MONITORING REPORT REDD PROJECT IN BRAZIL NUT CONCESSIONS IN MADRE DE DIOS, PERU

PROYECTO REDD + CASTAÑEROS

Document Prepared By:

Bam Bosques Amazónicos

Project title	REDD Project in Brazil Nut Concessions in Madre de Dios
Project ID	868
Crediting period	24 September 2009 – 31 December 2040; 31-years
Monitoring period	01 January 2021 – 31 December 2023; 3-year
(CCB) GHG accounting period	24 September 2009 – 31 December 2040; 31-years
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VCS Standard version	VCS Standard V.4.7
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Project location	Perú, Madre de Dios

Project proponent(s)	Organization: Bosques Amazonicos S.A RUC: 20393341786 Person in charge: Jorge Cantuarias Falconi Cargo: General Manager Address: Jirón Atahualpa N°760, Callería, Coronel Portillo, Ucayali, Perú Phone: +(51 1) 480 11 92 Web Site: www.bosques-amazonicos.com E-mail: mcantuarias@bosques-amazonicos.com, jcantuarias@bosques-amazonicos.com
Validation/verification body	To be confirmed
History of CCB Status	The project was validated by the CCB standard on 2014, for the period from its first baseline from January 1, 2010, to December 31, 2020. Given its update of the baseline, this document is developed
Gold Level criteria	Biodiversity The project has protected threatened species such as *Ateles chamek* (endangered), *Pionites leucogaster* and *Bertholletia excelsa* (vulnerable), along with other species such as *Tapirus terrestris* (vulnerable) and *Panthera onca* (near threatened). Focusing on maintaining wildlife populations in their natural habitats, including critical areas such as chestnut forests and flooded alluvial forests (Aguajal). The development of the scientific program with field expeditions and camera traps has monitored biodiversity and allowed for the socialization of results and the definition of measures to understand the reproductive biology and movement of species. Efforts have also addressed threats such as forest fires, illegal logging and unsustainable practices through community collaboration and preventive actions. The development of restoration and silvicultural practices have supported the sustainable management of Brazil nuts. Community In line with the first condition of the “exceptional community criteria”, the 793 partners of the project have rights that allow them to manage their areas in accordance with the contracts signed with the Peruvian State. In this sense, it is the concessionaires, together with the project team, who will generate the climate, community and biodiversity benefits. To this end, the project provides Brazil nut producers with greater capacities, tools and permanent support so that they can sustainably manage their concessions, face the threats of

	deforestation and improve their quality of life through conservation and sustainable economic activities. Thus, by strengthening and improving the position of the Brazil nut community, the activities they carry out in their concessions in terms of surveillance and monitoring, compliance with regulations and the development of sustainable productive activities will achieve the project's objectives.
Prepared by	Organization: Bosques Amazonicos S.A RUC: 20393341786 Phone: +(51 1) 480 11 92 Web Site: www.bosques-amazonicos.com E-mail: mcantuarias@bosques-amazonicos.com

CONTENTS

Update the page numbers of the table of contents below upon completion of the project description.

1 SUMMARY OF PROJECT BENEFITS 5
1.1 Unique Project Benefits 5
1.2 Standardized Benefit Metrics 7
2 PROJECT DETAILS 11
2.1 Summary Description of the Implementation Status of the Project 11
2.2 Project Implementation Status 24
2.3 Stakeholder Engagement & Safeguards 33
2.4 Management Capacity 47
2.5 Legal Status and Property Rights 49
3 CLIMATE 53
3.1 Monitoring GHG Emission Reductions and Removals 53
3.2 Quantification of GHG Emission Reductions and Removals 71
3.3 Optional Criterion: Climate Change Adaptation Benefits 87
4 COMMUNITY 88
4.1 Net Positive Community Impacts 88
4.2 Other Stakeholder Impacts 91
4.3 Community Impact Monitoring 92
4.4 Optional Criterion: Exceptional Community Benefits 95
5 BIODIVERSITY 98
5.1 Net Positive Biodiversity Impacts 98
5.2 Offsite Biodiversity Impacts 103
5.3 Biodiversity Impact Monitoring 104
5.4 Optional Criterion: Exceptional Biodiversity Benefits 114
APPENDIX 1: SEGUIMIENTO ACTIVIDADES IMPLEMENTADAS DEL PROYECTO ERROR! BOOKMARK NOT DEFINED.

1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Outcome or Impact	Achievements during the Monitoring Period	Section Reference	Achievements during the Project Lifetime
1) Significantly reduce GHG emissions caused by avoiding deforestation in Brazil nut dominated forests by implementing a single, large Brazil nut forest conservation project.	Avoided deforestation of Brazil nut forests in 18,810.3 ha (91.0 %) within the project area, with respect to the baseline scenario. This prevented the release of 8,054,114 tCO2e into the atmosphere and contributed to the maintenance of the ecological structure and composition of the ecosystem.		26,790.092 tCO2e estimated emission reductions in the project area, in relation to the without-project scenario. 18,810.3 ha of forest loss reduced in the project area for the period 2021-2023, measured relative to the without-project scenario.
2) Strengthen the organizational and management capacity of the Federación de Productores Castañeros (FEPROCAMD) for its members to ensure the sustainable and integrated management of forest concessions.	Progress in the promotion of technical knowledge for the maintenance and management of chestnut ecosystems and the development of theoretical and practical workshops and implementation of awareness campaigns.		Training 77 training/socialization sessions Coordination meetings 28 coordination meetings for the sustainable management of the concessions and the project.
3) Provide commercial and operational support to increase the income generated by the Brazil Nut activity, improving the livelihoods of the community.	Progress in the promotion of chestnut and alternative production projects; and the involvement of the community in forest rehabilitation and restoration activities.		Organic Brazil nut activities.: 281,811.49 kg of Brazil nut certified under national, North American and European standards. 10,123 hectares of Brazil nut forests managed under organic certification standards.

			Training 16 training/socialization sessions for organic Brazil nut certification.
4) Contribute to improving community livelihoods by promoting income streams in sustainable forestry activities within the Project Zone.	Improve community livelihoods through the implementation of three productive pilots: agroforestry systems, palm tree harvesting and value-added organic Brazil nut. In addition, it has facilitated access to higher education for three children of partner concessionaires through its university scholarship program.		3 productive pilots initiated to improve livelihoods: agroforestry systems, palm tree harvesting, organic and value-added Brazil nuts. 3 children of project partner concessionaires have access to higher education through the university scholarship program.

1.2 Standardized Benefit Metrics

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	Not Applicable	-	Not Applicable
	Net estimated emission reductions in the project area, measured against the without-project scenario	8.054.114 tCO2e		26.790.092 tCO2e
Forest[1] cover	For REDD[2] projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	18,810.8 hectares		18,810.8 hectares during 2021-2023
	For ARR[3] projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	Not Applicable	-	Not Applicable
Improved land management	Number of hectares of existing production forest land in which IFM[4] practices have occurred as a result of the project's activities, measured against the without-project scenario	Not Applicable	-	Not Applicable
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	Not Applicable	-	Not Applicable

[1] Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO, or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (*VCS Program Definitions*)

[2] Reduced emissions from deforestation and forest degradation (REDD) – Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (*VCS Program Definitions*)

[3] Afforestation, reforestation and revegetation (ARR) – Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (*VCS Program Definitions*)

[4] Improved forest management (IFM) – Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood, and fuelwood (*VCS Program Definitions*)

Training	Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities	793 partner families of the project		488 families (average of 4.5 members each)
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	299 women		151 women concessionaires
Employment	Total number of people employed in of project activities,[5] expressed as number of full-time employees[6]	19 jobs		At least 10 jobs
	Number of women employed in project activities, expressed as number of full-time employees	32% of total employees.		At least 30% of total employees.
Livelihoods	Total number of people with improved livelihoods[7] or income generated as a result of project activities	793 partner families of the project		488 families (average of 4.5 members each)
	Number of women with improved livelihoods or income generated as a result of project activities	299 women		151 women concessionaires
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	Not Applicable	-	Not Applicable
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	Not Applicable	-	Not Applicable
Education	Total number of people for whom access to, or quality of, education was improved as a result of project activities,	3 university scholarship holders funded by the project	-	3 university scholarship holders funded by the project

[5] Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers, and community members that are paid to carry out project-related work.

[6] Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region, or economic territory (adapted from UN System of National Accounts (1993) paragraphs 17.14[15.102]; [17.28])

[7] Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. *The Sustainable Livelihood Approach to Poverty Reduction*. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

	measured against the without-project scenario			
	Number of women and girls for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	2 women with the university scholarship	-	2 women with the university scholarship
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not Applicable	-	Not Applicable
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not Applicable	-	Not Applicable
Well-being	Total number of community members whose well-being8 was improved as a result of project activities	793 partner families of the project		488 families (average of 4.5 members each)
	Number of women whose well-being was improved as a result of project activities	299 women		151 women concessionaires
Biodiversity conservation	Change in the number of hectares significantly better managed by the project for biodiversity conservation,[9] measured against the without-project scenario	647,675.9 hectares		647,675.9 hectares
	Number of globally Critically Endangered or Endangered species[10] benefiting from reduced threats as a result of project activities,[11] measured against the without-project scenario	Mammals: 2 Endangered (*Pteronura brasiliensis* and *Alouatta seniculus*)		No other species are expected to be monitored

[8] Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Health, Education, Water, etc.), but could also include other benefits such as empowerment of community groups, strengthened legal rights to resources, conservation of access to areas of cultural significance, etc.

