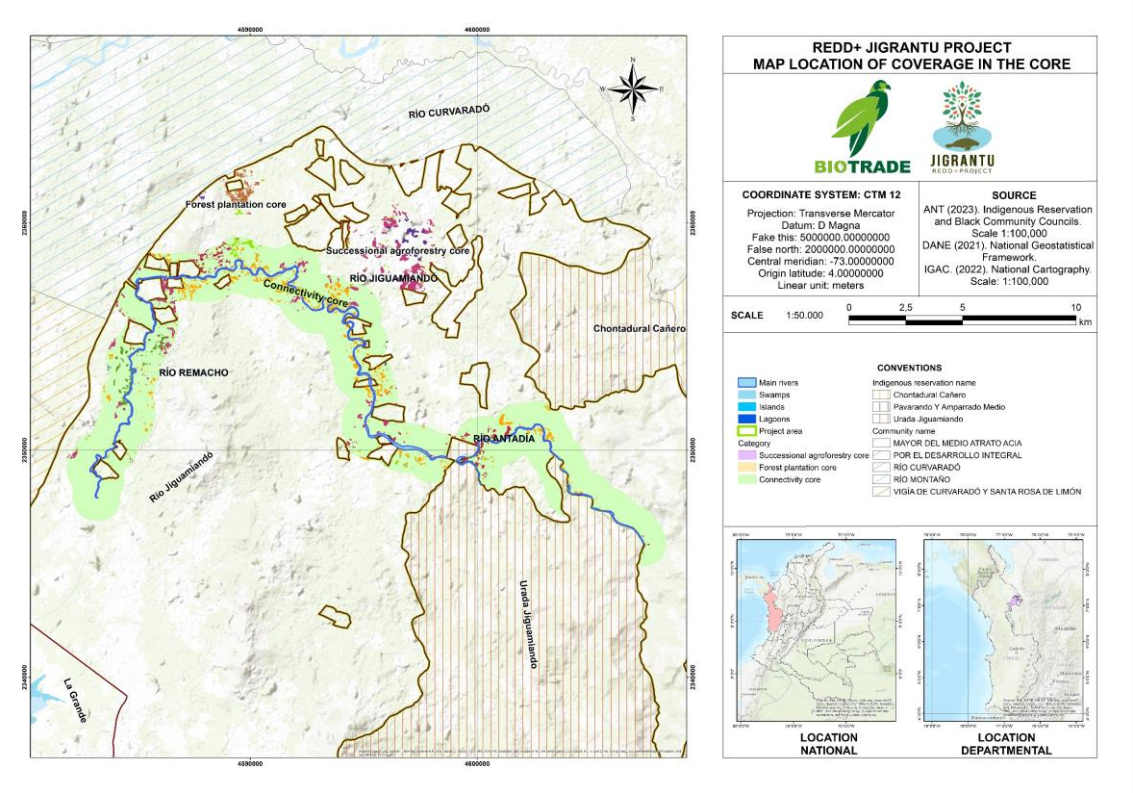
	sustainable use, taking into account the forest enrichment arrangements carried out by the IIAP.
3. Agroforestry	The models that have been implemented in South America allow for the promotion of diversity, both in the number of strata and species, in some way resembling the dynamics and structure of the natural forest.
4. Silvopastoral systems	Taking into account the nutritional deficiencies in cattle, mainly due to an imbalance in the energy-protein ratio, a model will be designed to supply the necessary nutrients (proteins, fibers and minerals) through forage trees and shrubs, to obtain a more balanced diet and improve production, especially for dairy farms.

Table 7. Expected change in the different variables after the implementation of productivity cores.

Variables	Expected change
Soil	➢ Increase in the availability of organic matter and nutrients due to the contribution of biomass.
	➢ Improvement of physical conditions (structure, aeration, humidity).
	➢ Reduction of soil loss due to erosive agents, especially rainfall.
Ecological Environment	➢ Refuge and attraction for entomofauna and avifauna
	➢ Improved soil microbial population.
Use of chemicals	➢ In relation to the previous aspects, there is a decrease in the application of chemical inputs for the management of nutritional and phytosanitary problems of the established species, and consequently, a reduction in the levels of environmental contamination.
Positive interactions	➢ Atmospheric nitrogen fixation by leguminous species.
	➢ Improved forage for animal feed.
	➢ Nutrient recycling (through manure and urine).
	➢ Generation of favorable microclimates by attenuating solar radiation, regulating soil humidity, relative humidity, and dampening air currents.
Negative interactions	➢ Competition for nutrients, light, browsing, factors that produce favorable effects on the system.

b) Step 4. Spatialization and estimation of potential areas for each of the selected productive activities.

Figure 8 Map of land cover in the REDD+ strategy nuclei in the JIGRANTU REDD+ Project.



Prepared by Biotrade S.A.S. (2023)

Table 8 Estimation of the different coverages in the established nuclei

Core	Symbol	Land Cover	Area (ha)
Nucleus of successional agroforestry		Clean pastures	6.86
		Mosaic of crops, pastures and natural spaces.	5.41
		Mosaic of pastures with natural spaces	3.71
		Mosaic of crops with natural spaces	34.20
		Fragmented forest	8.77
		Secondary or transitional vegetation	149.91
Connectivity core		Fragmented forest	27.89
		Mosaic of crops with natural spaces	2.02
		Mosaic of pastures and crops	1.30
		Mosaic of crops, pastures and natural spaces.	356.05
		Clean pastures	27.17
		Weedy pastures	59.23
		Mosaic of pastures with natural spaces	84.90
		Secondary or transitional vegetation	162.64
Forest plantation core		Permanent herbaceous crops	65.14
		Clean pastures	7.30
		Mosaic of crops with natural spaces	3.63

Core	Symbol	Land Cover	Area (ha)
		Fragmented forest	0.083
		Secondary or transitional vegetation	3.05
Total			1009.263

The analysis of the environmental supply of the territory was carried out through the analysis of land cover as of 2018 in the selected areas, with the results shown in the following Figure 8 and Table 8.

For the assignment of specific productive activities according to cover type, the definitions of each cover and its spatial composition in terms of structure and functional state were considered, which included elements such as patches of secondary forests, stubble, among others. The main objective of these productive interventions is to improve the ecological conditions of each type of cover, which in turn would contribute to strengthen connectivity, increase carbon levels, and promote biodiversity. For this reason, it was essential to prioritize the use of local species in each of the production systems, avoiding approaches based on monocultures.

The diversity of species promoted in these productive arrangements would play an important role in nutrient cycling, reducing the need for fertilization and contributing to the chemical and biophysical balance of the soil. This is especially relevant in areas affected by erosion caused by cattle ranching, where improving soil conditions becomes a central challenge to achieve sustainable economic use. In addition, these activities would allow the use of the land for both agricultural and forestry purposes, thus maximizing its productive and ecological potential. On the other hand, in the nuclei of plantations and successional agroforestry, the reconversion of current land cover to the proposed uses is proposed as a strategy for the long-term recovery of forest cover.

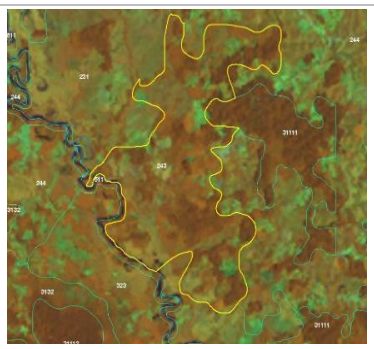
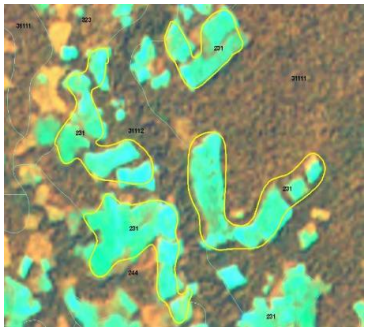
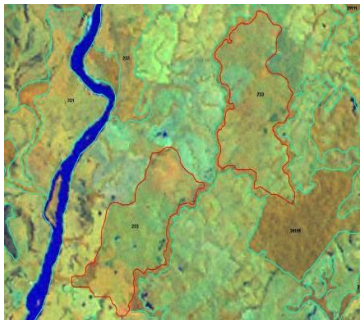
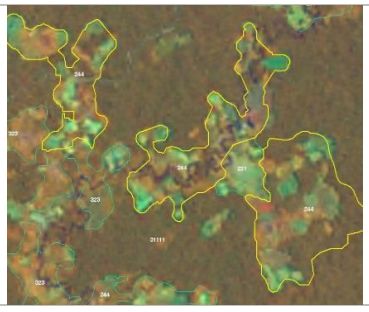
For the implementation of productive activities, the following coverages were selected for each activity in the connectivity nucleus:

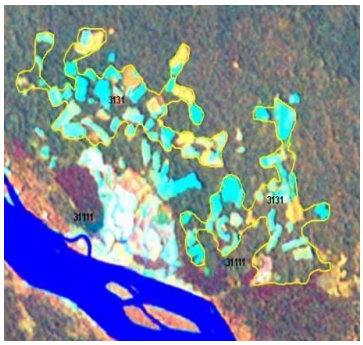
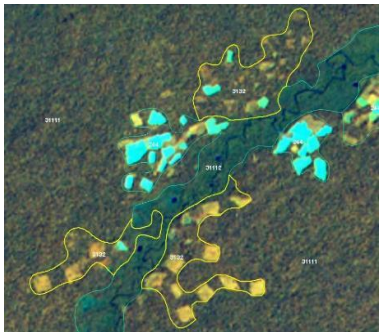
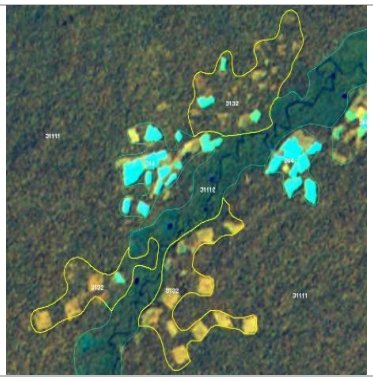
Definition of the coverages present in the project area.

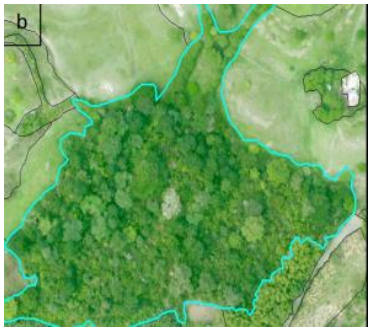
The definitions of land cover according to IDEAM (2010)[31] are:

Table 9. Description of the coverages present within the productivity cores.

[31] IDEAM, 2010. National Land Cover Legend. CORINE Land Cover methodology adapted for Colombia Scale 1:100.000. Institute of Hydrology, Meteorology and Environmental Studies. Bogotá, D. C., 72p.

DESCRIPTION OF COVERAGE	COVERAGE IMAGE	ALLOCATION OF ACTIVITIES BY ENVIRONMENTAL SUPPLY
a. Permanent herbaceous crops: Coverage composed mainly of permanent crops of herbaceous habit such as sugar cane and sugarcane, banana, plantain, banana and tobacco. Herbaceous crops are plants that do not have woody organs, are green and have an annual vegetative life cycle.		Forest plantation core
b. Clean pastures: This cover includes land occupied by clean pastures with a percentage of cover greater than 70%; the performance of management practices (clearing, liming and/or fertilization, etc.) and the technological level used prevent the presence or development of other covers.		Successional agroforestry nucleus Connectivity core Forest plantation core
c. Weeded pastures: These are coverages represented by land with grasses and weeds forming associations of secondary vegetation, mainly due to poor management practices or the occurrence of abandonment processes. In general, the height of the secondary vegetation is less than 1.5 meters.		Connectivity core
d. Pasture and crop mosaic: Comprises land occupied by pasture and crops, in which the size of the parcels is very small (less than 25 ha) and the distribution pattern of the plots is too intricate to represent them individually on a map.		Connectivity core

e. Mosaic of crops, pastures and natural spaces: Comprises the areas of the territory occupied mainly by crop and pasture cover in combination with natural spaces. In this unit, the pattern of land cover distribution cannot be represented individually, as plots larger than 25 hectares. Crop and pasture areas occupy between 30% and 70% of the total area of the unit.		Successional agroforestry nucleus Connectivity core
f. Mosaic of pasture with natural spaces: Consists of areas occupied mainly by pasture cover in combination with natural spaces. In this unit, the distribution pattern of pasture and natural areas cannot be represented individually and the pasture plots have an area of less than 25 hectares. Pasture coverages represent between 30% and 70% of the total area of the mosaic. The natural spaces are made up of areas occupied by relicts of natural forest, shrublands, gallery or riparian forest, marshes and other areas that have not been intervened or have undergone little transformation and that, due to use limitations due to their biophysical characteristics, remain in a natural or near-natural state.		Connectivity core
g. Mosaic of crops and natural spaces: Corresponds to areas occupied mainly by crops in combination with natural spaces, where the size of the plots is very small and the distribution pattern of the lots is too intricate to represent them individually cartographically. In this unit, natural spaces are presented as small patches or relicts that are distributed in an irregular and		Successional agroforestry nucleus Connectivity core Forest plantation core

heterogeneous manner, sometimes intermingled with crop areas, making it difficult to differentiate them. The cultivated areas represent between 30% and 70% of the total area of the unit. The patches and residues of natural spaces are made up of those areas covered by forest relicts, shrublands, gallery and/or riparian forest, secondary or transitional vegetation, swampy areas or other non-interventionist or little transformed areas that remain in a natural or near-natural state.		
h. Fragmented forest: Includes territories covered by dense natural or open forests whose horizontal continuity is affected by the inclusion of other types of cover such as pasture, crops or transitional vegetation, which must represent between 5% and 30% of the total area of the natural forest unit. The distance between intervention fragments must not exceed 250 meters.	 32	Nucleus of successional agroforestry Connectivity core **Forest** plantation core
i. Secondary or transitional vegetation: Includes vegetation cover originated by the process of succession of natural vegetation that occurs after the intervention or destruction of primary vegetation, which can be found in recovery tending to the original state. It develops in areas cleared for different uses, in abandoned agricultural areas and in areas where the natural	 32	Successional agroforestry nucleus Connectivity core **Forest** plantation core

[32] Taken from: interpretation of land cover and multitemporal analysis for the environmental compensation area of the Quimbo hydroelectric project.

vegetation was destroyed by natural events. There are no elements intentionally introduced by man.		

6.2.1 Zoning of productive activities

Based on territorial planning and management, implementation strategies based on four fundamental principles are proposed:

1. Establishment of areas for food production for family units.
2. Protection and conservation of water sources.
3. Development of production systems that include native species.
4. Creation of a productive barrier on the deforestation frontier to halt the advance of the main factors of environmental degradation.

The main objective of this methodology focuses on the creation of this productive barrier on the deforestation frontier to prevent and slow the advance of the main drivers of environmental degradation. This barrier is conceived as an integral measure that addresses food production for local communities, the conservation of water sources, and the promotion of production systems based on native species, thus contributing to the wellbeing of the population and the protection of the environment.