[9] Biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation.

[10] Per IUCN's Red List of Threatened Species

[11] In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

		Birds: 2 Vulnerable (*Pionites leucogaster and Primolius couloni*), Flora: 3 vulnerable (*Bertholletia excelsa, Copaifera paupera, Manilkara bidentata*).		

2 PROJECT DETAILS

2.1 Summary Description of the Implementation Status of the Project

2.1.1 Summary Description of the Project (VCS, 2.1, 3.6; CCB, G1.2)

The REDD PROJECT IN BRAZIL NUT CONCESSIONS IN MADRE DE DIOS is a joint initiative developed by Bosques Amazónicos S.A. (BAM). (BAM), whose objective is the reduction of greenhouse gas (GHG) emissions through an expansion region of land dominated by eligible forest cover with the presence of natural Peruvian Amazonian forests, for a period of thirty-one (31) years from 2010, the year in which the activities of conservation, protection, improvement and increase of carbon reservoirs compiled in four strategic lines were initiated. The REDD+ Project is located in the department of Madre de Dios, in the provinces of Tahuamanu and Tambopata, outside of a jurisdiction covered by a jurisdictional REDD+ program.

The project aims to prevent unplanned deforestation, successfully preventing the deforestation of 18,810.34 ha in the current monitoring period of the Peruvian Amazon forest, caused by alternative land use scenarios, such as agriculture, cattle ranching and illegal alluvial mining. The project has generated the reduction of 19'702,473 certified tCO2e in its first baseline crediting period, corresponding to the years 2010 to 2020. Thus, with the current monitoring period the project carried out the revalidation of the project, including the elaboration of a new baseline.

For the current three-year monitoring period, corresponding to January 1, 2021 to December 31, 2023, the project has achieved a total net reduction of 8,054,114 tCO2e. These reductions have been achieved by avoiding deforestation that affects the aerial and subway biomass reservoirs, which allows the conservation of the areas and contributes to the permanence of the biodiversity of the forested areas dominated by individuals of Brazil nut (*Bertolletia excelsa* Bonpl.), a species categorized as Vulnerable (VU) and contributes to the permanence of the biodiversity it harbors.

During this period, the project has strengthened local governance and management of Brazil nut (chestnut) and forest concessions through the Federation of Chestnut Producers of Madre de Dios (FEPROCAMD) and related associations, increasing the perception of the value of forest resources through the economic benefits invested in conservation activities. More than 30 decentralized workshops in the main population centers have recognized the importance of Brazil nuts for generating income for the population through commercial and operational support, based on improving the production chain and reducing the number of commercial intermediaries.

The project has ensured the maintenance of the biodiversity attributes (composition, structure and function) of the Amazonian rainforests within the project area, taking special care with the species catalogued with some degree of threat, such as the orange-headed caique (*Pionites leucogaster*), mammals such as the red howler monkey (*Alouatta seniculus*) and flora such as the Brazil nut (*Bertholletia excelsa*).

The initiative has maintained active socialization, consultation and adaptive management processes with stakeholders and the dissemination of project information, establishing strategies for the resolution of complaints and grievances (MAQR).

Finally, the project has implemented a monitoring program to track deforestation and early warnings for the forests in the project area based on the processing of satellite images and field monitoring

elements with the chestnut associations as a measure to prevent and reduce emissions in their area of intervention and the displacement of emissions to other nearby areas.

2.1.2 Audit History (VCS, 4.1)

Table 1 shows the history of audits carried out by the project, for registration in VCS and CCB.

Table 1 Historical record of audit processes

Audit type	Period	Program	Validation/verification body name	Number of years
Validation	01/01/2010 – 31/12/2020; 11-year	VCS V 3.2	EAS Limited on behalf of Scientific Certification Services (SCS)	10
Verification	01/01/2010 – 31/12/2012; 3-year	VCS V 3.2	SCS Global Services (SCS)	3
Verification	01/01/2013 – 31/12/2014; 2-year	VCS V 4.0	S&A Carbon, LLC	2
Verification	01/01/2015 – 31/12/2016; 2-year	VCS V 4.0	S&A Carbon, LLC	2
Verification	01/01/2017 – 31/12/2017; 1-year	VCS V 4.1	AENOR INTERNACIONAL S.A.U.	1
Verification	01/01/2018 – 31/12/2018; 1-year	VCS V 4.1	AENOR INTERNACIONAL S.A.U.	1
Verification	01/01/2019 – 31/12/2019; 1-year	VCS V 4.1	AENOR INTERNACIONAL S.A.U.	1
Verification	01/01/2020 – 31/12/2020; 1-year	VCS V 4.1	AENOR INTERNACIONAL S.A.U.	1
Revalidation of the baseline	01/01/2021 – 31/12/2026; 6-year	VCS V.4.5 + CCV V.3.0	TBD	3
CCB Validation	-	CCB 3.1.	AENOR INTERNACIONAL S.A.U.	-
Verification	01/01/2021 – 31/12/2023; 3-year	VCS V.4.5 + CCV V.3.1	TBD	3

2.1.3 Sectoral Scope and Project Type (VCS, 3.2)

The project falls under VCS sector 14 “Agriculture, Forestry and Other Land Uses-AFOLU”. It is a grouped project to be developed in the department of Madre de Dios that seeks to reduce GHG emissions by promoting forest conservation activities.

Sectoral scope	14: Agriculture, Forestry and Other Land Uses-AFOLU-AFOLU
AFOLU project category	The project type is in the Reducing Emissions from Deforestation and Degradation (REDD+) category, more specifically, in the Avoiding Unplanned Deforestation and/or Degradation (AUDD) project type.
Project activity type	This is a grouped project that seeks to reduce deforestation, protecting areas of Amazonian Forest, especially Brazil nut forests in the Madre de Dios region, and at the same time conserve the organic carbon stocks associated with this type of forest. Activities in these areas will be mainly oriented to the sustainable use of Brazil nut NTPF, management and conservation of biodiversity, complemented with strategic actions to reduce external threats of deforestation and degradation.

2.1.4 Project Proponent (VCS, 3.7; CCB, G1.1)

The project proponent is Bosques Amazonicos S.A., a private Peruvian company that offers nature-based solutions (NbS) with the purpose of protecting and restoring the value of ecosystems, mitigating climate effects, conserving the biodiversity of the Amazon and contributing to the economic, social and environmental development of Peru. The project proponent facilitates communication with partners, provides guidance, supports the development of forestry activities, structures the technical inputs necessary to achieve the objectives, and manages services and products to achieve project certification.

Organization name	Bosques Amazonicos S.A
Contact person	Jorge Cantuarias Falconi
Title	General Manager
Address	Jirón Atahualpa N°760, Callería, Coronel Portillo, Ucayali, Perú
Telephone	+(51 1) 480 11 92
Email	jcantuarias@bosques-amazonicos.com mcantuarias@bosques-amazonicos.com

2.1.5 Other Entities Involved in the Project

The project participants are mainly Brazil nut (Brazil nut) concessionaires and foresters who have the right to use forest resources, including ecosystem services, which are covered by a contract of linkage, administration and marketing of carbon credits with the Federación de Productores de Castaña de Madre de Dios (FEPROCAMD), and these in turn do the same with Bosques Amazonicos S. A. (BAM), whose contractual purpose is to establish rules and conditions to be taken into account, to manage and market carbon credits in the carbon market. A. (BAM), whose contractual purpose is to establish the rules and conditions that must be taken into account to manage and trade carbon credits in the market. FEPROCAMD's information is presented in the following table.

Organization name	Federation of Brazil Nut Producers of Madre de Dios (FEPROCAMD)
Role in the project	Partner federation
Contact person	Juan Carlos Grifa Dea
Title	Presidente
Address	JR. SAN MARTIN MZA. C LOTE. 10 A.H. HUERTO FAMILIAR (AL COSTADO DEL JARDIN HUERTO INFANTIL) MADRE DE DIOS - TAMBOPATA - TAMBOPATA
Telephone	+51 961 451 238
Email	feprocamdcastaneros@gmail.com

2.1.6 Project Start Date (VCS, 3.8)

Project start date	September 24, 2009
Justification	Date on which the Partnership Contract was signed between Bosques Amazonicos-BAM and the Federation of Producers of Madre de Dios - FEPROCAMD for the joint development of a REDD+ Project in grouped brazil nut concessions; with the objectives of reducing risks, threats and GHG emissions caused by avoiding deforestation, strengthening the organizational and management capacity of the federation, providing commercial and operational support to increase the income generated by the brazil nut, and contributing to the improvement of the livelihoods of the associated brazil nut community. In order to achieve monitoring efficiency, the accreditation period starts on January 1, 2010, and has a life span of 31 years, ending on December 31, 2040. During this period, the project activities will be implemented.

2.1.7 Benefits Assessment and Project Crediting Period (VCS, 3.9; CCB, G1.9)

Crediting Period	The accreditation period for the project is 31 years, during which time activities related to the conservation of natural forest cover will be carried out.
Start Date of First or Fixed Crediting Period	January 1, 2010 to December 31, 2040
Total Number of Years of Crediting Period	31 years old
CCB Benefits Assessment Period	The accreditation period of the project is 31 years, from the present revalidation of the baseline, activities related to the conservation of

	natural forest cover, community benefits and biodiversity will be developed.

2.1.8 Project Location (VCS, 3.11; CCB, G1.3)

The REDD+ Project is being developed in the Madre de Dios region of southeastern Peru, covering approximately 670,000 hectares of Brazil nut forests belonging to 793 forest concessions. This project focuses on protecting these forests and promoting sustainable livelihoods for local communities, especially Brazil nut farmers. The forest concessions involved are distributed mainly in the provinces of Tambopata (Districts: Laberinto, Tambopata and Las Piedras) and Tahuamanu (Districts: Tahuamanu, Iberia and Iñapari); bordering to the north with other forest concessions, to the south with the Madre de Dios River, to the east with the Bolivian border and to the west with the buffer zone of Natural Protected Areas. Its geographic location is established between the following UTM coordinates WGS84 Zone 19S; north 8757344.0, south 8601856.0, east 536472.0 and west 342999.9.

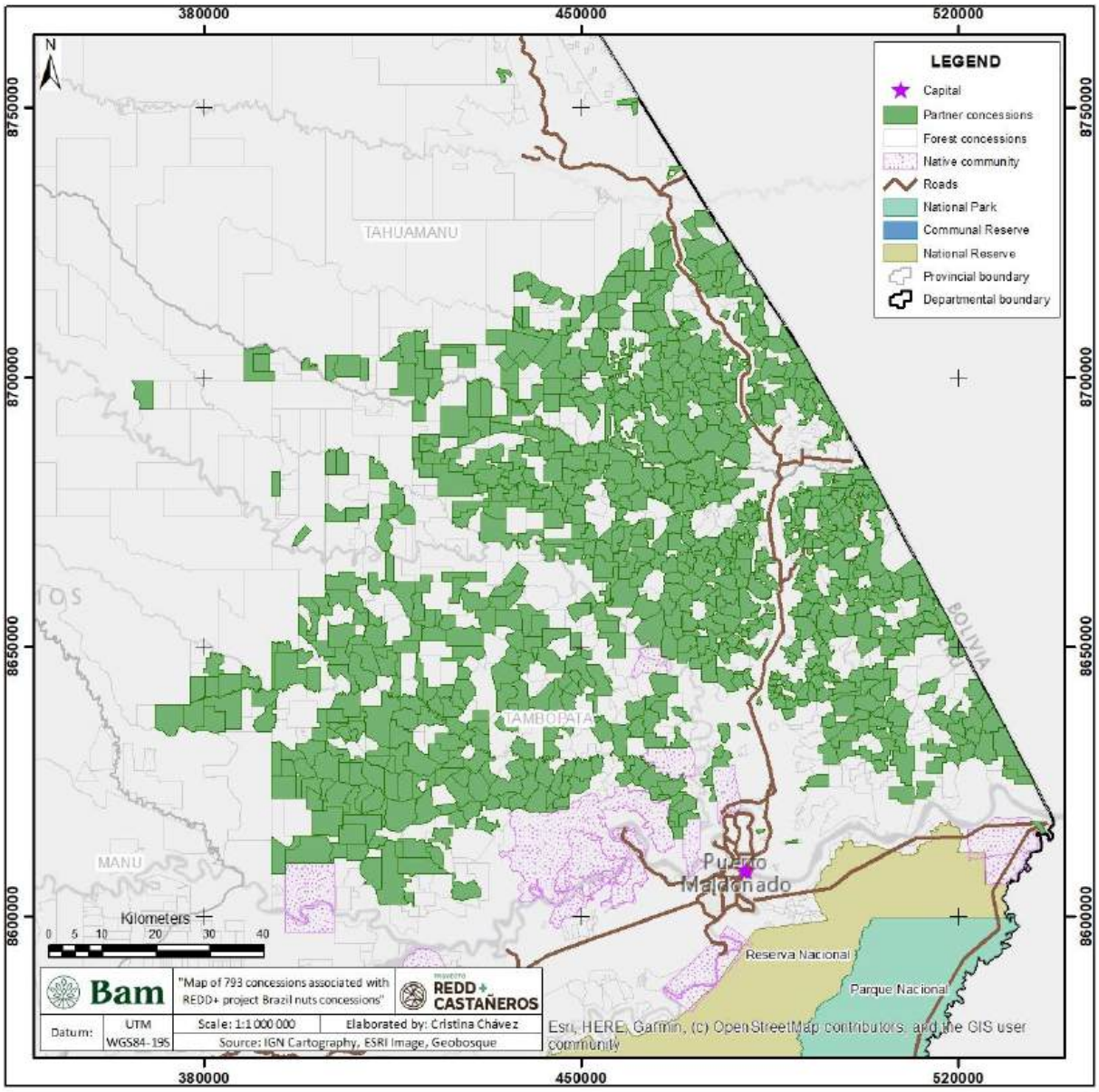

Figura 1 Map of 793 concessions associated with the Brazil nut concessions REDD+ project.
Source: Own elaboration (2024)

The geodetic coordinates of the project area polygon, escape belt, reference region and surrounding communities and localities are included in an attached KML file.

2.1.9 Title and Reference of Methodology (VCS, 3.1)

The methodology used for the project is VERRA's *VM0007 REDD+ Methodology Framework (REDD+MF), v1.7*, as presented in the following table. Considering the type of project that avoids unplanned deforestation (AUDD), the following applicable Modules and Tools were selected.

Table 2 Methodologies and tools used

Type (methodology, tool, module)	Reference ID (if applicable)	Title	Version
Methodology	VM0007	REDD+ Methodology Framework (REDD+MF),	V 1.7
Carbon pool module	VMD0001	Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB),	V 1.2
Baseline module	VMD0007	Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation and unplanned wetland degradation (BL-UP),	V 3.3
Leakage module	VMD0010	Estimation of emissions from activity shifting for avoiding unplanned deforestation and avoiding unplanned wetland degradation (LK-ASU),	V 1.2
Emission module	VMD0013	Estimation of greenhouse gas emissions from biomass and peat burning (E–BPB),	V 1.3
Monitoring module	VMD0015	Methods for monitoring of greenhouse gas emissions and removals (M-REDD),	V 2.3
Miscellaneous modules	VMD0016	Methods for stratification of the project area (X-STR),	V 1.3
	VMD0017	Estimation of uncertainty for REDD project activities (X-UNC),	V 2.2
Tool	VT0001	Tool for the demonstration and assessment of additionality in VCS agriculture, forestry, and other land use (AFOLU) project activities (T-ADD).	V 3.0
Tool	-	CMD Tool for testing significance of GHG emissions in A/R CDM project activities (T-SIG)	V 1
Tool	-	VCS AFOLU Non-Permanence Risk Tool, Version	V 4.2

2.1.10 Double Counting and Participation under Other GHG Programs (VCS, 3.23; CCB, G5.9)

2.1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program, or any other form of community, social, or biodiversity unit or credit?

☐ Yes ☒ No

During the certification process, the project will be registered in the registry authorized by the standard, so that the accounts of the carbon credits generated, the proper custody and control of the marketable credits can be correctly kept, and there are clear reports on the deposit or withdrawal of credits and, therefore, there are guarantees to eliminate the risk of double counting.

In order to avoid double counting at the national level of mitigation results, in particular for credits sold as offsets sold in the voluntary market, the project proponent will perform a spatial overlap analysis, by identifying all other GHG reduction projects present in the GHG registries, in verification phases, through a judgmental analysis of spatial boundaries, in order to avoid spatial overlap with other types of projects, as shown in Figure 2. In addition, MINAM is completing the process of Nesting REDD projects in Peru, to which we would be adhering once approved and implemented.