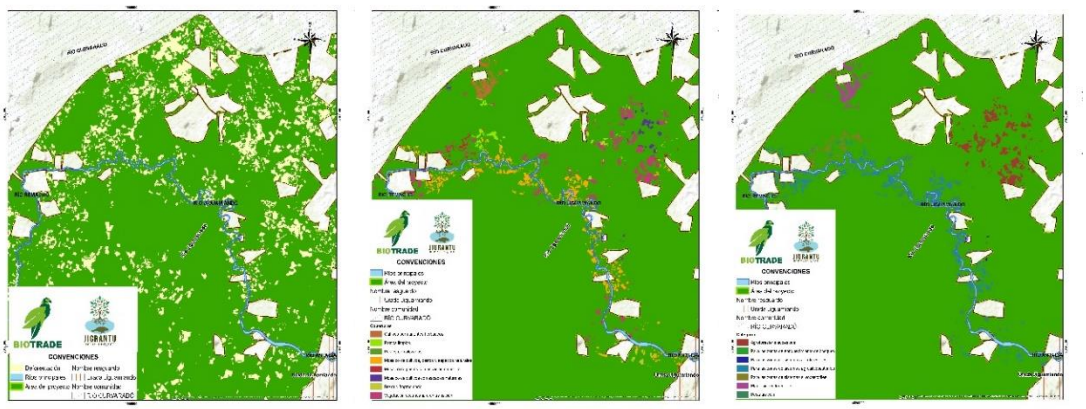
GIS methodology for zoning

A 2 km buffer is made around the Jiguamiando and Remacho rivers to define the connectivity core. Eligible areas are also taken into account based on GFW data. Subsequently, taking into account the non-forest areas, their coverage is defined by means of an *intersect* with the Land Cover Map (Figure 9A and Figure 9B).

Based on a deforestation analysis, two nuclei are established: the plantation nucleus, taking into account its historical conversion, and the successional agroforestry nucleus, taking into account that its conversion to non-forest occurred during the monitoring period.

Step 3. Taking into account the type of cover, management strategies are defined (Figure 9C).

Figure 9 Step by step for the specialization of productive systems. A. Forest and non-forest areas. B. Coverage in non-forest areas. C. Strategies to be implemented.



Prepared by Biotrade S.A.S. (2023)

6.3 Economic analysis, cost and profitability of the activities to be developed

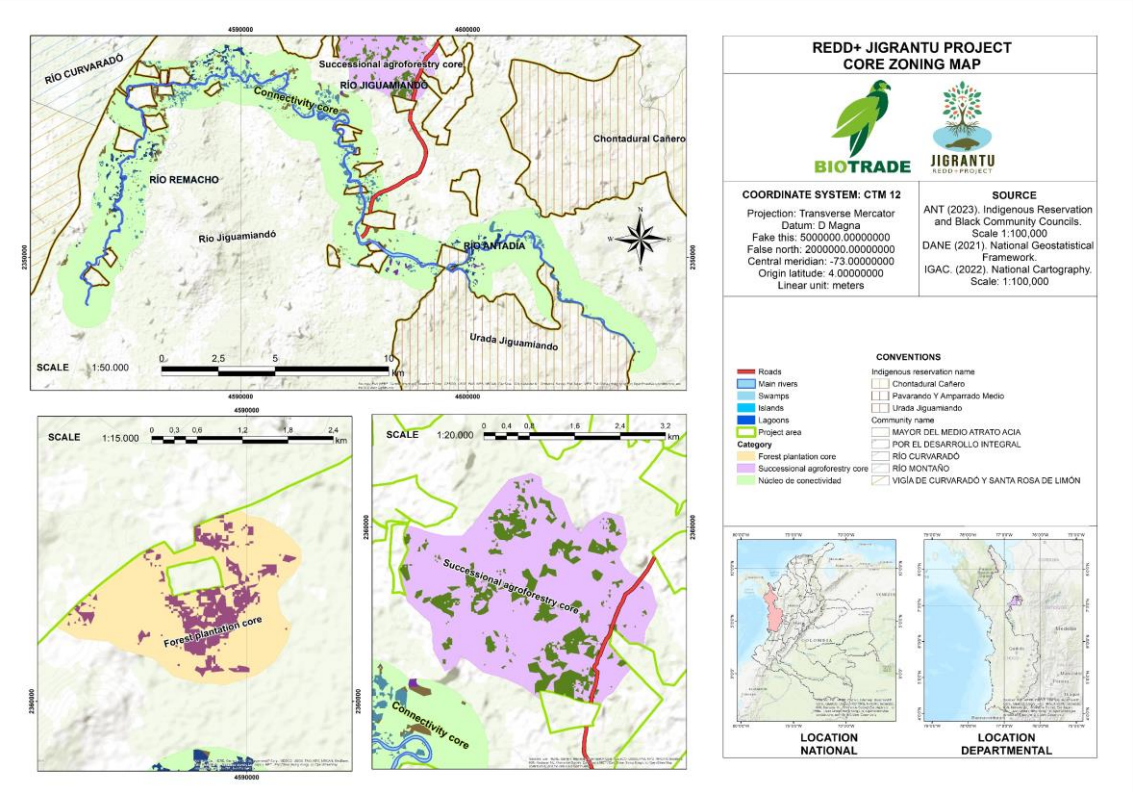
The selected area has a total of 1,009 hectares, of which 35.4% of the total area corresponds to agrosilvopastoral systems, 20.7% to successional agroforestry, 17.0% to silvopastoral systems and 16.1% to restoration. For the intervention of productive activities there would be a total investment in implementation of $ COP 6,779,075,914 as shown in Table 10.

Table 10 Average cost and income of the different production systems proposed for the area of action.

Core	**Production system**	**Area (ha)**	**Installation cost/ha COP**	**Annual maintenance cost/ha COP**	**Total installation cost COP**	Total **income/ha 30 years COP**
Successional agroforestry nucleus	successional agroforestry	208,85	7.875.000	3.172.500	1.644.701.649	17.543.484.252
Connectivity core	forest enrichment	27,89	6.114.000	1.260.000	170.520.793	1.626.348.337
	agroforestry systems	2,02	7.875.000	3.172.500	15.931.424	169.935.192
	agrosilvopastoral systems	357,36	7.875.000	3.172.500	2.814.198.369	30.018.115.932
	silvopastoral systems	171,30	3.825.000	1.425.000	655.217.222	6.423.698.250
	restoration	162,63	6.114.000	1.260.000	484.156.374	
Forest plantation core	forest plantations	79,19	6.114.000	1.260.000	994.350.084	4.617.659.230
TOTAL		**1009,24**			**6.779.075.914**	**60.339'241.193**

Prepared by Biotrade S.A.S. (2023)

Figure 10 Spatialization map of productive activities within the proposed area.



Prepared by Biotrade S.A.S. (2023)

The data in Table 10, referring to maintenance costs and income of forestry systems, were taken from an average of data taken from the literature. These costs can vary according to the agroforestry arrangements of each system, as well as their profitability. From this strategy it can be highlighted that each intervened hectare has an average cost of $ COP 968,439,416.

7 Carbon ownership and rights

7.1 Project holder

Holders of the REDD+ JIGRANTU Project.

Individual or organization	Biotrade S.A.S
Contact person	Ruby Acosta Bastidas
Job title	Director
Address	Calle 42b sur 72 T 47, Bogota.

Telephone number	301 6279136
E-mail address	gerencia@biotradeco2.com

Individual or organization	Jiguamiando River Community Council
Contact person	Melkin Romaña Cuesta
Job title	Legal representative
Address	Jiguamiando River Community Council Carmen del Darien, Choco
Telephone number	3103868552
E-mail address	melkinro@gmail.com

Individual or organization	La Grande Community Council
Contact person	Fawer Paz Cordoba
Job title	Legal representative
Address	La Grande Community Council Carmen del Darien, Choco
Telephone number	3206380744
E-mail address	fapazcor@hotmail.com

Individual or organization	Turriquitado Community Council
Contact person	Alcides Panesso Palacio
Job title	Legal representative
Address	Turriquitado Community Council Carmen del Darien, Choco
Telephone number	3113480798
E-mail address	replegalturriquitado@gmail.com

7.2 Other project participants

The REDD+ JIGRANTU Project has no other participants.

7.3 Agreements related to carbon rights.

La Grande and Turriquitado, problems such as the lack of productive, educational and health opportunities. As well as the lack of cultural and territorial appropriation, which have been caused by historical violence and the total helplessness of the state. The leaders have seen that the REDD+ projects have been a regional example of community self-management for the development of communities, resolution of environmental and social problems, some Community Councils neighboring the project area have socialized the performance of REDD+ actions and it has been concluded that it is the only mechanism that can contribute to the exercise of democracy and sustainable development in the territory.

Due to the local and regional experience of other Community Councils with the implementation of REDD+ projects, the boards of directors of the Jiguamiando, La Grande and Turriquitado Community Councils, undertook the search for a technical partner to help them formulate a REDD+ project, invited and listened to different proposals from various companies. Biotrade S.A.S. is one of the companies with which they contact, virtual meetings are held, and after these meetings they decide to formally invite the company to a meeting with the leaders and Boards of the councils in the city of Apartado on July 13 and 14, 2022.

In the first face-to-face meeting, Biotrade S.A.S. explained to the leaders and their respective Boards, in the city of Apartado in a simple way, the steps and conditions to start the formulation of a REDD+ project and the scope it would have in the territory. This meeting provided the space to resolve doubts about the REDD mechanism, the environmental and economic benefits, and the way in which economic benefits are distributed. The leaders and advisors asked all kinds of technical questions, not only about the design and audit process, but also about how the sale of the bonds and the execution of the activities are carried out. The work proposal for the development of the REDD project was presented in the Community Councils.

The Boards of each Community Council evaluated the pros and cons of working with each of the companies contacted and finally decided to start with Biotrade S.A.S. for the structuring of a REDD+ project. Summoning the company to present again in the territory of each Community Council the work proposal through a General Assembly. Because it

is the highest authority according to Article 4 of Decree 1445 of 1995[33] that can decide on the execution of the project in each Community Council (The General Assembly is made up of the persons recognized in accordance with the system of their own law and registered in the internal census of each Council).

The General Assembly is convened with the purpose of "Socializing the methodology of the REDD project and the conclusion of the alliance agreement between Biotrade S.A.S. and the Community Council".

In the general assembly's held in each of the Community Councils, Biotrade S.A.S. presented in simple language the steps and scope of the structuring of a joint REDD project in the *Rio Jiguamiando, La Grande and Turriquitado Community Councils.* The importance of participation, equity and transparency was highlighted, which would allow an active coordination of *the three* councils, so that the project would be efficient and effective, both in the formulation and implementation of community control and oversight actions. In the assemblies all participants had the opportunity to resolve concerns, make contributions, observations in the construction of the Benefit Sharing System, administration, and governance system.

In the space of the General Assembly, each Community Council evaluated and decided by means of a "vote" on the signing of the alliance agreement with Biotrade S.A.S. for the process of formulating and implementing a REDD project in conjunction with the community councils with a duration of 30 years. Giving the endorsement to your legal representative for the signing of the alliance contract[34]. And to the company to initiate the local and field participatory diagnosis. In this first assembly in each community council, the Benefit Sharing System was elaborated and adjusted with the help of the participants, and the organizational chart of the project was approved and previously agreed with the Boards of Directors of the Community Councils. The dates of Assemblies and their minutes are detailed in section 10 of this document.

7.4 Land tenure

The REDD+ JIGRANTU Project links three Community Councils of Afro-descendant communities, Jiguamiando, La Grande and Turriquitado, with recognition and titling of collective territories according to Law 70 of 1993[35] as described in **Table 11**.

[33] Available in: Decree 1445 of 1995
[34] Alliance contracts available in: REDD+ JIGRANTU PROJECT\6. LEGAL COMPLIANCE\ALLIANCE AGREEMENTS REDD PROJECT
[35] Available: Law 70 of 1993

Table 11. Titles of collective territories of the Community Councils of the project

Collective Territory	Degree Resolution	Date	Titled Area
Community Council of Rio Jiguamiando	02801	22/11/2000	54,973 ha 8,368 m^2
Community Council La Grande	02806	22/11/2000	13,455 ha 5,255 m^2
Turriquitado Community Council	02799	22/11/2000	9,406 ha 1,760 m^2

Source: Biotrade S.A.S with information on the respective resolutions[36].

8 Environmental Aspects

From what is identified in section 1.5 and 14 of this documents detailing the status of implementation of project activities[37] a positive impact on the biotic environment is identified by the protection of ecosystems and management of the area to include the management and care of forests. The repopulation and recovery of the ecosystem with the transfer of fauna species and reforestation carried out for the purpose of soil stabilization leading to the natural regeneration of the area (Table 12). In addition to the actions aimed at the management of natural resources within each of the councils as detailed in their internal regulations[72] and where the commitment of the communities to environmental sustainability and the preservation of their traditions is evident. The environmental aspects were evaluated using the methodology of Conesa, 2010 and based on the *BCR TOOL* methodology. *NO NET HARM ENVIRONMENTAL AND SOCIAL SAFEGUARDS (NNH). BCR project activities do not cause any net-harm to the environment or to local communities and society in general.* Version 1.0 (BCR, 2023)[38] .

Table 12 Measurement of impacts on the biotic environment.

Biotic environment		
Element	**Measure of impact**	**Responsible**
Flora	Positive	Biotrade S.A.S
Biodiversity	Positive	Biotrade S.A.S
Ecosystems	Positive	Biotrade S.A.S

[36] Resolutions and land tenure information in the project: REDD+ JIGRANTU PROJECT\13. LAND TENURE
[37] Location of the Diagnostic document of the conservation actions detailing the status of project execution: 4.
[38] BIOCARBON REGISTRY (2023). BCR TOOL. NO NET HARM ENVIRONMENTAL AND SOCIAL SAFEGUARDS. (NNH). BCR Project activities do not cause any net-harm to the environment or to local communities and society in general. Version 1.0. Bogotá D.C., Colombia. 16 p. no-net-harm.pdf

Source. Biotrade S.A.S. (2023)

9 Socioeconomic Aspects

Actions aimed at strengthening REDD technical capacities for the administration, formulation and execution of this type of projects were developed, in addition to strengthening capacities for the implementation of actions with community monitoring of species of interest that are part of the special categories of the project[39] (Table 13).

This chapter was developed based on the BCR TOOL methodology. NO NET HARM ENVIRONMENTAL AND SOCIAL SAFEGUARDS (NNH). BCR project activities do not cause any net-harm to the environment or to local communities and society in general. Version 1.0 (BCR, 2023)[40] . In relation to sustainable development, the characterization of the project area provides the basis for the diagnosis of the environmental and social supply. This, in turn, facilitates the implementation of Sustainable Productive Projects by the communities involved in the project, which allows for a diagnosis of the state of the ecosystems and their associated services.