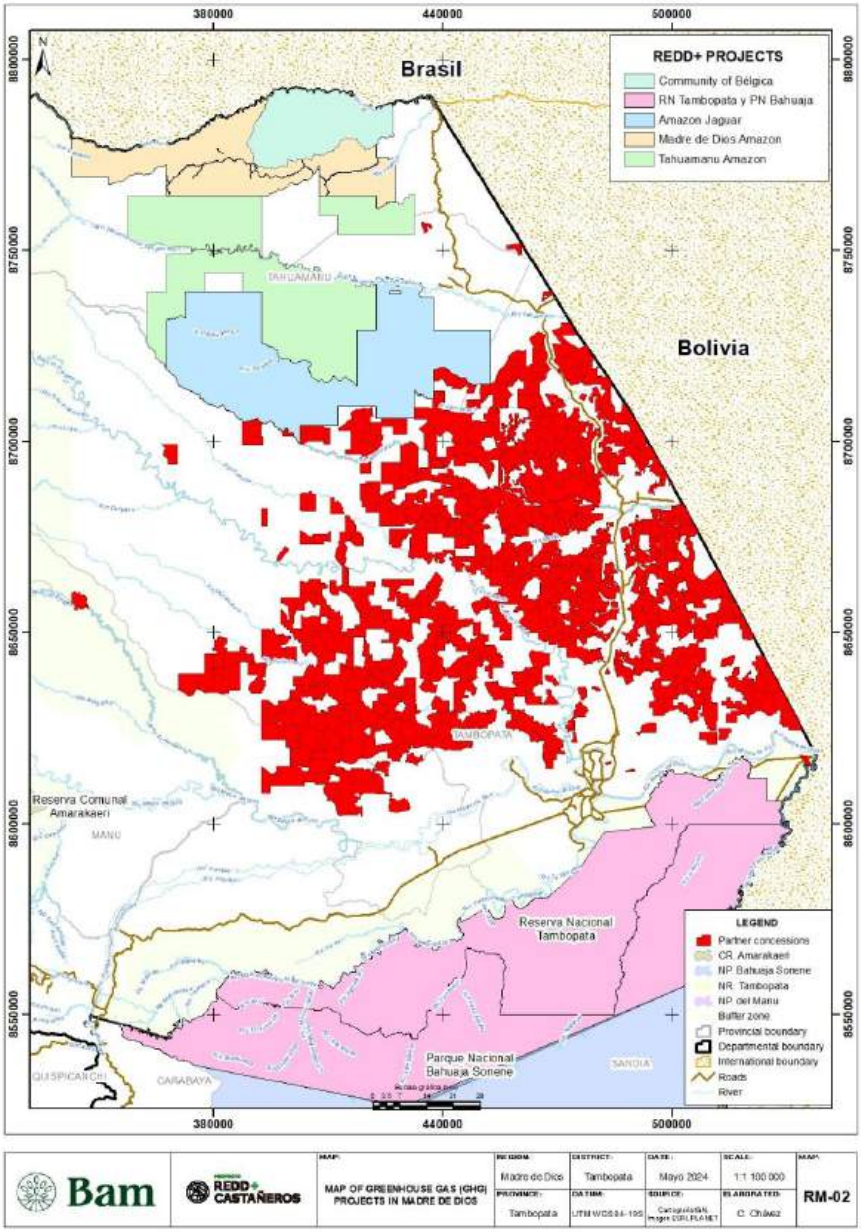

Figure 2 Map of certified GHG projects near the project
Source: Authors (2023)

Thus, the project's emission reductions will not be counted more than once to demonstrate compliance with one or more GHG mitigation goals, nor will they be used to obtain remuneration, benefits or incentives more than once, nor will they be verified, certified or accredited through the implementation of more than one mitigation initiative. Likewise, the National Emissions Registry (RENAMI) being developed by MINAM will play an important role in avoiding possible double accounting in Peru; the project will enhance its registration once it is operational.

2.1.10.2 Registration in Other GHG Programs

Is the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

2.1.10.3 Projects Rejected by Other GHG Programs

Has the project been rejected by any other GHG programs?

☐ Yes ☒ No

The project has not been rejected by any GHG certification program.

2.1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions (VCS, 3.24)

2.1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the VCS Program Definitions for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

2.1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the VCS Program Definitions for definition of GHG-related environmental credit system.

☐ Yes ☒ No

2.1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

2.1.12 Sustainable Development Contributions (VCS, 3.17)

The 2022-2026 Sustainable Development Cooperation Framework (UNSDF), established as the most relevant instrument for planning and implementing UN activities at the country level, defines four main strategies: 1) People's well-being and equal access to opportunities; 2) Environmental, climate change and disaster risk management; 3) Inclusive and sustainable competitiveness and productivity; and, 4) Effective democratic governance and equitable exercise of citizenship (United Nations Peru, 2023).

The REDD Project In Brazil Nut Concessions In Madre De Dios aligns its activities in such a way that they contribute to its implementation at the local level, moving towards the fulfillment of the goals of each SDG, guaranteeing their integrity and permanence. The SDGs and the indicators that the project seeks to achieve with its activities are presented in Table 3 and in the folder 2_VALIDACION_2023\5_Cobeneficios\02_Cumplimiento ODS+.

Tabla 3 Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	1.2	1.2.2. Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	The project promotes initiatives that seek to increase the economic capacity of partner families through access to various sources of income generated from conservation and sustainable forest management.	Up to 27.7% of project partner concessionaires were able to overcome the extreme poverty line thanks to the direct monetary benefit (community study, December 2023).	More than US$10 million delivered directly to concessionaire partners over the life of the project.
2)	1.4	1.4.2 Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and by type of tenure	The project has a technical team specialized in legal and environmental matters, which advises and guides the remediation and concession management processes with respect to administrative requirements and external invaders.	Technical assistance, achieving that 77% of concession holders have their boundaries marked. With the support of the project, more than 85% of members have up-to-date legal and management documents for their concessions.	The number of concessionaires with marked boundaries increased by 12%.
3)	2.4	2.4.1 Proportion of agricultural area under productive and sustainable agriculture	The project supports its partners in the implementation of strategies that seek to strengthen the production and marketing capacity of the brazil nut activity, as well as other sustainable productive activities for the subsistence and well-being of their families.	The project conserved 18,810.3 ha of Brazil nut concessions, avoiding the emission of 8,054,114 tons of carbon during the monitoring period.	Organic Brazil nut certification in concession holders totaling more than 10,000 ha of forest.

4)	4.3	4.3.1 Participation rate of youth and adults in formal and non-formal education and training, by sex	The project seeks to develop initiatives to improve access to basic education services for the Brazil nut community. Programs will be implemented to strengthen formal and informal education for members and their families.	3 scholarship recipients are completing their university studies as part of the scholarship program offered by the project. More than 77 trainings and workshops to develop soft and hard skills in project partners with and average participation of 28 per training and 45% of women.	More than 77 workshops implemented to develop and strengthen the capacities of the concession partners, some with the participation of allied institutions such as the National University of Madre de Dios, OSINFOR, Caritas del Perú, among others, in addition to the University Scholarship Program with 3 scholarship recipients.
5)	5.5	5.5.2 Proportion of women in managerial positions	Promotes the participation of women in all its activities, including the development of productive pilots, training workshops and monitoring, control and surveillance systems, among others.	2/6 women in FEPROCAMD leadership positions. 21/40 women participate in productive pilot projects.	The project has promoted the participation of more than 39 women in managerial positions in the Brazil nut organizations.
6)	8.2	8.5.1 Average hourly earnings of employed persons, broken down by gender, age and persons with a disability.	It contributes to the dignified work of all its members, safeguarding the livelihoods of small producers and supporting their economic growth through the commercialization of Brazil nuts and the development of other sustainable activities.	All concessionaires including women and older adults had additional earnings of S/.28,878 on average per year between 2021 and 2023.	*E*arnings growth rate of 132% on average during the past years of the project
7)	12.2	12.2.2 Total investment for the preservation, protection and conservation of all cultural and natural heritage.	The project establishes a budget for project activities, one of them in the form of ongoing training workshops on sustainable forest management and other related topics, seeking to improve the community's knowledge and skills in forestry and wildlife conservation.	A total of USD 7,126,732,000 has been allocated for the implementation of project activities during the monitoring period.	The total investment generated in the development of the project has been about USD 23,249,518, adequate for the permanent activities of the project.

8)	13.0	Tons of greenhouse gas emissions avoided or eliminated	The project aims to reduce emissions from deforestation and degradation of Brazil nut forests by implementing strategic activities and awareness training to safeguard one of the world's most biodiverse ecosystems.	The project avoided the release of 8,054,114 tons of carbon into the atmosphere during the monitoring period.	The project has avoided the release of 26,790,092 tons of carbon to the atmosphere during its development time.
9)	13.3	13.3. Number of events to enhance systemic and individual capacities to implement adaptation, mitigation and technology transfer activities and development measures.		More than 77 workshops were held on topics related to conservation, protection of concessions, use of mobile applications, sustainable economic activities, among others.	More than 77 capacity-building events to support the implementation of adaptation and mitigation activities.
10)	15.1	15.1.1 Forest area as a proportion of total land area	As part of the different activities implemented by the project, the BAM Science Program carries out biodiversity assessment and monitoring expeditions within the project area in order to evaluate the value and ecological importance of the brazil nut ecosystems.	The project has conserved 628,999.11 hectares of lowland tropical rainforest, including its biodiversity, preventing the loss of 18,810.3 hectares during the monitoring period.	628,865.58 hectares of Lowland Tropical Rainforest have been conserved, avoiding the loss of 18,810.3 hectares during the current monitoring period.
11)	15.5	15.5.1 Number of species favored by the project, with some degree of threat.		El proyecto ha garantizado mantener las especies monitoreadas catalogadas con algún grado de amenaza como las aves Caique de cabeza naranja (*Pionites leucogaster*). Mono aullador (*Alouatta seniculus*) (*Tapirus terrestres*) y florales como la Castaña (*Bertholletia excelsa*).	The Brazil nut (*Bertholletia excelsa*) is one of the symbols of forest protection within the project, being a species listed as Vulnerable due to high rates of illegal logging. Since the beginning of the project in 2010, the forests where this species is found have been actively protected. As of 2022, with the start of the validation process of the CCB standard, specific activities have been established to protect the other species monitored and identified with some degree of vulnerability.

2.2 Project Implementation Status

2.2.1 Implementation Schedule (VCS, 3.2; CCB, G1.9)

The implementation schedule of the project activities for the accreditation period is presented in Section 2.1.19 of the Project Document (PD). To date, no changes to this schedule have been considered.

2.2.2 Baseline Reassessment (VCS, 3.2.6, 3.2.7)

Did the project undergo baseline reassessment during the monitoring period?

☒ Yes ☐ No

During this monitoring period, the project has undergone a baseline reassessment for the years 2021 to 2023, as well as other necessary updates within the Project Description Document (PDD). These updates reflect the current status of the project and ensure its compliance with the new program requirements in the carbon project integrity framework.

For this verification, the project has revalidated its baseline by applying the latest version of the VM0007 REDD+ Methodology Framework (REDD+MF), v1.8, selecting the applicable modules and tools, which are justified in section 3.1.2 of the PDD. The main changes of this revalidation are presented in the Climate section of the PDD, which includes updates related to the reallocation of new spatial boundaries, identification of emission factors, among others.