Table 13 Measurement of impacts on the socioeconomic environment.

Socioeconomic		
Element	**Measure of impact**	**Responsible**
Formulation and development of governance tools	Positive	Biotrade S.A.S
Capacity building for the implementation of REDD projects	Positive	Biotrade S.A.S
Capacity building for action implementation	Positive	Biotrade S.A.S
Diagnosis of the environmental and social offer for the implementation of Sustainable Productive Projects.	Positive	Biotrade S.A.S

Source. Biotrade S.A.S. (2023)

[39] Details of the spaces for socialization and work with the project members: 10. Community minutes

[40] BIOCARBON REGISTRY (2023). BCR TOOL. NO NET HARM ENVIRONMENTAL AND SOCIAL SAFEGUARDS. (NNH). BCR Project activities do not cause any net-harm to the environment or to local communities and society in general. Version 1.0. Bogotá D.C., Colombia. 16 p. no-net-harm.pdf

10 Stakeholders' Consultation

10.1 Community consultation

The work scenario of the project begins with the selection of BIOTRADE SAS as the guarantor company of the conditions and compliance with the requirements established by the Black Communities, after a time of internal evaluation of the social and technical presentation of the formulation of REDD projects that the company carried out in person in the region. Bearing in mind the social and technical commitment of this selection, the process of formulating the project has been characterized by compliance with the principles of participation, transparency, trust, justice, and equity.

Figure 11. Working space with community council leaders.

Source. Biotrade S.A.S. (2022)

Twenty-four (23) meetings and workshops have been held for the involvement of the community of the three (3) Community Councils (Table 14), as well as specific work and study with leaders for the appropriation and strengthening of the project's technical capacities. The majority of the work spaces have been carried out in person (Figure 12) in the project area or in urban centers of the region, using audiovisual and printed material in large format with graphic content, images and simple texts that facilitate the understanding of the different REDD topics.

Figure 12. Rio Jiguamiando community council assembly

Source. Biotrade S.A.S (2022)

The company has provided the human, operational and financial resources for the development of the different workspaces and the formulation of the project.

Table 14 List of meeting spaces and workshops developed within the framework of the project.

No.	Date and place	Thematic	Participation (total persons)
1	July 13 and 14, 2022 *Escalar Room - Apartado*	Socialization about REDD projects, carbon credits and work proposal by Biotrade S.A.S.	8
2	October 20 and 21, 2022 *Jigua Center Community Hall*	Working space with leaders of the Community Councils of Turriquitado, La Grande and Rio Jiguamiando. Preliminary to the ASSEMBLIES.	26
3	October 22, 2022 *Jiguamiando River Community Council* October 23, 2022	ASSEMBLY • What is the REDD+ mechanism • Steps to build the REDD+ JIGRANTU Project • Explanation of alliance contract • Profit distribution system and organization chart • Autonomous space for voting on the REDD+ JIGRANTU Project.	146

No.	Date and place	Thematic	Participation (total persons)
	Jiguamiando River Community Council	• Working group to gather information for the Participatory Rural Appraisal -DRP.	55
4	October 25, 2022 *Socialization of the Caño Seco and Bella Flor Remacho community project.*	• What is the REDD+ mechanism • Steps to build the REDD+ JIGRANTU Project	32
5	October 28, 2022 *La Grande Community Council*	ASSEMBLY • What is the REDD+ mechanism • Steps to build the REDD+ JIGRANTU Project • Explanation of alliance contract • Profit distribution system and organization chart • JIGRANTU REDD+ Project Autonomous Voting Area	90 (27 displaced colony)
	October 29, 2022 *La Grande Community Council*	• Working group to gather information for the Participatory Rural Appraisal -DRP.	48
6	October 28th and 29th *Turriquitado Community Council*	ASSEMBLY • What is the REDD+ mechanism • Steps to build the REDD+ JIGRANTU Project • Explanation of alliance contract • Profit distribution system and organization chart • JIGRANTU REDD+ Project Autonomous Voting Area • Working group to gather information for the Participatory Rural Appraisal -DRP.	30
7	November 01, 2022 Salon Escalar - Apartado	Socialization of the project for displaced population • What is the REDD+ mechanism • Steps to build the REDD+ JIGRANTU Project • Explanation of alliance contract	29

No.	Date and place	Thematic	Participation (total persons)
		• Profit distribution system and organization chart	
8	June 12, 2023 *Balen de Bajira*	Work space with leaders • Audit considerations • Socialization and adjustment of the operating manual • Review of the conservation action process • Fiduciary commitments	18
9	June 21, 2023 *Meet platform (virtual)*	Logistical preparation and budget for field trip for the diagnostic survey of conservation actions.	3
10	August 24, 2023 *Meet platform (virtual)*	Meeting with leaders to present the progress made in the formulation of the project	5
11	October 13, 2023 *Oceano Apartado Building*	Working meeting with leaders and FIDUCIA	9
12	October 14, 2023 *Escalar Apartado Room*	• Socialization of DoP results with the displaced community of La Grande and Jiguamiando, residents of Apartado. • Presentation of FIDUCIA's work methodology.	52
13	October 14, 2023 *Salon Sajona Chigorodo*	• Socialization of the results of the DoP with the Jiguamiando displaced community, residents of Chigorodo. • Presentation of FIDUCIA's work methodology.	39
14	October 16, 2023 *La Grande Community Council*	• Socialization of DoP results. • Analysis of risks, barriers, benefits and safeguards.	88
15	October 17, 2023 *Turriquitado Community Council*	• Socialization of DoP results. • Analysis of risks, barriers, benefits and safeguards.	22
16	October 18, 2023 *Curvarado*	• Socialization of DoP results with the displaced community of La Grande and Jiguamiando, residents of Curvarado. • Analysis of risks, barriers, benefits and safeguards.	41
17	October 19, 2023	• Socialization of DoP results.	35

No.	Date and place	Thematic	Participation (total persons)
	Caño Seco Community Jiguamiando River Community Council		
18	October 20, 2023 *Nueva Esperanza Community Jiguamiando River Community Council*	• Socialization of DoP results. • Analysis of risks, barriers, benefits and safeguards.	42
19	October 22, 2023 *Laguna Community Jiguamiando River Community Council*	• Socialization of DoP results.	39
20	October 23, 2023 *Urada Community Jiguamiando River Community Council*	• Socialization of DoP results.	19
21	October 23, 2023 *Puerto Lleras Community Jiguamiando River Community Council*	• Socialization of DoP results.	25
22	October 24, 2023 *Pueblo Nuevo Community Jiguamiando River Community Council*	• Socialization of DoP results. • Analysis of risks, barriers, benefits and safeguards.	67
23	October 25, 2023 *Centro Jigua Community Jiguamiando River Community Council*	• Socialization of DoP results.	55

Source. Biotrade S.A.S (2023)

It has been estimated that 78% coverage has been achieved in the involvement or participation of the Community Councils in the workshops and meetings of the project, considering the census data of the councils, the average family composition is 5 members and at least one member per family has participated in the different spaces.

10.2 Consultation with Neighbors

The neighboring communities, which correspond to three (3) Community Councils and an Indigenous Reserve, have been integrated into socialization spaces, through the participation of leaders and legal representatives in meetings to present the project, who have been personally invited by leaders of Jiguamiando and La Grande (Table 15).

The Company has assumed the costs of traveling the legal representatives of the neighboring communities for the participation of the socialization spaces.

Table 15 List of meeting spaces and workshops developed in consultation with neighbors.

Date & Place	Thematic	Neighboring Community	Participants
01 and 02 November 2022 Apartado Scalar Room	Socialization of the REDD mechanism	• Urada Jiguamiando Indigenous reservation	11
October 26 Nativity scene of Bajira	Socialization of PDD, institutional actors and neighbors	• PDI Community Council • Vigia de Curvarado Community Council • Montaño Community Council	3

Source. Biotrade S.A.S (2023)

10.3 Consultation with institutions and organizations

Figure 13. Meeting with institutions and organizations.

Source. Biotrade S.A.S. (2022)

With the legal representatives and leaders of the Community Councils linked to the project, an analysis of institutional actors and organizations of importance in the participation of socialization spaces was carried out, establishing twelve (12) key organizations to be invited to the presentation of PdD held on October 26 in Belen de Bajira (Figure 13).

- Pacific Environmental Research Institute (IIAP)
- Codechoco
- Carmen del Darien Mayor's Office
- Secretary of the Environment of the Mayor's Office Carmen del Darien
- Representation of black communities before the Mayor's Office
- ASCOBA

- Carmen del Darien Ombudsman's Office
- Parish of Rio Sucio
- Victims' Roundtable
- Social Ministry of Apartado
- SENA – Regional Carmen del Darien

10.4 Summary of comments received

To understand the general perception of the community regarding the project, an evaluation of satisfaction was carried out in relation to the information presented during the socialization meetings of the PdD, held from October 14 to 25, 2023. 100 surveys were carried out among the attendees, who gave an average rating of 4 out of 5, regarding the clarity of the information.

Among respondents, 43% said they had a clear understanding of all topics without needing to delve into anyone. On the other hand, 14% expressed the need for more explanation on the implementation of Benefit-sharing System projects, while 7% pointed to resource management and capacity building as areas of importance.

In relation to the other actors, neighbors and organizations, there has been a notable interest in supporting the implementation of the project. This is largely due to the transparent and well-planned process that has been supported by the valuable technical accompaniment provided by Biotrade S.A.S. The quality of the planning process is highlighted, which has been identified as a solid guarantee for the socially and environmentally responsible execution of the project. In addition, the commitment to transparency and community engagement has created an environment conducive to collaboration and ongoing stakeholder support.

10.5 Consideration of comments received.

The company's information e-mail address (informacion@biotradeco2.com) and contact telephone numbers for management and field support have been provided for the presentation of questions, complaints, claims, suggestions and other queries that arise from interested parties.

11 REDD+ Safeguards

Compliance with the safeguards ensures the prevention of possible damage to fundamental social, economic, or environmental rights and the occurrence of negative impacts arising from the design and implementation of REDD+ activities. Below are the sheets generated for the monitoring and evaluation of REDD safeguards in the

framework of the proposed Biocarbon Registry tool, according to Version 1.1 (Brigard & Urrutia, BCR, 2023)[41] . The development of this is available in the safeguards portfolio[42]

ID Safeguard	SVG-1
Indicator ID	SVG-1.1
Indicator name	Complementarity and compatibility of REDD+ activities with national and international agreements
Type	Product
Goal	1 document in each monitoring period
Unit of measure	Number of documents
Responsible for measurement	Biotrade S.A.S. Technical Team
Indicators result in the reporting period	Document with the creation of the matrix document with analysis of complementarity and compatibility with national and international policies regarding sustainable management of biodiversity, forests and climate change mitigation.
Documents to support the information	JIGRANTU REDD+ Project Complementarity and Compatibility Analysis Matrix
Remarks	N/A

ID Safeguard	SVG-2
Indicator ID	SVG-2.1
Indicator name	Legal compliance
Type	Product
Goal	1 document in each monitoring period
Unit of measure	Number of documents
Responsible for measurement	Biotrade S.A.S. Technical Team
Indicators result in the reporting period	1 document with the national, regional, and local legislation applicable to the context of the REDD+ JIGRANTU Project.
Documents to support the information	Legal compliance matrix
Remarks	N/A

ID Safeguard	SVG-2
Indicator ID	SVG-2.2
Indicator name	Socialization, dissemination, and transfer of information
Type	Result
Goal	100% of project stakeholders have access to project information.
Unit of measure	Percentage
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022),*

[41] https://biocarbonregistry.com/en/safeguards-redd/
[42] Folder 2 TECHNICAL ANNEXES/9 SAFEGUARDS MONITORING/V2.0/Safeguards Monitoring Sheets RM

	legal representatives of each community council and Biotrade S.A.S. technical team.
Indicator result in the reporting period	100% of project stakeholders have access to project information (Section 10 of the PdD and MR).
Documents to support the information	Minutes of socialization with the different stakeholders of the project: Communities, neighbors, and institutions.
Remarks	It will be ensured that project stakeholders have adequate information according to their social characteristics and language. For 100%, it is considered that all project stakeholders, communities, displaced people, neighbors, and institutions are informed.

ID Safeguard	SVG-2
Indicator ID	SVG-2.3
Indicator name	PQRDS System
Type	Product
Goal	1 PQRDS resolution report document for each of the V2-V14 monitoring periods.
Unit of measure	Number of documents
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	JIGRANTU REDD+ Project PQRDS management procedure document.
Documents to support the information	REDD+ JIGRANTU Project's PQRDS management procedure.
Remarks	The first monitoring report presents the procedure for following up on all the requirements for processing the PQRDS.

ID Safeguard	SVG-3
Indicator ID	SVG-3.2
Indicator name	Recognition of local communities
Type	Product
Goal	1 document in each monitoring period
Unit of measure	Number of documents
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	Mapping document of the communities present within the JIGRANTU REDD+ Project area.
Documents to support the information	- Community mapping document - REDD+ JIGRANTU Project Settlement Map - Benefit Sharing System - Tours in the project area - Evidence of work tables with the communities (Minutes)
Remarks	N/A

ID Safeguard	SVG-4

Indicator ID	SVG-4.1
Indicator name	Full and effective participation of local communities
Type	Result
Goal	100% of the decisions comply with the internal regulations of the community councils and the regulations of the collective territories of black communities.
Unit of measure	Percentage
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	100% of the decisions were approved in the assembly for the formulation of the REDD+ JIGRANTU Project within the community councils.
Documents to support the information	- Minutes of assembly in the community council of the Rio Jiguamiando - Minutes of assembly in the community council of La Grande - Minutes of assembly in the community council of Turriquitado
Remarks	N/A

ID Safeguard	SVG-5
Indicator ID	SVG-5.1
Indicator name	Conservation, protection, restoration, and sustainable use of ecosystems
Type	Product
Goal	1 document Diagnosis of the state of ecosystems, ecosystem services and vulnerability to the effects of climate change in the monitoring period V3
Unit of measure	Number of documents
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	Document of actions in conservation and wildlife harvesting within the La Grande Community Council.
Documents to support the information	- Conservation actions document of the REDD+ JIGRANTU Project - Traditional use of wild birds by Afro-descendant communities in the lower Atrato River basin, Colombia.
Remarks	For the reporting of this indicator, documents and reports that contribute to the construction of the diagnosis of the state of the ecosystems and their natural resources are considered.

ID Safeguard	SVG-5
Indicator ID	SVG-5.2
Indicator name	Use and exploitation of natural resources
Type	Product
Goal	1 summary document of permits or authorizations for the use and exploitation of natural resources

Unit of measure	Number of documents
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	Summary document of forest harvesting permits for the period 2019 to 2022 for the community council of the Jiguamiando River.
Documents to support the information	- Summary document of forest harvesting permits granted to the community council of the Jiguamiando River in the period 2019 to 2022 - Resolutions with authorization for persistent forest harvesting.
Remarks	N/A

ID Safeguard	SVG-5
Indicator ID	SVG-5.3
Indicator name	Forestry control and surveillance
Type	Impact
Goal	Decrease of at least 10% in forest loss with respect to the average of the two previous years.
Unit of measure	Percentage
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	22% decrease in forest loss considering the average non-forest from 2017 and 2018 (495.5 ha) and from 2019 to 2022 (385.9 ha).
Documents to support the information	- Shapes with the forest areas in the project area - Summary of non-forest forest in the project areas
Remarks	N/A

ID Safeguard	SVG-6
Indicator ID	SVG-6.1
Indicator name	Reduce the risks of reversion
Type	Product
Goal	1 document with an analysis of the risks faced by the project
Unit of measure	Number of documents
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	Document with the identification of the risks associated with the project.
Documents to support the information	- JIGRANTU REDD+ Project Risk Analysis - Chapter 7 of the Project Document presenting information on risk management.
Remarks	N/A

ID Safeguard	SVG-7
Indicator ID	SVG-7.1
Indicator name	Forestry control and monitoring to control the displacement of emissions.
Type	Product
Goal	1 document with the report on the development of GIS monitoring actions in leaks.
Unit of measure	Number of documents
Responsible for measurement	MRV Coordinator; directors of each community council and Biotrade S.A.S. **In the first verification period (2019-2022), legal representatives of each community council and Biotrade S.A.S. technical team.*
Indicator result in the reporting period	Identification of the project leakage area and loss of forest in this area.
Documents to support the information	- JIGRANTU REDD+ Project Leakage Area Delineation - Leakage Area Monitoring: Shapes with forest areas 2009 to 2022 - Summary of non-forest forest in the project areas
Remarks	N/A

12 Special categories, related to co-benefits

As a special category, the project will focus on the conservation and recovery of the marshes as ecosystems highly vulnerable to the effects of climate change and the conservation of their fauna, especially the Caribbean manatee *Trichechus manatus* and the *Callirostris* spur-thighed tortoise *Trachemys callirostris,* species in a state of vulnerability.

The Afro-descendant communities of the Community Councils of La Grande and Turriquitado were affected by the activities of Maderas del Darien 2000-2013, the violence caused by the company's support to illegal groups caused a large exodus of communities, the exaggerated extraction of timber greatly weakened the ecosystem, causing sedimentation of rivers, and the damage to marshes was evident in terms of reduced biodiversity and water regulation. Once the company left the region, the communities decided to stop logging on a large scale and only used the forest for construction and repair of social infrastructure such as houses and schools.

Until 2014 the economic activities carried out by the inhabitants of these two Community Councils were focused on timber harvesting, artisanal fishing, subsistence agriculture and illicit crops, once the activities of Maderas del Darien were stopped and the implementation of illicit crops was prohibited, a decision set out in the internal regulations of the communities, this tremendous change led to a close socio-ecological relationship with the bodies of water. The marshes and rivers became economically, biologically, and culturally important for the inhabitants, a relationship that continues to strengthen year after year.

The reduction of selective logging, the restoration of the forest on the riverbanks to prevent the advance of sedimentation (which makes the rivers unnavigable), has caused the watercourses to be maintained, thus improving water regulation. By reducing the area planted with illicit crops, the contamination of water bodies due to the use of hazardous and very hazardous agrochemicals used in their production has been reduced, and these actions have contributed to improving water quality.

The actions for the conservation of the water bodies favored fish populations, Caribbean Manatee *Trichechus manatus* and Hicotea turtle *Trachemys callirostris, the* latter two were hunted animals being part of the diet of the communities, especially the turtle, which was consumed at Easter. When the Manatee and the turtle became protected species by national regulations (Resolution 1912 of September 15, 2017 Ministry of Environment and Sustainable Development), the communities participated in awareness days and knowledge of the regulation by CODECHOCO and IIAP, since January 2018 the communities made efforts to avoid hunting of the two species and initiated practices such as releasing juvenile manatees if they get caught in fishing trammel nets and turtles are moved in marshes where populations are very low, to favor their reproduction and repopulation and avoid capture at Easter by people outside the territory.

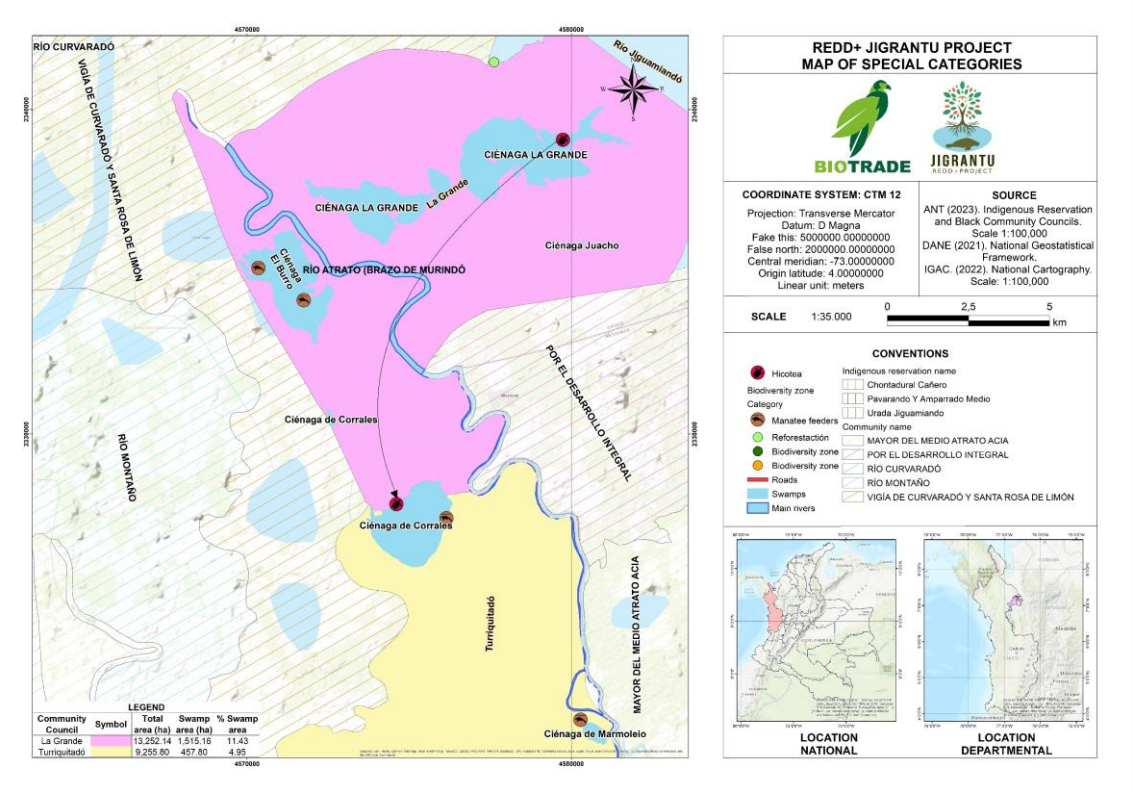
The actions carried out by the communities have been carried out from their own knowledge in a very empirical way and without support from NGOs, private or public institutions, however, it is necessary to provide technical and scientific support to strengthen the conservation actions of aquatic ecosystems and the species of fauna and flora that inhabit them, evaluate the impact of actions based on reliable data that provide the basis for the creation of management strategies to improve the conservation status of the Manatee and Hicotea in the marshes of the community councils of La Grande and Turriquitado.

The scientific knowledge generated by the communities themselves will help in capacity building and ownership of these ecosystems, allowing support for the design and implementation of management plans for the marsh, much more efficient in the future, for this reason within the actions of the line of action D of community monitoring and conservation of biodiversity, the activity Dj36 was designed. Strengthening the conservation and monitoring of the manatee *Trichechus manatus* and the turtle *Trachemys callirostris*.

The marshes are considered as ecosystems highly vulnerable to the effects of climate change, for this reason the biodiversity conservation actions in them are also actions that counteract the effects of climate change. The activities developed during the monitoring period in the conservation of the manatee and the turtle, have been the reduction of hunting by the communities taking into account internal commitments to promote the conservation of these two species.

In addition, the marshes have been monitored to prevent outsiders from entering the territory to hunt these species. The monitoring actions for the protection and conservation of these two species are based on artisanal fishing days, where daily trips are made into the marshes where these species reproduce and complete their life cycle.

Figure 14. Map of special categories.



Prepared by Biotrade S.A.S. (2023)

Table 16 List of number of sightings of the Caribbean Manatee (*Trichechus manatus*).

Number of sightings	Location	Date
4	Marmoleio Swamp	02/20/2019 03/30/2020 03/28/2022 04/25/2022
9	El Burro Swamp	04/04/2019 03/18/2020 04/15/2020 03/15/2021

Number of sightings	Location	Date
		08/20/2021
		11/15/2021
		03/15/2022
		04/20/2022
		10/10/2022

13 Grouped Projects

The REDD+ JIGRANTU project is not grouped.

14 Implementation of the project

14.1 Project implementation status

The following is a description of the execution and operational status of the project during this verification period.

14.1.1 Start date of project operation and operation of activities in this monitoring period.

The project operation start date is January 2, 2019, which is based on the actions carried out by the communities that are part of the REDD+ JIGRANTU Project[43] in the recognition of the Atrato River, its basin and tributaries as a subject of rights from the T-622 ruling of 2016, which is framed as a strategic for forest management. This is the first time a river is recognized as a subject of rights, over which the Colombian State is responsible for guaranteeing its safeguard and protection of biocultural rights.

The community councils of La Grande and Turriquitado depend economically on the productive activity of artisanal fishing, so they make active use of this resource and are representatives in the structure of compliance with the sentence, through the Association of Community Councils of the Lower Atrato (ASCOBA). The community council of the Jiguamiando River, even though it is located within the hydrographic zone of the Atrato, is not represented through associations for the protection of the river, and since it does not depend solely on fishing activities, it does not have the same relevance in the protection of the river as La Grande and Turriquitado do. Auto 175 of July 30, 2019,

[43] Document available at: 4. START DATE Annex 1. REDD Project Start Date Support.pdf

recognizes on the part of the State the humanitarian zones and biodiversity zones present in the territory of the Jiguamiando River Community Council.

Subsequently, the community councils have carried out activities that contribute to the progress of the JIGRANTU REDD+ Project indicators, which are aligned with the proposed Benefit Sharing System[44] . During this period, changes in forest cover were verified and the defined REDD+ activities were followed up. These activities seek to comprehensively address the problem of deforestation through four strategic lines A. Strengthening governance and culture, B. Capacity building, C. Sustainable development and D. Conservation and monitoring.

The activities carried out by the communities on a voluntary basis are the result of their interest in participating in carbon markets, accessing the economic benefits that arise from these markets and generating results that allow them to demonstrate their long-term community commitments. These activities have contributed to the empowerment of communities during the construction of the JIGRANTU REDD+ Project. The following is a detailed description of the progress of the activities reported.

Aa1. Formulation of the Ethnodevelopment Plan

Within the result of indicator 1Aa1 No. of documents prepared for the construction of the Ethnodevelopment Plan, the REDD+ JIGRANTU Project Document[45] is reported, which serves for the management of own resources to advance in the formulation and development of tools for governance.

This document presents a first approach of the territorial diagnosis, biotic and abiotic conditions of the territory, as well as land use conflicts, and presents the full set of indicators that will be used to monitor REDD+ activities, establishing an implementation schedule and framing the commitments made by the communities for the execution of activities. The plan seeks to address all the problems and potentials of the territories.

Ac6. Strengthening of cultural events with the participation of different generations.

This activity presents progress through indicator 13Ac6 No. reports of cultural events, rescue and multiplication of ancestral knowledge with information on per capita expenditure[46] . The Jiguamiando Cultural Recovery Plan prepared in 2019 is presented,

[44] Available at: 2. TECHNICAL ANNEXES. SDB
[45] Available in: 1. PoD and WDNR 1.
[46] Evidence available at: 12. EVIDENCE MONITORING 6. Cultural events

as well as the implementation of the significant experience *"Sabio intercambio de saberes". In* addition, the realization of the 2019 patron saint festivities is reported.

- The report of the socialization activities in the framework of the Cultural Recovery Plan of the community council of the Jiguamiando River[47] contains the annex of the Characterization of the cultural damage in the collective territory of Jiguamiando[48]. Of these, the participation of 90 people from the communities of Puerto Lleras, Pueblo Nuevo and Nueva Esperanza stands out. The loss of practices around which solidarity and community work were primordial is essentially due to the armed conflict and the presence of external actors that took over the territory for extractive purposes, contradicting the way in which black communities relate to the territory. To overcome these losses, a cultural committee will be formed in each of the communities, a diagnosis will be made of the medicinal plants identified by the elders and knowledgeable people, and the Ministry of Culture will be asked to recognize the regional cultural festival of the Jiguamiando River basin.
- The video made in the community of pueblo nuevo called *"Sabio intercambio de saberes"*[49] shows the progress made in the creation of spaces for dialogue, participation and reflection on diversity in education in multiethnic and multicultural communities in the Jiguamiando River basin. In these spaces, people learned how to make handicrafts, carried out cultural activities and understood the importance of transferring knowledge to the new generations so that traditions are not lost.
- Patron saint festivals: The purpose of these festivals is to document issues, design and implement mechanisms for the transmission of knowledge in favor of the defense and survival of the territory. They create a space for the concentration of the population, which allows contributing to the rescue and cultural strengthening, allowing the linking of the population that is in a situation of displacement[50] .

Figure 15. Photographs of the patron saint festivities held in the Jiguamiando River CC[51].

[47] Document available at: 12. MONITORING EVIDENCE. Cultural events "Cultural rescue experience - Cultural strengthening - Narrative report.pdf
[48] Presentation available at: 12. MONITORING EVIDENCE. Cultural events "Cultural rescue experience" Cultural strengthening. Annex 1. Presentation jiguamiando.pptx
[49] Video available at: 6. Cultural events "Cultural rescue experience" Knowledge exchange.mp4
[50] Report on the traditional festivities of San Juan in the Community Council of the Jiguamiandó River in 2019 by the Victims Unit.
[51] Available at: 12. EVIDENCES MONITORING. Cultural events "Patron saint festivities

Be8. Strengthening of REDD technical capacities with emphasis on increasing socio-ecosystemic resilience for climate change adaptation.

This activity presents progress in indicator 16Be8 No. of training events on REDD techniques, which reports the workshops, meetings and socialization spaces during the formulation process of the REDD+ JIGRANTU Project[52] . As evidence of this activity the minutes are presented where topics such as what is the REDD+ mechanism, climate change, GHG emission reductions, carbon footprint, carbon credits, national and international market methodologies, deforestation drivers and Benefit Sharing System are taught. In the Figure 16 shows a compendium of photographs of the socialization spaces for REDD technical capacity building.