The project also complies with the requirements of the CCB standard, including monitoring frequencies and applicability to the Climate, Community and Biodiversity components, thus ensuring a comprehensive and updated approach to project management.

2.2.3 Methodology Deviations (VCS, 3.20)

The project includes methodological deviations that do not compromise the conservative approach to quantifying GHG emission reductions. These deviations are related to modifications in the measurement criteria and procedures established in the VM0007 and VMD0015 methodologies, without generating negative impacts on the results. These are described below.

2.2.3.1 Certificación Forest Stewardship Council (FSC) for monitoring of degradation due to selective logging

In accordance with module VMD0015 (M-REDD) to consider selective logging areas within the quantification, without considering their emissions as de minimis, logging can only be carried out within forest management areas that have and maintain a Forest Stewardship Council (FSC) certificate during the years in which selective logging is carried out.

Although the project's Brazil Nut concessions do not have FSC certification, they do adopt practices in line with FSC requirements, ensuring sustainable forest management in selective logging activities. The following is a justification of how these concessions comply with the

principles of conservation and responsible management, supporting their commitment to sustainability:

- **Selective logging and minimization of emissions:** Although emissions from logging do not fall under de minimis, strict criteria are applied to ensure that operations are conservative and do not adversely affect carbon pools. The project does not consider net emissions reductions from concessions where legal logging is carried out, in accordance with the principle of conservatism, thus minimizing climate impact. To this end, concessions with selective logging permits by year of execution are rigorously identified together with the administrative entity that approves the permits.
- **Legal timber harvesting**: Concessionaires are authorized to carry out legal selective logging, always in accordance with the levels and methods established by Peruvian legislation. This logging is carried out in a controlled manner through a Complementary Management Plan submitted to the Forestry Authority, ensuring that only the permitted volume and species are harvested once every 20 years in a 250-hectare logging plot. This process includes the DEMA, with a maximum intensity of 100 m^3/year per concession, or the PMFI, with a limit of 5 m^3/ha, complying with all sustainability regulations. In both scenarios it must be considered that the cutting plot (CP) cannot be more than 250 ha/year (it will be influenced by the size of the concession, since for small concessions they can only do one CP and will have to wait 20 years to return to the CP), for example a 500 ha concession can do 2 CP and then wait 20 years.
- **Preservation of forest structure**: During selective logging, concession holders strictly comply with regulations requiring a minimum diameter of 30 cm DBH for felled trees, and only the tree trunk is used, while the crown and other residues remain in the forest, without burning. These practices ensure the conservation of the forest structure and avoid significant alteration of the forest cover. Legal logging activities are limited to selective harvesting of forest individuals, which does not imply a change in forest land use.
- **Obstacles to FSC certification**: FSC certification, although desirable, is not feasible for small concessionaires due to economic and financial constraints. Lack of access to competitive markets, certification costs and the limited capacity of small concessions make it difficult to obtain this certification. Studies such as that of GIZ (2018) confirm that certification is more accessible to large timber companies, which limits its adoption by Brazil Nut concessions, which do not have a timber harvesting focus. In Peru, there are only 13 certified concessions, all with significantly larger areas than Brazil nut concessions. In Madre de Dios, the FSC-certified concessions have areas exceeding 43,812 ha, while the project concessions are smaller.
- **Commitment to sustainable forest management**: Although the concessionaires do not harvest timber on a regular basis and it is not their primary focus, given that it is Brazil nut harvesting, they strictly follow the sustainable forest management regulations established by the national authorities. These regulations require compliance with conservation and sustainability measures, ensuring that legal logging activities are sporadic (once every 20 years on 250 ha) and do not alter land use or compromise the sustainability of the forest ecosystem.

Thus, although the Brazil nut concessions do not have FSC certification, they implement sustainable practices that align with the principles of conservation and responsible forest management, ensuring the protection of the forest and compliance with current environmental regulations.

In summary, the net emission reductions generated in concessions where legal logging has taken place are deducted from the total climate contribution of the project during the assessment period. This means that emission reductions and VCUs (Verified Carbon Units) generated by project

implementation are not allocated to the project. This approach has been verified several times under the standard, demonstrating its conservative nature.

In addition, given that the project does not account for emission reductions due to degradation, and in compliance with the principle of conservatism, concessions where legal logging is carried out in the year in which it is permitted are excluded. Although degradation activity is not accounted for, the project constantly monitors degradation caused by both legal and illegal logging, e.g. illegal logging through a Participatory Rural Appraisal (PRA), which is in line with the criteria of the VMD0015 tool.

This approach also does not alter the assessment of non-permanence risk, as concessionaires that carry out selective logging remain part of the project. As mentioned above, logging occurs sporadically and under legal regulations, while concessionaires continue to receive training and benefits from the project. Therefore, the level of protection and land use remains unchanged, which ensures that the risk of non-permanence does not increase.

2.2.3.2 Estimation of carbon stock changes per stratum in the PA

Since the project has been decided to align with the official Forest Emission Reference Level information provided by MINAM, no plots have been established within the project area to determine emission factors for both forest cover and post-deforestation cover. Instead, information from scientifically supported secondary sources, either published by MINAM or in scientific journals, has been used. The project analysis prioritized the selection of data under a TIER 1 approach, adopting a conservative approach and ensuring a statistical analysis of uncertainty.

Carbon stocks in the compartments included for the project's REDD+ activity (above and below ground biomass) estimated according to the CP-AB module. Litter, organic carbon soil and dead wood pools were conservatively excluded, as allowed by the methodology. The harvested wood product pool is not applicable as no forest management activities related to logging and sawmilling are planned for the project.

Forest carbon values were extracted from literature sources, which involved documents prepared by national entities with data from Peru's National Forest and Wildlife Inventory (INFFS); incorporated within Peru's 2022 Forest Reference Emission Levels - NREF submitted to the UNFCCC, as well as institutional studies conducted for the study area. Details on AGB (*CAB_pre,i*) and BGB (*CBB_pre,*i) carbon stocks and carbon data corresponding to post deforestation use (*CAB_post,i; CBB_post,i*) are summarized as follows

Estimation of carbon content in above and belowground biomass

The forest stratum that makes up the entire project is known as Lowland Rainforest (SB), the largest ecozone in the Peruvian Amazon region, extending in the eastern part of Peru in the lowlands of the Amazon basin, composed of altitudinal ranges from 100 masl to 500 masl, its vegetation is composed predominantly by a wide wealth of forest species with the presence of trees that can reach up to 45 meters in height with broad and leafy canopies.

The data obtained from the emission factor for the aerial and subway biomass reservoirs included in the Peruvian Reference Forest Emission Level - NREF (2022), obtain their information mainly from the INFFS, Its sampling design consists of a non-aligned systematic grid stratified by ecozones (for the Seva Húmeda de Tierras Bajas-SB project), evaluating a total of 221 plots,

collecting available information on trees, palms, live vines, standing dead trees, sample wood and leaf litter (the latter three are conservatively excluded from the project).

The sample unit design consists of a group of seven rectangular subunits distributed in an "L" shape, each sample unit has an area of 0.7 ha and each subunit has an area of 0.1 ha, comprising two register units (RU), in order to identify errors, inconsistencies or outliers that may affect the results of the biomass estimates and their uncertainties. The quality control in the databases was applied at the individual level and at the MU level for the INFFS (See *4_Calculos Carbono\NREF (2021*)

Aboveground biomass (AGB) of individuals in each plot was estimated using allometric models developed in pantropical forests for tree species (Chave et al. 2014), palms (Goodman et al. 2013) and lianas (Schnitzer et al. 2006). In the belowground biomass (BGB) carbon pool, stem/root models that are a function of AGB were used for the estimation of tree (Mokany et al. 2006) and palm (Cairns et al. 1997) root biomass. This information was represented per unit area to one hectare, thus determining the tons of carbon equivalent using the parameters promoted by the IPCC. This value is shown in Table 4.

Table 4 Carbon stocks considered for the calculation of the baseline scenario (pre-deforestation)

Forest stratum: Lowland Rainforest				
Parameter	**Carbon pool**	**Mean Value (tCO2e/ha)**	**CI (95%)**	**Source**
$C_{AB.\ pre,i}$	Aboveground carbon	427.08	15.21	Peruvian Forest Reference Emissions Level [12]
$C_{BB.\ pre,i}$	Belowground biomass	195.44	6.39	
	Total	**622.52**		

Post-deforestation land uses were according to the historical land use matrix will refer to post-deforestation land uses initiated during the historical reference period. It is intuited that a historical combination of post-deforestation land uses is representative of future changes. These are dominated in a deforestation event towards grassland, agricultural crops or settlements/mining. These strata take a carbon stock value taking into account secondary sources. Regarding the carbon stocks considered for the calculation in grasslands and croplands, we consider what is reported by Cuellar Bautista, Salazar Hinostroza and Fernandez Ruiz, (2016) [13] in the Peruvian Amazon taking into account the altitude, precipitation and temperature conditions which are similar to those present in the project area.

In the case of settlements, the results by subcategory of the RAGEI, 2016[14] are taken into account according to the reported land converted to this land use. The emission factor used to estimate GHG emissions in the living biomass reservoir was 10 tms/ha, a value considered in the 2006 IPCC guidelines, secondary information was used, from studies conducted in Peru with estimates

[12] https://redd.unfccc.int/media/nref_peru_281122_final__2_.pdf

[13] Repositorio Institucional INIA: Dinámica del carbono almacenado en los diferentes sistemas de uso de la tierra en el Perú

[14] Reporte Anual de Gases de Efecto Invernadero del sector Uso de la Tierra, Cambio de Uso de la Tierra y Silvicultura

of carbon stocks in similar land uses to know the percentage of aboveground biomass and belowground biomass with respect to the total. In this way, the carbon stocks for the calculation of post-deforestation use are presented in Tabla 5.