Figure 16. Socialization spaces in the formulation of the REDD+ JIGRANTU Project

[52] Available at: 12. EVIDENCE MONITORING. REDD Capacity Building

Bf12. Capacity building in sustainable productive actions with emphasis on increasing socio-ecosystemic resilience.

The progress in this activity is reported in indicator 21Bf12 No. Training events for the strengthening of Sustainable Productive Projects with emphasis on increasing socio-ecosystemic resilience, in these 2 events were presented for the strengthening of PPS which are described below.

- Progress ASOPESVIGRAN: This monitoring period presents the organizational and commercial strengthening of the Association of fishermen of the community councils of Vigia de Curvarado, La Grande and Villanueva Montaño ASOPESVIGRAN carried out from March 15 to October 14, 2022[53] . This included the signing of agreements on non-logging and responsible fishing, as well as the monitoring, adjustment and

[53] Document available at: 12. MONITORING EVIDENCE. Capacity Building -PPSPASOPESVIGRAN La Grande -Project Asopesvigran.pdf

implementation of good fishing practices and commitments associated with activities that lead to the reduction of deforestation. The evidence includes the final agreement for the delivery of inputs from the program to promote artisanal fishing projects and initiatives[54] , which are listed in the documented statement signed by the legal representative of ASOPESVIGRAN[55].

- Jiguamiando plantain project: In this case, we present two projects for productive strengthening in collaboration with the International Labor Organization (ILO). The first focuses on strengthening the plantain crop with emphasis on transformation[56] and aims to supply inputs to optimize the production profile, among these supplies are the shovel, machete, nails, boots, molasses, baskets and other items delivered by the end of December 2022. For this issue there is a compliance policy[57] issued by Seguros Mundial insuring the community council of the Jiguamiando River, in force from December 9, 2022, to June 28, 2023.

  The second project, called *"Emprendiendo sueños"*[58] , develops actions aimed at restoring labor and productive capacities, based on the implementation of productive profiles, in the income generation and employability component. This involves the delivery of productive assets[59] corresponding to tool kits, huts for the banana post-harvest process, drains, outboard motor, fiber boat, fuel, stationery, among others (see Figure 17).

Figure 17. Photographs of the delivery of supplies in the framework of the project *Emprendiendo sueños*[60] .

[54] Available at: 12. MONITORING EVIDENCE. Strengthening Capacities -PPSOPESVIGRAN La Grande.
[55] Document available at: 12. MONITORING EVIDENCE. Capacity Building -PPSAPESOPESVIGRAN La Grande Grande supplies artisanal fishing.pdf
[56] Document available at: 12. MONITORING EVIDENCE. Capacity Building -PPSP Jiguamandó banana project9-12-2022 JIGUAMIANDO BASINS SUPPLY CONTRACT.pdf
[57] Available at: 12. MONITORING EVIDENCE. Capacity Building -PPSP Plantain Project Jiguamiando9-12-2022 COMPLIANCE POLICY.pdf
[58] Available in: 12. Capacity Building -PPSP Jiguamiando Plantain Project - Phase 2 Delivery Report.pdf
[59] Document available at: 12. MONITORING EVIDENCE. Capacity Building -PPSP Plantain Project Jiguamiando "Platano Platano" Internal Communication #1 Jiguamiando.pdf
[60] Photographs available at: 12. EVIDENCES MONITOREO12. Strengthening Capacities -PPSP Jiguamiando plantain project Photographic record

Ch26. Construction and maintenance of bridges and roads

The report for this activity involves indicator 43Ch26 No. reports of construction and maintenance of bridges and roads where the information related to the construction of a drainage ditch within the Community Council of the Jiguamiando River[61] is presented. Within the report is presented the quotation for the service[62] and the sales invoice[63] , as well as photos of the identification of the need to address drainage problems that affect the accessibility and stability of local roads and the start of the construction of the drainage ditch in 2022.

Dj34. Diagnosis of the state of ecosystems, ecosystem services and vulnerability to the effects of climate change.

The indicator used to report the progress of this activity is 58Dj34 No. of document Diagnosis of the state of ecosystems, ecosystem services and vulnerability to the effects of climate change. This document reports the diagnostic document of the conservation actions of the REDD+ JIGRANTU Project, detailing the conservation actions being carried out by the community councils, and presents the research that aims to learn

[61] Report available at: EVIDENCES MONITORING.pdf 12. Adequacy of bridges and roads.pdf.
[62] Document available in: EVIDENCES MONITORING.26. Adequacy of bridges and roads drainage.pdf.
[63] Available in: 12. EVIDENCE MONITORING.26. Adequacy of bridges and roads COMMUNITY COUNCIL.pdf

about the traditional use of meat and by-products of wild birds in Curvarado and La Grande[64] .

The article *"Traditional use of wild birds by Afro-descendant communities in the lower basin of the Atrato River, Colombia"* contributes to the understanding of wild biological diversity for the family diet of human communities, with the results of which it is expected to close the knowledge gap that limits the inclusion of this type of food in the planning of interventions in favor of food and nutritional security in the territories. The food use of at least one species per household was identified, obtaining an average of six species for La Grande, which also obtained the highest values in frequency of consumption per year.

In the document Diagnosis of conservation actions[65] prepared by the Social team of Biotrade S.A.S., all the ways in which the communities relate to the conservation of their territories are supported in the following Table 17 specifies the conservation measures in the monitoring period for the REDD+ JIGRANTU Project, with specific information that leads to social, environmental and productive actions for conservation from January 2, 2019 to December 31, 2022.

Table 17 Conservation actions monitoring

Type of action	Name	Date	Support
Social Environmental	**Recovery of the Atrato River - Atrato River recognized as a subject of rights judgment T-622 - 2016.** Activity identified to establish the start date of the REDD+ JIGRANTU project. The measures for the protection and recovery of the Atrato River basin have had the participation of people from the Community Councils of La Grande and Turriquitado, through the Association of Communities of the Lower Atrato (ASCOBA), in the compliance with the Judgment, especially in the Atrato Guardians strategy.	02 January 2019 *Substantiation start date*	Documents start date of follow-up on compliance with Ruling T-622
	Participation in the guardians of Atrato strategy by people from Grande and Turriquitado	2019-2022 Annual	Specific words interview Fawer Paz (minute 00:10:35)

[64] Research available at: 12. MONITORING EVIDENCE. Diagnostic of ecosystem status. Article on traditional use of wild birds.pdf

[65] Location of the document Diagnosis of conservation actions: 12. EVIDENCE MONITORING34. Diagnosis of ecosystem status. Diagnosis of conservation actions.

Type of action	Name	Date	Support
	through ASCOBA in the follow-up to sentence T-622.		words on the damage of mining interview Alcides Panesso (minute 00:05:00) Interview Wbeimar Palacios (minute 00:02:56; 00:05:28;)
	Institutional compliance: Conduct monitoring campaigns on the quality and quantity of water resources at the stations established on the Atrato River and its tributaries. judgment T-622 of 2016, analysis of mercury in sediments.	31 January 2019 Document date	Annual Investment Plan PAA_2019 CODECHOCO
	Publication of the document "*Defending the Atrato River: reflections on the case and notes on the territorial defense process*".	December 2019 Document editing	Document report,. (Worthy Earth , 2019)
Social Environmental	**Recognition of Humanitarian Zones and Biodiversity Zones as a strategy to protect life and territory.** Pronouncement of Justices Nadiezhda Henriquez, Maria Valencia, Julieta Lemaitre (SPV), Belkis Izquierdo, Ivan Gonzalez (SV). To decree precautionary measures: Establishment and recognition by the State of the Humanitarian Zones and Biodiversity Zones of the Jiguamiando watershed. Precautionary and precautionary measures are determined.	30 July 2019 Document date	Auto 175 of 2019
	Publication of the document "*Humanitarian Zones and Biodiversity Zones: spaces of dignity for the displaced population in Colombia*".	No date	Document of the Interecclesial Commission for Justice and Peace
	Pronouncement of a document of the JEP. In the framework of the Special Justice for Peace, where the precautionary measures provided in Auto 175 of 2019 are modified and redirected.		JEP Document.
Environmental	Annual monitoring of the restoration process in the Jiguamiando river area, La Grande Community Council.	2019-2022 annual	Present report and pointed words in interview Fawer Paz (00:06:15)
		10 March 2020 11 March 2020 23 March 2020	Report - control of foreign deforesters in the restoration zone,
Environmental	Maintaining conditions for the conservation of the Caribbean Manatee (*Trichechus manatus*)	2019-2022 annual	This report emphasizes field visits to the Community Councils of Turriquitado and La Grande.

Type of action	Name	Date	Support
		20 February 2019 04 April 2019 18 March 2019 30 March 2020 April 15, 2020 March 15, 2021 August 20, 2021 November 15, 2021 March 15, 2022 March 28, 2022 April 20, 2022 April 25, 2022 October 10, 2022	Report Report- Manatee Sighting
Environmental	Collection and transfer of individuals of Hicotea (*Trachemys callirostris*), for the repopulation of other marshes in the territory of La Grande. Action of interest in the implementation of the REDD action "*Community Monitoring*" program.	*23-29 June 2023*[66] *Visit Biotrade*	This report emphasizes field trips in the La Grande marsh.
Environmental	Replacement of wooden boats with fiberglass boats to avoid the use of large trees.	2019-2022	Fawer Paz's pointed words (0:02:30) Silson Romaña (0:12:27)
Environmental	Signing of twenty-four (24) agreements on responsible fishing, sustainable use of fishery resources and no deforestation related to fishing activities.	10 June 2021	Responsible fishing agreements
Social Environmental	Actions for the conservation of natural resources established in the internal regulations of the Black Communities Community Council of La Grande.	December 2022 Last update	Fawer Paz interview (minute 0:04:00) Internal Regulations of the La Grande Community Council
Social Environmental	Actions for the conservation of natural resources established in the internal regulations of the Turriquitado Community Council.	December 2022 Last update	Timely words interview Alcides Panesso (minute 0:05:00) Internal Regulations of the Turriquitado Community Council
Social Environmental	Natural resource conservation actions established in the internal regulations of the Jiguamiando River Basin Community Council.	December 2022 Last update	Precise words in the interview with Manuel Denis (minute 00:05:01) Internal Regulations

[66] Although it is outside the GHG emission reduction quantification period, the activity is mentioned due to the importance of the conservation action identified in the field visit conducted in June 2023.

Type of action	Name	Date	Support
			Jiguamiando River Community Council
Productive environmental	Development of Sustainable Forest Management, under the technical and regulatory procedures for persistent harvesting.	2019-2022	Sustainable Forest Management File Folder
Productive	Prioritization of the productive activity of artisanal fishing as the main form of subsistence and income generation for the communities of Turriquitadado and La Grande.	2019-2022	This report emphasizes interviews with the Community Councils of Turriquitado and La Grande.
Productive	Formation of producers' associations and women's organizations for productive purposes, with a focus on sustainable development, in the period 2017-2022.	August 24, 2020 (JIGUAMIANDO PRODUCERS' ASSOCIATION) May 11, 2021 (CORPORACION TEJIENDO CONFIANZA) November 24, 2022 (ASOMUNUVITE)	Chamber of Commerce and Chamber of Commerce certificates of community organizations.

Source: Biotrade S.A.S (2023)

14.1.1.1.1 Environmental conservation actions

The participatory restoration initiative advanced in the territory of the La Grande Community Council, carried out between 2014 - 2015 with the support of students from the community of the SENA technologist in Natural Resources, sought to recover an extensive area of 21 hectares that had been affected by flooding and clogging. Over the years, this process has been monitored and maintained, with special attention to the prevention of deforestation due to the exploitation of valuable species. This work has resulted in a landscape now dominated by lush arboreal vegetation reaching heights of more than 15 meters.

The commitment of the community councils of Turriquitadado and La Grande stands out in their participation in the defense of the Atrato River against the threat of activities to exploit its natural resources. Through the Association of Community Councils of Bajo Atrato (ASCOBA), these councils were represented in the historic tutela action that culminated in the transcendental sentence T-622 of 2016 of the Colombian Constitutional Court. Its implementation has involved monitoring for compliance with the measures emanating from the ruling, which reflect the crucial role played by institutions

and communities in protecting natural resources and promoting the well-being of present and future generations.

In the territory of the Turriquitado Community Council there are marshes that are important for the development of artisanal fishing as the main productive activity of the community. These ecosystems are home to the Caribbean Manatee (*Trichechus manatus*), a species that is in a vulnerable state of extinction, so for several years the fishermen of this community no longer fish for them, but they know very well their habits and easily identify their presence.

Among the fauna resources in the Cienagas of la Grande, the Caribbean Manatee (*Trichechus manatus*) and the Hicoteas (*Trachemys callirostris*) are of great importance. Both are under the care and protection of environmental leaders, as for the Caribbean Manatee (*Trichechus manatus*), under the policy of prohibition of fishing. For its part, the hicoteas (*Trachemys callirostris*) are abundant in the Cienaga la Grande, so they are transferred to the Cienaga La Tapada where this species is scarce. This action seeks to promote the repopulation and restoration of the ecosystem, demonstrating the strong commitment of the community in the preservation of native biodiversity.

The implementation of the replacement of wooden boats with fiberglass boats is a strategic measure. This action seeks to safeguard the forest's valuable old-growth trees, which play a crucial role as seed deposits and contribute to the regeneration of flora. This transformation demonstrates a practical commitment to the conservation of natural resources and the preservation of biodiversity in the territory.

There was no evidence of deforestation processes in the Community Council of Turriquitado, although there were reports of areas in the cartography provided by the GIS team of Biotrade S.A.S., we approached the areas reported as deforested and found that they corresponded to former settlements of populations and food crops (banana and cassava), which were moved or lost due to flooding.

The implementation of Sustainable Forest Management by the Jiguamiando River Community Council is relevant as a productive environmental conservation action, understood as a process that has been technically and normatively advanced to comply with the maintenance of optimal forest conditions, the protection of its ecosystemic function and structure, generating a dynamic of economic opportunity for the benefit of the community.

The use of timber resources from the forest is one of the characteristic activities of the black communities of the community councils in the territory, both in terms of traditional use and opportunities to generate economic income under a Sustainable Forest Management approach.

In the JIGRANTU REDD+ Project area, community councils have been culturally related to the use of timber for the elaboration of all types of infrastructure, mainly houses, furniture and boats[67] . Likewise, timber harvesting has been carried out for commercial purposes as a means of subsistence for the inhabitants and has been the object of interest of external investors to exploit the forest resource under the logic of a productive model that generates negative impacts on the environment and the communities.

Figure 18 Left: abandoned wood pile on the banks of the Atrato River. Right. Palisade of tree debris from illegal timber harvesting processes on the Jiguamiando river.

Source: Biotrade S.A.S (2023)

In the internal regulations of the councils it was possible to identify that they prioritize the conservation of forests and have regulated the use of timber resources in their territories, however, the pressure on them is latent, it is enough that there is a viable economic opportunity to exploit the resource by members of the communities, or illegal logging by outsiders in areas of river banks, where the activity is done with high impact on the generation of palisades (see Figure 18).