Tabla 5 Carbon stocks considered for the calculation of post deforestation use

Grasslands				
Parameter	**Carbon pool**	**Mean Value (tCO2e/ha)**	**CI (95%)**	**Source**
$C_{AB.\ pre.\ i}$	Aboveground carbon	5.81	1.90	Cuellar Bautista. Salazar Hinostroza y Fernandez Ruiz. 2016
$C_{BB.\ pre.\ i}$	Belowground biomass	17.45	0.88	
	Total	**13.20**		
Croplands				
Parameter	**Carbon pool**	**Mean Value (tCO2e/ha)**	**CI (95%)**	**Source**
$C_{AB.\ pre.\ i}$	Aboveground carbon	17.97	1.75	Cuellar Bautista. Salazar Hinostroza y Fernandez Ruiz. 2016
$C_{BB.\ pre.\ i}$	Belowground biomass	6.53	0.17	
	Total	**24.49**		
Settlements other than mining				
Parameter	**Carbon pool**	**Mean Value (tCO2e/ha)**	**CI (95%)**	**Source**
$C_{AB.\ pre.\ i}$	Aboveground carbon	14.30	5.9	RAGEI. 2016
$C_{BB.\ pre.\ i}$	Belowground biomass	2.93		
	Total	**17.23**	**5.9**	
Mining				
Parameter	**Carbon pool**	**Mean Value (tCO2e/ha)**	**CI (95%)**	**Source**
$C_{AB.\ pre.\ i}$	Aboveground carbon	5.00	0.69	Asner et al. 2014
$C_{BB.\ pre.\ i}$	Belowground biomass	2.04	0.69	
	Total	**7.04**		
Other land				
Parameter	**Carbon pool**	**Mean Value (tCO2e/ha)**	**CI (95%)**	**Source**
$C_{AB.\ pre.\ i}$	Aboveground carbon	5.00	0.69	Asner et al. 2014

$C_{BB.\ pre.\ i}$	Belowground biomass	2.04	0.69	
	Total	**7.04**		

2.2.4 Minor Changes to Project Description (CCB Program Rules, 3.5.6)

The project does not contemplate changes in the community or biodiversity with respect to what was presented in the last validated PDD project description document.

2.2.5 Project Description Deviations (VCS, 3.21; CCB Program Rules, 3.5.7 – 3.5.10)

No deviations from the project description were considered for this monitoring period. However, taking into account that the project is of a clustered type, in 2021, new areas of chestnut concessions have been incorporated with the conservation commitment.

2.2.6 Grouped Projects (VCS, 3.6; CCB, G1.13-G1.15, G4.1)

The Brazil Nut Concession REDD+ project is a grouped project that seeks to reduce deforestation produced mainly by agricultural and mining activities, protecting the Amazonian forest areas present in the Tahuamanu, Tambopata and Manu region of the department of Madre de Dios and at the same time conserving the carbon stocks associated with this type of forest. The applicability conditions to consider a concession partner eligible are presented in session 2.2.6.3.

2.2.6.1 New Project Areas and Communities (VCS, 3.6; CCB, G1.13)

The project area and therefore the project partners remain the same as presented in the project description document, without any additions.

2.2.6.2 Removed Project Areas and Communities (CCB, G1.13

The project area and therefore the project partners remain the same as presented in the project description document, without any reduction.

2.2.6.3 Eligibility Criteria for Grouped Projects (VCS, 3.6.14; CCB, G1.14)

Since this is a grouped project, new concessions with similar characteristics may be incorporated into the project over time. The basic requirement to participate in the project is to be a forest concessionaire with clear tenure, both for non-timber forest products (for Brazil nut) and as a forest producer in the Madre de Dios region.

Of the universe of concessions (more than 1,500 concessions, the concessions granted in the modality of “Forest Products other than timber” (PFDM; approximately 1,200), 793 have been formally incorporated into the project to date, and may continue to increase. The objective is to incorporate new concessions (concessionaire families) to the project in order to generate the greatest possible impact on the community and the protection of the forest. The following criteria were evaluated in order to accept a new member of the project:

● Eligible areas must be covered by forest at least 10 years prior to the project start date. For this purpose, the definition of forest is the one adopted by Peru before the United Nations Framework Convention Against Climate Change (UNFCCC).

● Knowledge and acceptance of the conditions of the long-term agreement between FEPROCAMD and BAM.

● Signing the contract with FEPROCAMD to participate in the project and manage carbon results.

● Not having signed any other agreement involving the commercialization of GHG emission reductions originating in the area to be incorporated into the project.

● Be the holder of a current forest concession contract with the Peruvian State and be up to date with the official requirements for its management (i.e. Forest Management Plan, among others).

● Make a commitment to participate in the implementation of project activities and make every effort to ensure the permanence of emission reduction results.

● Comply with the applicability criteria of the VCS *VM0007* methodology for REDD+ activities in unplanned deforestation projects.

● Project activities for new instances should be able to be framed within one of the defined project activities.

The new instances will be validated in the framework of one of the future verifications, provided that they have sufficient information to demonstrate compliance with the eligibility criteria mentioned above.

2.2.6.4 Risk Mitigation for Grouped Projects (VCS, 3.6; CCB, G1.15)

Since the project has not included new instances within the project area, this session is not evaluated. However, the project promotes and executes the necessary actions designed to mitigate project risk, as presented in session 2.1.20 of the Project Design Document (PDD).

2.2.6.5 Project Zone Map (CCB, G1.13)

The Project Area (PA) is made up of a set of non-timber concessions, specifically Brazil nut (BN) concessions established in the Forestry and Wildlife Law, which were granted by the Peruvian government in 2002, following the recognition and regulation of this activity by the Forestry and Wildlife Law of 2000. The boundaries are defined based on the legal limits of each concession, which are present in the concession contracts for forest management granted by INRENA or whoever is in charge of the concession.

These concessions are scattered within the Project Zone, where most of the chestnut concessions are located, mainly on both sides of Section 3 of the Inter-Oceanic Highway, mostly on the left side. At the beginning of the project, which is of a grouped type, 377 concessions were included, but in the first three years of operations the number increased to 793 members, with the possibility of adding more concessions that meet the conditions of the project.

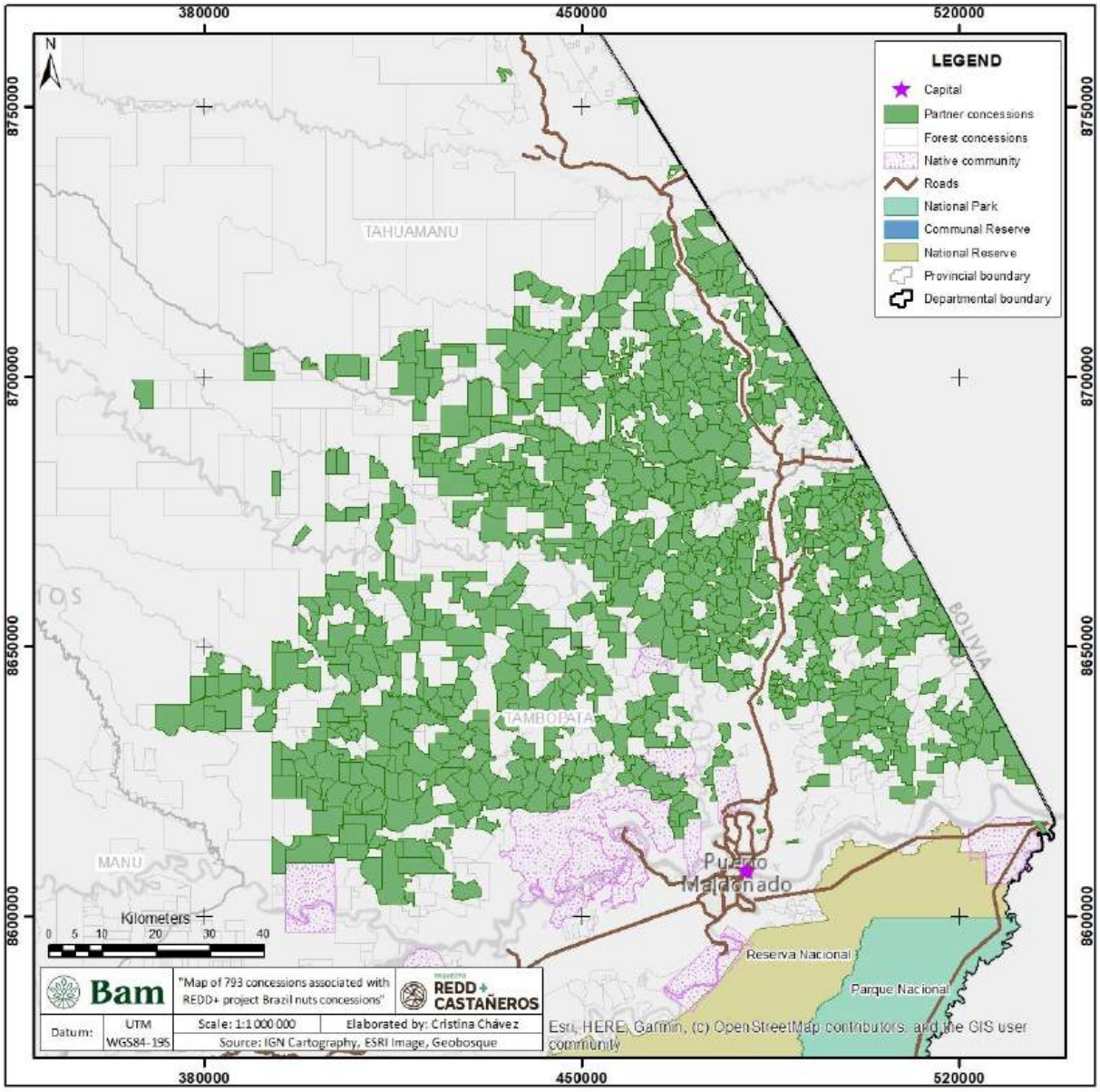

Figura 3 Map of partner concessions until 2023
Source: Own elaboration (2024)

These concessions share similar characteristics because they belong to the same ecosystem, mainly oriented to Brazil nut (Bertholletia excelsa) production. However, due to the large size of the area, each concession has its own particular topography, such as intermittent streams, low areas and slopes, reflecting a constantly changing landscape. Biodiversity in these concessions is key, as they are home to a wide variety of flora and fauna species, some of which are endangered, and function as biological corridors that connect nearby nature reserves, facilitating the movement of species such as jaguars, tapirs, and migratory birds.

At the socioeconomic level, Brazil nut concessions are managed by local communities, who have developed a deep understanding of ecological cycles and the importance of sustainable practices. Brazil nut harvesting is a fundamental activity for the family economy, aligned with forest conservation, as it does not require the felling of trees. However, these concessions face threats such as illegal deforestation, mining and agricultural expansion, putting both the ecosystem and the livelihoods of the communities at risk. Therefore, the management of these areas seeks to strengthen community governance and promote certifications such as Fair Trade and organic certification to ensure long-term sustainability.

2.2.6.6 Changes to Management (CCB, G4.1)

No changes were considered in the management structure, roles and/or responsibilities of the project, other than the appropriate changes of representative persons, in accordance with the management period defined by the Federation and Management. The complete description of the organizational structure of the project and the responsibilities of each participating entity can be found in Section 2.4.1 of the Project Document (PDD).

2.2.7 Risks to the Project (CCB, G1.10)

Project risks, their potential impact on climate, community and biodiversity benefits, as well as mitigation strategies, were addressed in Section 2.1.20 of the Project Document (PDD). The main actions implemented during the monitoring period to reduce these risks are presented below:

1. Strengthening the Integrated Monitoring, Control and Surveillance System: Teams were trained in spatial, technical and legal analysis, which allowed us to identify and mitigate the main deforestation threats, working closely with the competent authorities. Daily monitoring of early warnings helped detect areas with possible mining impacts, facilitating periodic expeditions by the technical team to verify deforestation alerts, thus supporting the necessary legal and regulatory actions.

2..Governance Support: Ongoing support was provided to adequately structure the Federation of Concession Holders, ensuring effective representation of Brazil nut producers and strengthening decision-making within the project.

3. Communication Activities: Workshops, community events and dissemination materials were conducted to inform partners about the objectives, benefits, commitments and challenges of the REDD+ project. Clear and frequent communication ensured greater partner understanding and commitment.

4. Productive Activities Proposal: Pilot agroforestry plans and other agricultural activities adapted to local needs were presented, with the objective of improving the income and livelihoods of participating families.

5. Promotion of Sustainable Alternatives: Sustainable alternatives were promoted, such as the certification of organic Brazil nut production, which contributes to strengthening non-timber forest activities. In addition, the direct distribution of economic benefits derived from the commercialization of VCUs will contribute significantly to improving the economic conditions of beneficiary families.

These actions have mitigated the risks identified and strengthened the positive impact of the project on the communities and the natural environment.

2.2.8 Benefit Permanence (CCB, G1.11)

The project ensured the permanence of climate, community and biodiversity benefits for the monitoring period through the following actions.

Climate Benefits

- The project implemented activities to mitigate emissions caused by deforestation and forest degradation, promoting sustainable forest management and biodiversity preservation. These actions included training on fire prevention and control, involving different stakeholders.
- Mitigation results were quantified through project validation and verification, complying with the necessary certifications. Once the carbon credits derived from emission reductions were marketed, the results were socialized with the parties involved.

Community Benefits:

- The project actively involved concessionaires and local communities, allowing them to participate in monitoring processes and development of productive pilots. Through a participatory and economically viable approach, the project sought to ensure that local families perceived a real value in the conservation and sustainable management of the forest.
- Through the complaints, claims and suggestions mechanism (MAQR) and ongoing dialogue with the communities, the project evolved favorably, allowing for feedback and collaboration from stakeholders to meet conservation and sustainable development objectives.
- Capacity building was promoted in areas such as sustainable forest management, fire control, production chains, forest monitoring, and technical support for community leaders and authorities, ensuring that the positive impacts of the project will last over time.

Biodiversity Benefits:

- The project promoted knowledge and awareness of the biodiversity present in the area through the Science Program, in collaboration with prestigious scientific organizations. This initiative provided an understanding of the ecological value of the ecosystems of the Peruvian Amazon, including the diversity of flora and fauna and the importance of conserving vulnerable species.
- The monitoring activities made it possible to evaluate and highlight the value of the ecosystems in the project area, promoting protection beyond their geographic limits.

2.3 Stakeholder Engagement & Safeguards

2.3.1 Stakeholder Identification (VCS, 3.18, 3.19; CCB, G1.5)

The list of stakeholders identified during validation has not been modified.

2.3.2 Stakeholder Access to Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

The complete Project documentation, including the Project Description Document (PDD) and Monitoring Reports (MR) has been made available to all project partners, community leaders and other stakeholders who request them through any of the means of communication that the project makes available, including the formal grievance mechanism (MAQR), in person at the office or through digital media (Mail, WhatsApp). In addition, stakeholders can access full documents in the Verra registry and through our website: www.bosques-amazonicos.com/nosotros

2.3.3 Dissemination of Summary Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

Summaries of project documents and monitoring results have been periodically shared with the FEPROCAMD and Brazil nut partners through informative meetings/workshops held in the different localities and at the project offices, using graphic and audiovisual material, as will be seen in the following sections.

In addition, the project complemented communication on relevant project matters through the dissemination of newsletters (see: 17_Partes interesadas/02_Material informativo) and other graphic communication tools to concessionaires (which are delivered, for example, at decentralized workshops and benefit delivery meetings) and through social networks such as Facebook and WhatsApp. Finally, information on the project, including its results, has also been published in summary form on the BAM blog: https://www.bosques-amazonicos.com/blog/.

Figura 4 Boletín informativo 2022

2.3.4 Informational Meetings with Stakeholders (VCS, 3.18, 3.19; CCB, G3.1

In coordination with FEPROCAMD and the leaders of the various Brazil nut associations, informative meetings were organized and disseminated, face-to-face and using the project's various communication channels (Whatsapp, Facebook). Project briefings were held during benefit delivery dates at the project offices in Puerto Maldonado and at decentralized workshops periodically during each year. The table below summarizes the main meetings held during the period being verified:

Table 6 Working meetings held with stakeholders

Date	Meeting
29/05/2021	1st sequence of workshops: " Commitments and responsibilities REDD+ project"
16/06/2021	1st sequence of workshops: " Commitments and responsibilities REDD+ project"
02/07/2021	1st sequence of workshops: " Commitments and responsibilities REDD+ project"
08/07/2021	1st sequence of workshops: " Commitments and responsibilities REDD+ project"