Eight (8) forest species stand out in the territory of Carmen del Darien[68] (Table 18), because they are in greater commercial demand at the regional level and because of their traditional use. These species are regularly harvested using traditional methods and the population's empirical knowledge, i.e., without technology or any type of mechanization. The harvesting procedure involves locating areas with timber potential,

[67] Surveys for socioeconomic characterization: 16. EVIDENCE OF FORMULATION JIGRANTU SURVEYS

[68] Carmen del Darien Development Plan 2020-2023

clearing the trees of vines and lianas, felling, cutting, felling, or felling trees with chainsaws. Minor transportation in mules and boats.

Table 18 Main Forest species harvested in the municipality of Carmen del Darien

Common name	Scientific Name	Uses
Choiba	*Dipteryx panamensis*	Construction (Canoes, bed, house, cupboard, pylon)
Tometo	*Symphonia globulifera*	Construction (Canoes, bed, house, cupboard, pylon)
Coroco	*Crudia glaberrima* (Steud.) J.F. Macbr.	Construction (bed, doors, windows, closet)
Olleto	*Lecythis tuyrana*	Construction (table, house, rafts, closet, beds, etc.)
Guino	*Carapa guianensis*	Construction (Canoes, bed, house, cupboard, pylon)
Swamp	*Hieronyma alchorneoides*	Construction (Houses)
Dairy	*Brosimum utile* (Kunth) Oken	Construction (Formaletas and houses)
Algarrobo	*Hymenaea oblongifolia* Huber	Construction (house), food, medicine

Source: ONFA 2019[68]

The community councils of La Grande and Turriquitado have developed their economic activity mainly from fishing, so they have not advanced processes in recent years of persistent forest harvesting, however, Rio Jiguamiando during 2019, 2020 and 2021 has carried out Forest Management through the implementation of the development of technical forest inventory studies and management plans for obtaining persistent harvesting permits. In this aspect it is important to mention that this action can be framed within the concept of Community Forestry, considering that it corresponds to permits on collective lands.

Community Forestry arises as a response to the search for the preservation of forests, the protection of their functions and the welfare of the communities that inhabit them, becoming a fundamental element of the Comprehensive Strategy for the Control of Deforestation and Forest Management (EICDGB), which in turn constitutes the National Strategy for Reducing Deforestation and Degradation (ENREDD+), developed by the

National Government and the Ministry of Environment and Sustainable Development "MADS"[69] .

In the Table 19 the relevant data of the persistent harvesting permits issued by the Jiguamiando River Community Council during 2019 to 2021 are listed in detail in the Forest Management information[70].

Table 19 Permits for persistent forest harvesting Jiguamiando River

Year	Resolution	Area to be exploited	Species	Volume granted
2019	No. 0010 of 02/01/2019	400 hectares	Caracoli (*Anacardium excelsum*) Sande *(Brosimum utile)* Guino (*Carapa guianensis)* Choiba (*Dipteryx oleifera)* Fig tree *(Ficus maxima)* Oak *(Tabebuia rosea)*	11.000 m^3
2019	No. 1712 of 12/26/2019	500 hectares	Caracoli (*Anacardium excelsum*) Bitterling *(Andira inermis)* Guino (*Carapa guianensis)* Cedar (*Cedrela odorata*) Choiba (*Dipteryx oleifera)* Fig tree *(Ficus schippii)* Cativo *(Prioria copaifera)* Oak *(Tabebuia rosea)*	11.461 m^3
2019	No. 1713 of 12/26/2019	500 hectares	Caracoli (*Anacardium excelsum*) Bitterling *(Andira inermis)* Guino (*Carapa guianensis)* Cedar (*Cedrela odorata*) Choiba (*Dipteryx oleifera)* Fig tree *(Ficus schippii)* Oak *(Tabebuia rosea)*	11.074 m^3
2020	No. 1310 of 11/17/2020	500 hectares	Abarco (*Cariniana pyriformis*) Credro (*Cedrela odorata*) Caracoli (*Anacardium excelsum*) Choiba (*Dipteryx oleifera*) Fig tree (*Ficus insipida*)	14.611 m^3

[69] Economic characterization of sustainable community forestry in Colombia
[70] Relevant Information MFS Jiguamiandó River

Year	Resolution	Area to be exploited	Species	Volume granted
			Oak (*Tabebuia rosea*)	
2020	No. 1311 of 11/17/2020	500 hectares	Abarco (*Cariniana pyriformis*) Cedar (*Cedrela odorata*) Caracoli (*Anacardium excelsum*) Choiba (*Dipteryx oleifera*) Fig tree (*Ficus insipida*) Oak (*Tabebuia rosea*)	14.400 m^3

Source: Jiguamiando River Community Council

Below are the densities of the species authorized by the logging permits and from which the CO2 emissions attributable to the project are calculated.

Table 18. Densities of the species approved in the harvesting resolutions.

Species	Wood density (gr/cm3)	Wood density (kg/m3)
Anacardium excelsum	0,39	391,43
Andira inermis	0,36	360,00
Brosimum utile	0,42	420,00
Carapa guianensis	0,51	510,00
Cariniana pyriformis	0,54	542,50
Cedrela odorata	0,45	447,14
Dipteryx oleifera	0,91	910,00
Ficus insipida	0,32	320,00
Ficus maxima	0,30	300,00
Ficus schippii	0,44	440,00
Prioria copaifera	0,41	411,25
Tabebuia rosea	0,53	531,90

Source: Adapted by Biotrade S.A.S.[71]

To determine the discounts attributable to the project, the percentage of area of the use polygon established in each of the resolutions was determined, identifying that some of these had a percentage of area within private properties, as shown below:

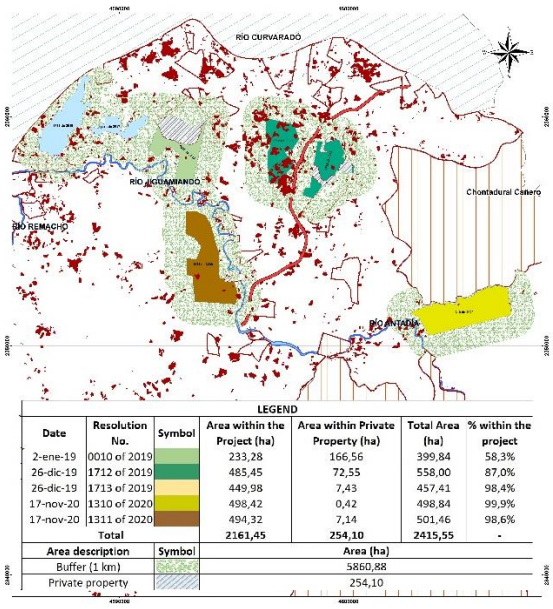
[71] Detailed information on forestharvesting resolutions

Table 19. percentage of area of use by resolution within the project

No. Resolution	Ranking	Forest management zone in PA (ha)	Private property (ha)	Polygon Area	Percentage of area within the project
0010 of 2019	No forest	0,70	0,00	399,84	58,34%
	Forest	232,58	166,56		
	Total	233,28	166,56		
1712 of 2019	No forest	85,19	2,24	558,00	87,00%
	Forest	400,26	70,31		
	Total	485,45	72,55		
1713 of 2019	No forest	1,97	2,39	457,41	98,38%
	Forest	448,01	5,04		
	Total	449,98	7,43		
1310 of 2020	No forest	0,50	0,00	498,84	99,92%
	Forest	497,92	0,42		
	Total	498,42	0,42		
1311 of 2020	No forest	5,98	0,00	501,46	98,58%
	Forest	488,34	7,14		
	Total	494,32	7,14		

Source: Biotrade S.A.S

Figure 18. Location of the use polygons within the project area.



Source: Biotrade S.A.S

14.1.1.1.21 Social and environmental conservation actions

The Rio Jiguamiando Community Council has precautionary measures for the restitution of social and environmental rights. This council is comprised of 12 communities, including three (3) humanitarian zones and twenty-five (25) biodiversity zones. These zones were created to protect the territory from the armed conflict and the violence generated by the pressure of agribusiness and infrastructure projects, which sought to override the communities in order to destroy the forests and their resources.

The field experience showed that the community of Turriquitado does not exert pressure on the forest or its natural resources, mainly because its population is small and its subsistence dynamics is mainly related to artisanal fishing, an activity that is carried out in compliance with sustainable measures such as the use of trammel nets that allow the free circulation of fish of smaller sizes, as well as the return of fertilized individuals to the water.

In conclusion, the internal regulations of the JIGRANTU REDD+ Project's community councils reflect a strong commitment to the conservation and sustainable use of natural resources. These detailed agreements demonstrate their willingness to protect the environment by promoting traditional practices that ensure responsible resource management and the preservation of their cultural heritage. With specific regulations for timber, agriculture and the prevention of harmful megaprojects, these communities demonstrate a comprehensive approach to sustainability and the protection of their territory.

Even though community councils have established regulations to prioritize forest conservation and have managed the use of timber in their territories (as evidenced in the review of internal regulations[72]), there is a constant threat to these resources. This threat is manifested in situations such as economic exploitation when an opportunity arises. In addition, illegal logging by outsiders, particularly in areas near rivers, has a significant impact on the formation of palisades and on the ecosystem in general.

14.1.1.1.3 Conservation actions associated with productive aspects

Artisanal fishing has flourished as the central axis in the generation of economic income for the community councils of La Grande and Turriquitado. While these territories could venture into persistent logging, they have chosen to focus on the richness of the marshes

[72] Location of the internal regulations of the councils: 9. TECHNICAL DOCUMENTATION INTERNAL REGULATIONS OF THE COUNCILS

and their aquatic resources. This choice not only reflects their deep respect for the natural environment, but also a strategic vision to preserve their livelihoods in the long term. By valuing fishing as a vital source of livelihood and development, these communities set an example of preservation in harmony with their environment.

The strengthening of fishing activities through the formation of the Fishermen's Association with the purpose of improving marketing channels is a mechanism that the La Grande Community Council has had in place to promote artisanal fishing and reduce pressure on the forests due to the development of economic activities for timber exploitation.

The communities of Rio Jiguamiando mainly develop agricultural activities under farm zoning, always leaving a good percentage for forest conservation. In addition, they develop agroforestry, silvicultural and rotational practices in the orchards to avoid intensive soil use.

Dj36. Strengthening the conservation and monitoring of the manatee (Trichechus manatus) and the slider turtle (Trachemys callirostris).

In the report of indicator 64Dj36 No. Reports with measures and actions aimed at improving the protection and monitoring of the manatee (*Trichechus manatus*) and the leatherback turtle (*Trachemys callirostris*) a sighting report is presented[73] documenting the events in which individuals of Manatee have been witnessed or sighted by fishermen from the communities of La Grande and Turriquitado, the related actors and the follow-up report with the date and activity, the latter detailing the place and witness of the sighting. This is complemented with what is reported in section 12 of this document.

Dj37. Design and implementation of a community monitoring program for the conservation and enhancement of ecosystem resilience.

For the report on this activity, progress has been made in indicator 66Dj37 No. Community monitoring reports with a document detailing the follow-up on the restoration of the Jiguamiando River unclogging process in the La Grande CC[74] . This report presents data related to the monitoring of the restoration zone, which presents attractive conditions for timber extraction, due to the ease of river mobility and the availability of commercially important timber species. In 2020 there were people harvesting timber on the Jiguamiando River in the reforestation area, so there was a dialogue with the people

[73] Report available at: 12. EVIDENCE MONITOREO36. Manatee monitoring_informe registro_manati.pdf.
[74] Reforestation control log report available at : 12. MONITORING EVIDENCE. Community Monitoring Program. Reforestation Control Logging Report.pdf

involved (foreign sawmillers). The legal representatives of the Jiguamiando River and La Grande take control measures with community groups to prevent the entry and permanence of these sawmillers.

14.1.2 Project activities consisting of more than one location

In the description of the activities, the place where they were developed is contemplated, most of the activities are reported within the Community Council of the Jiguamiando River, which is attributed to the fact that it has the largest extension and the largest number of people linked to the territory. Similarly, there are activities in which all the community councils are involved, such as Aa1 Formulation of the Ethnodevelopment Plan and Dj34. Diagnosis of the state of the ecosystems, ecosystem services and vulnerability to the effects of climate change with the document of conservation actions that integrate the different actions developed in the three community councils.

14.1.3 Information on the actual operation of the project

During this monitoring period, as the representatives of the community councils were in charge, no schedule was developed for the implementation of activities. Even though actions aimed at protecting the ecosystems had been initiated, the communities were in the process of signing a contract for the formulation of a REDD project. In the next verification, all compliance with social and environmental safeguards will be evaluated and the procedures, mechanisms and formats implemented in the execution of monitoring activities will be established to ensure document management and the necessary support to comply with the established monitoring plan.

14.1.4 Situations that can affect the applicability of the methodology

The events that could affect the applicability of the methodology were identified during the construction of the Project Document in section 7. The probability of facing risks was evaluated considering the history and situation of the communities. The main risks include forced displacement of inhabitants, weakening of government structures, invasions in the project area, extreme weather events, expansion of the agricultural and livestock frontier, changes in the use of rivers and streams, sensitivity in market prices, and financial viability of the project, among others. In the following verifications the respective follow-up will be done, evaluating the effectiveness of the defined mitigation measures.

14.1.5 Risk and non-permanence factor management

During this verification period, progress was made on the methodology for reporting risk and non-permanence factors based on the Permanence and Risk Management tool. BCR project holder take actions to ensure the project benefits are maintained over time.

Version 1.0 (BCR, 2023)[75] , which is detailed in section 3.6 of the PdD. In the following monitoring periods the indicators will be evaluated on an annual basis assessing the risk of fires, floods, land tenure disputes, stakeholder conflict, non-ownership of project activities, governance deficits and community participation.

14.1.6 Uncertainty management

The uncertainty of the project's estimates of reductions is related to activity data and emission factors. Data for the calculation of deforestation in the JIGRANTU REDD+ Project were taken from the Global Land Analysis and Discovery Laboratory (GLAD) at the University of Maryland in partnership with Global Forest Watch (GFW) who provide updated annual data on global forest loss using Landsat imagery with a resolution of 30 x 30 meters.

Due to the inconsistency of the data due to the lack of information, mainly due to the incidence of climatic aspects such as the high cloudiness present in the area, in addition to the deficient functioning of the line corrector in the Landsat 7 satellite, a detailed analysis of the project area was not possible by means of Digital Image Processing (DIP), for which reason we resorted to GLAD and GFW data[76] .

For uncertainty estimation, the methodology proposed by GOFC-GOLD (2016)[77] described in section 2.7, which details the methodology used to obtain the global maps, is considered. Following the BCR Standard where the uncertainty management is determined by the accuracy of the maps used to estimate the activity data values and the discounts in the emission factors. Therefore, the global precision values of the loss error matrix reported by Hansen *et al.* (2013) were used, with a value for the tropics and a value for the tropics of the world[76] with a value for the tropics of 99.5 % and a standard error of 4.7 %, the latter value is taken as the degree of uncertainty in the measurement of activity data. However, in this case it is important to highlight the non-existence of uncertainty values for aboveground biomass and soil organic carbon, the uncertainty value for the activity data is deduced from the precision and standard error reported.

The emission factors for carbon content per deposit were taken from the proposed reference level of forest emissions from deforestation in Colombia developed by IDEAM in 2019[78] , which correspond to 8.8% for aboveground biomass and 8.1% for belowground biomass and soil organic carbon. The uncertainty of the emission factor

[75] Document available at: Risk and permanence
[76] High-Resolution Global Maps of 21st-Century Forest Cover Change. Science 342: 850-53
[77] A sourcebook of methods and procedures for monitoring and reporting anthropogenic greenhouse gas emissions and removals associated with deforestation, gains and losses of carbon stocks in forests remaining forests, and forestation.
[78] Proposed Reference Level of Forest Emissions from Deforestation in Colombia for REDD+ Payment for Results Under the UNFCCC

was calculated using the formula recommended by the IPCC (2006)[79] , which considers several emission sources, using the equation to combine the uncertainties of the emission source, the approximate margin of error of the Project reductions was estimated.

A) Reference equation for combining uncertainties from various emission sources:

$$t = \frac{\sqrt{(A * a)^2 + (B * b)^2 + (C * c)^2}}{T}$$

Where:
t: Total uncertainty; T: Total associated GHG emissions; A: Category A emissions; a: uncertainty of category A emissions, B: category B emissions; b: uncertainty of category B emissions, ... N= category N emissions; n= uncertainty of category N emissions.

i) Emission factor uncertainty:

Aerial biomass Pacific = 241 tCO_2 /ha
Subway biomass Pacific = 55 tCO /ha_2
Soil organic carbon Pacific = 17 t CO /ha_2

$$t = \frac{\sqrt{(241\ t\ CO2/ha * 8.8\%)^2 + (55\ \text{t}\ CO2/\text{ha} * 8.1\%)^2 + (17\ \text{t}\ CO2/\text{ha} * 8.1\%)^2}}{313\ \text{t CO2/ha}} = 0{,}0694$$

Total emission factor uncertainty = 6.94%.

ii) Uncertainty of activity data:

Activity data: 4.7%.

B) Reference equation for combining uncertainties of an emission source:

$$U_{total} = \sqrt{U1^2 + U2^2 + \cdots + Un^2}$$

Where:
U_{total} : Total uncertainty; U1: Uncertainty percentage for each of the uncertainty sources.

[79] Consistent representation of land

iii) Uncertainty of project reductions:

$$U_{total} = \sqrt{6.94^2 + 4.7^2} = 0{,}0838$$

Uncertainty of project reductions = 8.38%.

Combining the uncertainties of the activity data and emission factors, it is determined that the estimates of reductions have an uncertainty of 8.38%.

The emission factors used to calculate GHG emission reductions are consistent and are based on IDEAM's Proposed Reference Level of Forest Emissions from Deforestation in Colombia for Payment for REDD+ Results under the UNFCCC (NREF). These factors have an uncertainty of less than 10%, so it was not necessary to apply the percentages defined for this discount factor.

14.1.7 Any other changes

There were no changes of any kind.

14.2 Review of the follow-up plan

The monitoring plan was revised in conjunction with the modification of the indicators presented in the PdD. The approval date for this plan was January 19, 2024.

14.3 Deviation request applied to this follow-up period

During this monitoring period, those responsible for reporting the progress of the indicators and activities were the legal representatives of the community councils and Biotrade S.A.S. After this period, it is expected that those responsible for the measurement will be the Monitoring, Reporting and Verification Coordinator; Jiguamiando Project Director, La Grande Project Director, Turriquitado Project Director and the Biotrade S.A.S. development team after the election of the people in charge of coordination and management. This deviation occurs because the persons in charge of the report have not yet been designated, which does not affect the applicability of the methodology.

14.4 Notification or request for approval of changes

No requests for approval of changes to the project were submitted during this verification period.

15 Monitoring system

15.1 Description of the monitoring plan

Based on the characterization of applicability conditions and carbon sinks, the monitoring system describes the procedures for tracking and monitoring project activities that contribute to GHG emission reductions or removals, to verify changes in carbon stocks and project emissions and leakage. Monitored data and parameters should be archived for a period of at least two years after the end of the last project period, including monitored data and parameters, methodology, quality control and sampling patterns.

15.1.1 Project boundary monitoring

The monitoring of the project boundaries will be carried out through Geographic Information Systems (GIS), taking advantage of the georeferencing of the project area, the reference region and the area of possible leakage. This process will be carried out throughout the development of the project, complying with the technical specifications required for the creation of cartographic products.

As for the monitoring of the reduction of emissions caused by deforestation and degradation, it will be carried out for the geographical areas covered by the project. Periodic verification of deforestation and degradation in the project area will be carried out according to the monitoring variables, which addresses the expected reduction of greenhouse gas emissions with the implementation of REDD+ activities.

15.1.2 Monitoring of the implementation of REDD+ activities

In order to comply with the Monitoring Plan described in the PdD, the following is a follow-up of the indicators that showed progress in implementation during the first monitoring period.

ID Activity	Aa1
Indicator ID	1Aa1
Indicator name	No. of documents prepared for the construction of the Ethnodevelopment Plan.
Type	Product
Goal	5 documents in the monitoring period V1 - V2 - V3
Unit of measure	Number of documents

Responsible for measurement	Biotrade technical team and Legal Representatives of the Community Councils [80]
Indicators result in the reporting period	Formulation document of the REDD JIGRANTU Project, for the management of own resources that allows progress in the construction of self-government instruments such as the ethno-development plan and the environmental management plan of the collective territories.
Documents to support the information	PdD V.4
Remarks	The activity is reported in the first monitoring period (V1), considering that the DoP is an advance in the management of resources for the construction of this self-government instrument. It is projected to have the Ethno-Development Plan as a guiding instrument in the Verification 3 period that goes from 2025 to 2026[81] .

ID Activity	Ac6
Indicator ID	13Ac6
Indicator name	No. of reports on cultural events, rescue and multiplication of ancestral knowledge with information on per capita expenditure.
Type	Product
Goal	1 document in each monitoring period V1-V14
Unit of measure	Number of documents
Responsible for measurement	Biotrade Technical Team and Legal Representatives of the Community Councils[80]
Indicators result in the reporting period	Documentation provided by the legal representative of the Community Council of the Jiguamiando River is reported: - Plan for the cultural recovery of Jiguamiando, in 2019. - Implementation of the significant experience *"Sabio intercambio de saberes"* advanced in 2019. - The realization of the patron saint festivities in 2019.
Documents to support the information	Cultural Empowerment Narrative Report.pdf Cultural strengthening. Annex 1. Presentation jiguamiando.pptx Wise exchange of knowledge.mp4 Report on the traditional festivities of San Juan Photographs of the patron saint festivities
Remarks	N/A

[80] After this verification period, the Monitoring, Reporting and Verification Coordinator, the Jiguamiando Project Director, the La Grande Project Director, the Turriquitado Project Director and the Biotrade SAS development team are expected to be responsible for the measurement after the selection of the people in charge.
[81] The SDB, the battery of indicators and other planning actions will be subject to modification according to what is defined in the Ethnodevelopment Plan.

ID Activity	Be8
Indicator ID	16Be8
Indicator name	No. Training events in REDD techniques
Type	Impact
Goal	2 events in each monitoring period V1-V14
Unit of measure	Number of events
Responsible for measurement	Biotrade Technical Team and Legal Representatives of the Community Councils[80]
Indicator result in the reporting period	The workshops, meetings and socialization spaces held with the community of the Community Councils during the formulation process of the JIGRANTU REDD+ Project are reported, considering that knowledge was imparted on REDD mechanism, climate change, actions to reduce GHG, carbon market, among other topics related to REDD+ projects.
Documents to support the information	Six (6) meeting minutes, memories of the workshops held in the communities of the Community Councils in 2022.
Remarks	N/A

ID Activity	Bf12
Indicator ID	21Bf12
Indicator name	No. Training events for strengthening PPS with emphasis on increasing socio-ecosystemic resilience.
Type	Impact
Goal	1 training event, in each monitoring period V1-V14
Unit of measure	Number of events
Responsible for measurement	Biotrade Technical Team and Legal Representatives of the Community Councils[80]
Indicators result in the reporting period	Two events were presented during the first monitoring period for the strengthening of Sustainable Production Projects: - Progress made through the ASOPESVIGRAN association in the La Grande Community Council -Strengthening and sustainable production of plantain crops in the Jiguamiando River Community Council.
Documents to support the information	ASOPESVIGRAN AND BANANA
Remarks	N/A

ID Activity	Ch26
Indicator ID	43Ch26
Indicator name	No. of construction and maintenance reports for bridges and roads
Type	Product
Goal	1 document in each monitoring period V1 to V14
Unit of measure	Number of documents
Responsible for measurement	Biotrade Technical Team and Legal Representatives of the Community Councils[80]
Indicators result in the reporting period	One (1) report on the construction and maintenance of bridges and roads in the Jiguamiando River Community Council.

Documents to support the information	Bridge and road construction and maintenance report
Remarks	N/A

ID Activity	Dj34
Indicator ID	58Dj34
Indicator name	No. of document Diagnosis of the state of ecosystems, ecosystem services and vulnerability to the effects of climate change.
Type	Product
Goal	1 document in the monitoring period V3
Unit of measure	Number of documents
Responsible for measurement	Biotrade Technical Team and Legal Representatives of the Community Councils[80]
Indicators result in the reporting period	On this occasion we will consider the diagnostic document of the conservation actions of the REDD+ JIGRANTU Project carried out by the social team of Biotrade SAS, which details the conservation actions being carried out by the Community Councils that are part of the Project and the graduate work done by one of the members of the Community Council of La Grande, which aims to learn about the traditional use of meat and wild bird by-products in Curvarado and La Grande.
Documents to support the information	Diagnosis of the conservation actions of the REDD+ JIGRANTU project that integrates the Community Councils: Turriquitado, la Grande and Jiguamiando and the document on Traditional use of wild birds by Afro-descendant communities in the lower basin of the Atrato River, Colombia.
Remarks	For the reporting of this indicator, documents and reports that contribute to the construction of the diagnosis of the state of the ecosystems and their natural resources are considered.

ID Activity	Dj36
Indicator ID	64Dj36
Indicator name	No. Reports with measures and actions aimed at improving the protection and monitoring of the manatee (Trichechus *manatus*) and the slender-horned turtle (*Trachemys callirostris*)
Type	Product
Goal	1 document in each monitoring period
Unit of measure	Number of documents
Responsible for measurement	Biotrade Technical Team and Legal Representatives of the Community Councils[80]
Indicator result in the reporting period	1 document of the Manatee sighting report in the Community Councils of La Grande and Turriquitado during the first monitoring period.
Documents to support the information	Manatee Registration Report
Remarks	N/A

ID Activity	Dj37
Indicator ID	66Dj37
Indicator name	No. Community monitoring reports
Type	Product
Goal	1 document in each monitoring period
Unit of measure	Number of documents
Responsible for measurement	Biotrade Technical Team and Legal Representatives of the Community Councils[80]
Indicators result in the reporting period	One (1) conservation action report detailing the follow-up of the restoration of the Jiguamiando River unclogging process in the La Grande Community Council.
Documents to support the information	Reforestation control log report
Remarks	N/A

15.2 Data and parameters to quantify the reduction of emissions

15.2.1 Data and parameters determined at the time of registration and not checked during the monitoring period, including default values and factors

The data and parameters determined or available at the time of validation that will remain fixed throughout the project quantification period are presented below.

Data/ Parameter	A(REDD+proy,1)
Data unit	ha
Description	Forested area in the project area at the beginning of the monitoring period (ha)
Source of data used	Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)
Monitored parameter value	68,898.97
Indicate what the data is used for	Used to quantify the annual change in the area covered by forest in the project area (ha).
Justification for the choice of data or description of the measurement methods and procedures applied.	Calculated from the result of remote sensing data analysis.
Additional comments	N/A

Data/ Parameter	A1,f
Data unit	has
Description	Forested area of the leakage area at the beginning of the monitoring period (ha)

Source of data used	Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)
Monitored parameter value	40,330.02
Indicate what the data is used for	Allows to know the forest losses between two time periods in the leakage area.
Justification for the choice of data or description of the measurement methods and procedures applied.	Calculated from the result of remote sensing data analysis.
Additional comments	N/A

Data/ Parameter	Reference area
Data unit	has
Description	Forest area in the reference area at the beginning of the monitoring period (ha)
Source of data used	Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)
Monitored parameter value	132,857.70
Indicate what the data is used for	Used to quantify the annual change in the area covered by forest in the project area (ha).
Justification for the choice of data or description of the measurement methods and procedures applied.	Calculated from the result of remote sensing data analysis.
Additional comments	N/A

Data/ Parameter	CTeq
Data unit	tCO_2e/ha
Description	Total carbon dioxide equivalent
Measured/Calculated /Predetermined	Default
Source of data used	NREF Colombia (IDEAM, 2019)
Monitored parameter value	313.3
Indicate what the data is used for	Following the guidelines of Colombia's national legislation, specifically Resolution 1447 of 2018, the most updated NREF must be used, whereby, the value is the one applied to the Amazon biome.
Justification for the choice of data or description of the measurement methods and procedures applied.	The NREF 2019 of the value corresponding to the Pacific biome was used.
Additional comments	N/A

Data/ Parameter	Starting year
Data unit	Year
Description	Project start year
Measured/Calculated /Predetermined	Default
Source of data used	It is validated by the Third report dated December 5, 2018, where the process of protection measures and recovery of the Atrato River account is followed up in accordance with judgment T622 of 2016.
Monitored parameter value	2019
Indicate what the data is used for	The start year is used to indicate the exact date of the beginning of the CO_2 emissions quantification during the monitoring report.
Justification for the choice of data or description of the measurement methods and procedures applied.	The start year is set 5 years before the validation start date according to BCR guidelines, considering that the validation starts in November 2023.
Additional comments	N/A

Data/ Parameter	Year of end of monitoring period
Data unit	Year
Description	This is the year in which the first monitoring period ends.
Measured/Calculated /Predetermined	Default
Source of data used	Established 4 years after the start of the project considering a conservative approach to quantification.
Monitored parameter value	2022
Indicate what the data is used for	The start year is used to indicate the exact date of the end of the CO emissions quantification$_2$ during the monitoring report.
Justification for the choice of data or description of the measurement methods and procedures applied.	The year of completion is set 4 years after the validation start date.
Additional comments	N/A

15.2.2 Controlled data and parameters

The data and parameters monitored during the first monitoring period of the project are presented below:

Data/ Parameter	CSBYear

Data unit	has
Description	Annual change in the area covered by forest in the reference region (ha)
Measured/Calculated/Predetermined	Calculated
Source of data used	Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)
Monitored parameter value	1541.74 ha
Indicate what the data is used for	Deforestation on the RDD is used as part of the quantification of emissions within the project.
Justification for the choice of data or description of the measurement methods and procedures applied.	The data for the calculation of deforestation in the JIGRANTU REDD+ Project was taken from the Global Land Analysis and Discovery Laboratory (GLAD) at the University of Maryland in partnership with Global Forest Watch (GFW) which provides annual updated data on global forest loss using Landsat imagery with a resolution of 30 x 30 meters.
Monitoring equipment	Last report 2022
Frequency of measurement	Annual
Calculation method	Satellite image processing
Quality control procedures applied	According to the Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)

Data/ Parameter	EAlb
Data unit	tCO_2e/ha
Description	Annual emissions in the baseline scenario (tCO_2 /ha)
Measured/Calculated /Predetermined	Calculated
Source of data used	NREF Colombia (IDEAM, 2019) and Global Land Analysis and Discovery Laboratory (GLAD) of the University of Maryland in partnership with Global Forest Watch (GFW).
Monitored parameter value	482,994.75

Indicate what the data is used for	Provides annual emissions in the baseline scenario from Global Forest Watch deforestation and carbon dioxide equivalent data taken from the NREF 2019.
Justification for the choice of data or description of the measurement methods and procedures applied.	The data used are taken from the NREF national reference validated by resolution 1447 of 2018 and Global Land Analysis and Discovery (GLAD) Laboratory data from the University of Maryland in partnership with Global Forest Watch (GFW) with resolutions of 30*30 meters.
Monitoring equipment	Last report filed in 2019 NREF
Frequency of measurement	Annual
Calculation method	Based on the methodological document of the AFOLU Sector
Quality control procedures applied	N/A

Data/ Parameter	A(REDD+proy,2)
Data unit	has
Description	Forested area in the project area at the end of the monitoring period (ha)
Measured/Calculated /Predetermined	Measured
Source of data used	Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)
Monitored parameter value	67,355.20
Indicate what the data is used for	Used to quantify the annual change in the area covered by forest in the project area (ha).
Justification for the choice of data or description of the measurement methods and procedures applied.	Calculated from the result of remote sensing data analysis.
Monitoring equipment	Last report 2022
Frequency of measurement	Annual
Calculation method	Satellite image processing
Quality control procedures applied	According to the Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)

Data/ Parameter	CSBproy,year
Data unit	has

Description	Annual change in the area covered by forest in the project area (ha)
Measured/Calculated /Predetermined	Measured
Source of data used	Forested area in the project area at the beginning of the monitoring period (ha) 4. Forested area in the project area at the end of the monitoring period (ha)
Monitored parameter value	514.59 ha
Indicate what the data is used for	Allows to know the forest losses that have occurred between two time periods in the project area.
Justification for the choice of data or description of the measurement methods and procedures applied.	Based on the annual changes in deforestation, the CO_2 emissions are quantified during the monitoring period.
Monitoring equipment	Last report 2022
Frequency of measurement	Annual
Calculation method	Satellite image processing
Quality control procedures applied	According to the Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)

Data/ Parameter	EAREDD+proy,year
Data unit	tCO_2e
Description	Annual emission in the project area (tCO_2/ha)
Measured/Calculated /Predetermined	Calculated
Source of data used	NREF Colombia (IDEAM, 2019) and Global Land Analysis and Discovery Laboratory (GLAD) of the University of Maryland in partnership with Global Forest Watch (GFW).
Monitored parameter value	161,211.20
Indicate what the data is used for	Allows to know the annual emissions in the project area.
Justification for the choice of data or description of the measurement methods and procedures applied.	The data used are taken from the NREF national reference validated by resolution 1447 of 2018 and Global Land Analysis and Discovery (GLAD) Laboratory data from the University of Maryland in partnership with Global Forest Watch (GFW) with resolutions of 30*30 meters.
Monitoring equipment	Last report 2022
Frequency of measurement	Annual
Calculation method	Satellite image processing

Quality control procedures applied	According to the Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)

Data/ Parameter	A2,f
Data unit	has
Description	Forested area of the leakage area at the end of the monitoring period (ha)
Measured/Calculated /Predetermined	Measured
Source of data used	Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)
Monitored parameter value	39,843.42
Indicate what the data is used for	Allows to know the forest losses between two time periods in the leakage area.
Justification for the choice of data or description of the measurement methods and procedures applied.	Calculated from the result of remote sensing data analysis.
Monitoring equipment	Last report 2022
Frequency of measurement	Annual
Calculation method	Satellite image processing
Quality control procedures applied	According to the Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)

Data/ Parameter	CSBf,year
Data unit	has
Description	Annual change in the area covered by forest in the leakage area (ha)
Measured/Calculated /Predetermined	Calculated
Source of data used	1. Year of project initiation 2. Year of project termination 3. Forest area in the leakage area at the beginning of the monitoring period (ha) 4. Forest area in the leak area at the end of the monitoring period (ha)
Monitored parameter value	162.20
Indicate what the data is used for	Allows to quantify the annual change in the area covered by forest in the project area (ha).
Justification for the choice of data or description of the	Calculated from the result of remote sensing data analysis.

measurement methods and procedures applied.	
Monitoring equipment	Last report 2022
Frequency of measurement	Annual
Calculation method	Satellite image processing
Quality control procedures applied	According to the Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)

Data/ Parameter	EAf,year
Data unit	tCO_2e
Description	Annual emission in the leakage area (tCO_2 /ha)
Measured/Calculated /Predetermined	Calculated
Source of data used	1. Annual deforestation in the leakage area 2.
Monitored parameter value	10,702.19
Indicate what the data is used for	Allows quantification of net GHG emission reductions.
Justification for the choice of data or description of the measurement methods and procedures applied.	Represents leakage corresponding to the displacement of deforestation by the implementation of project activities.
Monitoring equipment	Last report filed in 2019 NREF
Frequency of measurement	Annual
Calculation method	Based on the methodological document of the AFOLU Sector
Quality control procedures applied	N/A

Data/ Parameter	REDEF,REDD+proy
Data unit	tCO_2e
Description	Emission reductions from avoided deforestation in the project scenario
Measured/Calculated /Predetermined	Calculated
Source of data used	1. Year of project start 2. Year of completion of first monitoring period 3. Annual emission from deforestation in the baseline scenario 4. Annual emission from deforestation in the project area 5. Annual emission from deforestation in the leakage area
Monitored parameter value	1,565,033.62

Indicate what the data is used for	It allows to know the avoided deforestation emissions reduction in the project scenario.
Justification for the choice of data or description of the measurement methods and procedures applied.	From this value, the total GHG reduction is quantified by subtracting the discounts for uncertainty and forest harvesting.
Monitoring equipment	Last report 2022
Frequency of measurement	Annual
Calculation method	Satellite image processing
Quality control procedures applied	According to the Global Land Analysis and Discovery (GLAD) Laboratory of the University of Maryland in partnership with Global Forest Watch (GFW)

16 Quantification of GHG emission reduction / removals

16.1 Baseline emissions

16.1.1 Activity data

Annual deforestation in the reference area

To calculate the annual deforestation in the reference region, the following formula is used[82] :

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

$$CSB_{año} = \left(\frac{1}{2022 - 2019}\right) * (132{,}857.70\ ha - 128{,}232.49\ ha)$$

$$CSB_{año} = 1541.74\ ha$$

Where:

$CSB_{año}$= Annual change in the area covered by forest in the reference region (ha)
t_2= Year end of monitoring period
t_1=Initial year of the monitoring period
A_1= Wooded area of the area under control at the initial time (ha)

[82] The forest areas considered for the development of this chapter are available at: 5. CARBON CALCULATIONS Deforestation Analysis Deforestation Areas.xlsx. Cartographic layers can be found at: 7. CARTOGRAPHY. 3.

A_2= Forest area of the area under control at the final time (ha)

16.1.2 GHG emissions

The annual emission due to deforestation in the baseline scenario is determined using the following equation:

$$EA_{lb} = DA_{lb} * CT_{eq}$$

$$EA_{lb} = 1541.74\ ha * 313.3\ \frac{tCO_2e}{ha}$$

$$EA_{lb} = 482{,}994.75\ tCO_2e$$

Where:

EA_{lb} = Annual emission in the baseline scenario (tCO_2 /ha)
DA_{lb} = Annual historical deforestation in the baseline scenario (ha)
CT_{eq} = Total Carbon Dioxide Equivalent (tCO_2 e/ha)

16.2 Project emissions/removals

16.2.1 Activity data

Annual deforestation in the project area

It is estimated with the following equation.

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

$$CSB_{año} = \left(\frac{1}{2022 - 2019}\right) * (68{,}898.97\ ha - 67{,}355.20\ ha)$$

$$CSB_{año} = 514.59\ ha$$

Where:

$CSB_{proy,año}$= Annual change in the area covered by forest in the project area (ha)
t_2= Year end of monitoring period
t_1=Initial year of the monitoring period
$A_{REDD+proy,1}$= Wooded area in the project area at the start of the monitoring period (ha)
$A_{REDD+proy,2}$= Wooded area in the project area at the end of the monitoring period (ha)

16.2.2 GHG emissions

The annual emission due to deforestation in the project area is calculated using the following equation:

$$EA_{REDD+proy,año} = DEF_{REDD+proy,año} * CT_{eq}$$

$$EA_{REDD+proy,año} = 514.59\ ha * 313.3\ \frac{tCO_2e}{ha}$$

$$EA_{REDD+proy,año} = 161{,}211.20\ tCO_2e$$

Where:

$EA_{REDD+proy,año}$ = Annual emission in the project area (tCO_2 /ha)
$DEF_{REDD+proy,año}$ = Annual deforestation in project area (ha)
CT_{eq} = Total Carbon Dioxide Equivalent (tCO_2 e/ha)

16.3 Leaks

16.3.1 Activity data

Annual deforestation in the leakage area

To calculate deforestation in the leakage area, the following equation is used:

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

$$CSB_{f,año} = \left(\frac{1}{2022 - 2019}\right) * (40{,}330.02\ ha - 39{,}843.42\ ha)$$

$$CSB_{f,año} = 162.20\ ha$$

Where:

$CSB_{f,año}$= Annual change in area covered by forest in the leakage area (ha)
t_2= Year end of monitoring period
t_1=Initial year of the monitoring period
$A_{1,f}$= Forested area of the leakage area at the beginning of the monitoring period (ha)
$A_{2,f}$= Forested area of the leakage area at the end of the monitoring period (ha)

16.3.2 GHG emissions

The annual emission from deforestation in the leakage area is estimated from the following equation:

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

$$EA_{f,año} = \left(162.20\ ha * \ 313.3\ \frac{tCO_2e}{ha}\right) - 40{,}111.88\ tCO_2e$$

$$EA_{f,año} = 10{,}702.19\ tCO_2e$$

Where:

$EA_{f,año}$ = Annual emission in the leakage area (tCO_2/ha)
$DEF_{f,año}$ = Annual deforestation in the leakage area (ha)
CT_{eq} = Total Carbon Dioxide Equivalent (tCO_2e/ha)
$EA_{lb,f,año}$ = Annual emission from deforestation in the leakage area in the baseline scenario (tCO_2e)

16.4 Net GHG emission reductions/eliminations

The estimation of emission reductions due to avoided deforestation is done using the following equation:

$$RE_{DEF,REDD+proy} = (t_2 - t_1) * (EA_{DEF,lb,año} - EA_{DEF,REDD+proy,año} - EA_{DEF,f,año})$$ [83]

$$RE_{DEF,REDD+proy} = 1{,}565{,}033.62\ tCO_2e$$

Where:

$RE_{DEF,REDD+proy}$ = Emission reductions from avoided deforestation in the project scenario (tCO_2 e)
t_2 = End year of the reporting period
t_1 = Start year of the reference period
$EA_{DEF,lb,año}$ = Annual emission from deforestation in the baseline scenario (tCO_2 e)
$EA_{DEF,REDD+proy,año}$ = Annual emission from deforestation in the project area (tCO_2 e)

[83] The formula was applied for each monitoring year of the project considering that the forest area changes as the project progresses, the detailed calculations can be found in the folder: 5. Carbon calculations Carbon calculator

$EA_{DEF,f,año}$ = Annual emission from deforestation in the leakage area (tCO_2 e)

According to the calculations made, which are summarized in Table 20 an annual average estimated net GHG reduction of 391,258.40 tCO_2e is presented with a total GHG emission reduction of 1,565,033.62 tCO_2 e in this monitoring period.

Table 20 GHG emission reductions in this monitoring period

Year	Reduction of GHG emissions in the reference scenario (tCO_2e)	GHG emission reductions in the project scenario (tCO_2e)	GHG emissions attributable to leakage (tCO_2e)	Total GHG reduction (tCO_2e)
Year 1- 2019	670,596.96	124,554.12	8,497.11	537,545.72
Year 2- 2020	416,967.68	107,927.86	0	309,039.81
Year 3- 2021	374,746.95	104,782.03	0	269,964.92
Year 4- 2022	654,480.92	196,151.30	9,846.46	448,483.16
Average annual GHG emission reductions (tCO_2 e/year)	529,198.13	133,353.83	9,171.79	391,258.40
Total, reductions in monitoring period	2,116,792.51	533,415.31	18,343.58	1,565,033.62

Source. Biotrade S.A.S (2023)

16.5 Comparison of actual emission reductions with project document estimates

In the Table 21 presents the estimated ex ante GHG emission reduction, the estimated net GHG reduction for the current monitoring period. The estimated net reduction in the current monitoring period is on average 8% higher than the estimated ex ante GHG reduction, due to the discounts considered and the use of other formulas for the estimation of GHG emission reduction in the project scenario and that attributable to the leakage area since it considers deforestation in these areas and in the last case considers the annual emission from deforestation in the leakage area in the baseline scenario as a discount to the calculated emission from deforestation, obtaining negative values leaves values of 0 in the GHG emissions attributable to leakage (See Table 20).

Table 21 Comparison of GHG reductions ex ante and ex post

Year	Estimated net GHG reduction Ex ante (tCO_2e)	Total net GHG reduction (tCO_2e)
2019	466,420.45	537,545.72
2020	291,431.92	309,039.81
2021	235,119.90	269,964.92
2022	471,656.81	448,483.16

Average GHG emission reductions (tCO_2e /year)	366,157.27	391,258.40
Total, reductions in monitoring period	1,464,629.08	1,565,033.62

Source. Biotrade S.A.S (2023)

16.6 Observations on the difference with the estimated value in the recorded project document

The values recorded in the monitoring period differ from those estimated in the project document (Table 21) due to the difference in the estimation of reductions in the project area and leakage area. In addition, in this case the increase due to national circumstances in deforestation was considered in the baseline scenario considering the percentages presented in the proposed reference level of forest emissions from deforestation in Colombia[84].

[84] Proposed Reference Level of Forest Emissions from Deforestation in Colombia for REDD+ Payment for Results Under the UNFCCC