Date	Meeting
23/07/2021	1st sequence of workshops: " Commitments and responsibilities REDD+ project"
16/07/2021	1st sequence of workshops: " Commitments and responsibilities REDD+ project"
12/08/2021	1st sequence of workshops: " Commitments and responsibilities REDD+ project"
20/08/2021	2nd sequence of workshops "Let's watch over our forests"
26/08/2021	2nd sequence of workshops "Let's watch over our forests"
10/09/2021	2nd sequence of workshops "Let's watch over our forests"
17/09/2021	2nd sequence of workshops "Let's watch over our forests"
01/10/2021	2nd sequence of workshops "Let's watch over our forests"
08/10/2021	2nd sequence of workshops "Let's watch over our forests"
15/10/2021	2nd sequence of workshops "Let's watch over our forests"
29/10/2021	2nd sequence of workshops "Let's watch over our forests"
19/11/2021	3rd Sequence of Workshops "Developing Project Proposals"
26/11/2021	3rd Sequence of Workshops "Developing Project Proposals"
03/12/2021	3rd Sequence of Workshops "Developing Project Proposals"
16/07/2021	Second delivery of economic benefits to members of the REDD Brazil nut concessions project
19/07/2021	Second delivery of economic benefits to members of the REDD Brazil nut concessions project
19/07/2021	Second delivery of economic benefits to members of the REDD Brazil nut concessions project
20/07/2021	Second delivery of economic benefits to members of the REDD Brazil nut concessions project
21/07/2021	Second delivery of economic benefits to members of the REDD Brazil nut concessions project
20/12/2021	Third delivery of economic benefits to members of the REDD Brazil nut concessions project
21/12/2021	Third delivery of economic benefits to members of the REDD Brazil nut concessions project
22/12/2021	Third delivery of economic benefits to members of the REDD Brazil nut concessions project
06/05/2022	3rd Sequence of Workshops "Developing Project Proposals" - Second Phase
13/05/2022	3rd Sequence of Workshops "Developing Project Proposals" - Second Phase
03/06/2022	3rd Sequence of Workshops "Developing Project Proposals" - Second Phase
10/06/2022	3rd Sequence of Workshops "Developing Project Proposals" - Second Phase
17/06/2022	3rd Sequence of Workshops "Developing Project Proposals" - Second Phase
23/06/2022	3rd Sequence of Workshops "Developing Project Proposals" - Second Phase
15/07/2022	3rd Sequence of Workshops "Developing Project Proposals" - Second Phase
29/09/2022	4th sequence of workshops "My commitment to the REDD Project".
13/10/2022	4th sequence of workshops "My commitment to the REDD Project".
01/04/2022	Fourth delivery of economic benefits to members of the REDD Brazil nut concessions project
04/04/2022	Fourth delivery of economic benefits to members of the REDD Brazil nut concessions project
05/04/2022	Fourth delivery of economic benefits to members of the REDD Brazil nut concessions project
19/05/2022	Fifth delivery of economic benefits to members of the REDD Brazil nut concessions project
20/05/2022	Fifth delivery of economic benefits to members of the REDD Brazil nut concessions project
23/05/2022	Fifth delivery of economic benefits to members of the REDD Brazil nut concessions project
25/07/2022	Sixth delivery of economic benefits to members of the REDD Brazil nut concessions project
23/09/2022	Workshop "My commitment with the project" in Alegría, with 54 participants (32 men and 22 women)
29/09/2022	Workshop "My commitment with the project" in Mavila, with 29 participants (17 men and 10 women)
13/10/2022	Workshop "My commitment with the project" in Alerta, with 41 participants (17 men and 24 women)
21/10/2022	Workshop "My commitment with the project" in Planchón, with 33 participants (21 men and 12 women)

Date	Meeting
28/10/2022	Workshop "My commitment with the project" in Pariamanu, with 44 participants (19 men and 25 women)
13/03/2023	First delivery of economic benefits 2023 to members of the REDD Brazil nut concessions project
17/04/2023	Second delivery of economic benefits 2023 to members of the REDD Brazil nut concessions project
22/04/2023	Concessionaires' celebration event
03/05/2023	Meeting for the implementation of education and health initiatives
26/05/2023	Workshop "My responsibility as project partner" in Alegría
07/07/2023	Workshop" My responsibility as project partner" in Boca Unión
26/07/2023	Third delivery of economic benefits 2023 to members of the REDD Brazil nut concessions project
25/08/2023	Workshop "My responsibility as project partner" in Mavila
29/09/2023	Workshop "My responsibility as project partner" in Alerta
22/12/2023	Forth delivery of economic benefits 2023 to members of the REDD Brazil nut concessions project

Some examples of the announcements posted on the project's social networks are presented below, as well as photographs of the meetings and workshops. See more at: 17_Stakeholders/01_ Socialization. Additionally, more details about each informative workshop can be found in: 06_Comunidad/02_Participacion/Matriz talleres y capacitaciones REDD+ BNC.

La Novia 2021 Workshop

Call for economic benefits 2022

Delivery of economic benefits December 2021

Call for Mavila 2022 workshop

Mavila 2023 workshop

Entrega de beneficios 2023

Figura 5 Reuniones generada en el periodo de monitoreo

2.3.5 Risks from the Project and No Net Harm (VCS, 3.18, 3.19)

During the verification period, no risk to the environment or ecosystem health was identified because of the activities implemented by the project.

Nor was any risk generated that affects the property rights of stakeholders, or physical or economic displacement. In relation to the possible risks to the well-being and socioeconomic conditions of the stakeholders identified in the PDD, the following table describes the actions implemented.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Risks to stakeholders' wellbeing	Changes in livelihoods	Project partners who additionally carry out unsustainable or illegal economic activities in their concessions could their livelihoods affected in the short term.	The project promoted sustainable alternatives that strengthened the Brazil nut activity and other non-timber forest harvesting activities that allow concessionaires to maintain or improve their family income. In addition, the direct distribution of economic benefits from the commercialization of VCUs improved family economic conditions.
Risks to stakeholder participation	Exclusion of the older population	Less participation in the activities and benefits of the project by the elderly population due to barriers of mobility, technology, health, among others	Activities were carried out in the different population centers where the concessionaires live to facilitate the participation of all and reduce transportation times. Likewise, the accompaniment of family members and children was encouraged to provide support to older concessionaires and the participation of women was prioritized.
Working conditions impacts	Exposure to physical risks and violence due to monitoring, control and surveillance activities in the field	The project team and concessionaires carrying out activities for the protection of the concessions could be physically impacted by natural conditions (sun, presence of animals) and violent actions by external actors.	Interventions were planned together with authorities for entering risk areas, use of drones, identification of nearby health centers, appropriate clothing for field activities (hat, raincoat, boots, glasses, etc.), among others.

2.3.6 Community Costs, Risks, and Benefits (CCB, G3.2)

During the verification period, information on the potential costs, risks and benefits has been constantly shared with FEPROCAMD members and Brazil nut partners in various ways, allowing them to make informed decisions regarding their participation in the project.

The annual planning of activities was carried out jointly with the FEPROCAMD (see: *6_Comunidad/04_Impacto/03_FEPROCAMD*), who in turn socialized what was agreed with the rest of the Brazil nut concession holders, and also collected any queries or suggestions in this regard. The information provided was reinforced and updated during the decentralized information workshops held periodically, the benefit delivery workshops and the dissemination of information materials through the media used by the project (see Section 2.3.4).

2.3.7 Information to Stakeholder on Verification Process (VCS, 3.18.6, 3.19; CCB, G3.3)

Communication between BAM and FEPROCAMD is permanent and fluid. Relevant information about the project and the current verification process was shared informally (decentralized meetings, calls, etc.) and formally through letters. Information shared includes Validation and Verification Processes (with external auditors and VERRA)

2.3.8 Site Visit Information and Opportunities to Communicate with Auditor (VCS, 3.18.6, 3.19; CCB, G3.3)

During each verification process, BAM ensures that the auditor's site visit schedule is properly announced. Communication has taken place directly with community representatives and other stakeholders through informal communication channels (e.g. phone calls, WhatsApp, informal meetings) maintained by the project team (community relations area) and formally by sending an information letter addressed to their representatives. In this way, the communities are informed about the audit processes and their possible participation in interviews/meetings with the auditor.

2.3.9 Stakeholder Consultation (VCS, 3.18; CCB, G3.4)

Ongoing consultation	During the monitoring period, participatory planning meetings were held with representatives of the Brazil nut concessionaires (see 6_Comunidades/04_Impacto/03_FEPROCAMD). In addition, informative workshops were held throughout the year in different locations and at the project office with the participation of most of the project's partner concessionaires, who expressed their suggestions, doubts and recommendations (see 06_Comunidad/02_Participacion). Community evaluations were carried out periodically, including interviews and surveys with the Brazil nut partners to gather their interests and needs for the design/implementation of the activities.
Date(s) of stakeholder consultation	- Planning meetings with FEPROCAMD: 12-05-2022, 28-06-2022, 28-06-2022, 02-07-2022, 30-03-2023, 03-05-2023, 08-05-2023 (see: 6_Comunidad/04_Impacto/03_FEPROCAMD). - Informative workshops: see Section 2.3.4 - Community Assessments conducted during 2021, 2022 and 2023.
Communication of monitored results	The results of the project were communicated during all the meetings held with the partner concessionaires and through informative material disseminated in person and through the project's media. (WhatsApp, Facebook). For more details see: 17_Partes interesadas/02_Material informativo. The results have also been shared in: www.bosques-amazonicos.com/blog

Consultation records	The results and main conclusions of the consultation processes with FEPROCAMD are recorded in the minutes of its meetings and assemblies. See: 6_Comunidad/04_Impacto/03_FEPROCAMD/Anexos. In addition, during the informative workshops with the concessionaires, their suggestions were recorded on forms (see: 6_Comunidad/04_Impacto/02_Economía y medios de vida/2021/Sugerencias).. Community assessments results were recorded on the reports elaborated by the project team. See: 14_Reporte de Monitoreo\02_Comunidad.
Stakeholder input	All the contributions of FEPROCAMD and the rest of the Brazil nut families were duly taken into account in the planning and budgeting of the project activities, which were approved and socialized. With their input, three pilot projects were defined to diversify the economic income of the Brazil nut families and a university scholarship program was also designed and implemented, which currently benefits 3 children of Brazil nut concessionaires.

2.3.10 Continued Consultation and Adaptive Management (VCS, 3.18; CCB, G3.4)

Project activities are adjusted in response to ongoing evaluation and feedback. As mentioned above, the parties build and agree on the planning of activities and budget in a participatory manner, making a prior evaluation of the results obtained and the progress of the project.

Another strategy for the adaptative management has been the permanent implementation of decentralized workshops (see Section 2.3.4). In these spaces the project team encourages the community to actively share their needs and proposals for activities to be carried out or improved.

Other community participation mechanisms are also used (such as a suggestion box, surveys, and a mechanism for suggestions and complaints) to generate almost permanent feedback that allows for continuous improvement processes. These communication and consultation processes have influenced the optimization of strategies and activities prioritized by the project, such as the Monitoring, Control and Surveillance system, pilot projects to diversify the income of concessionaires with sustainable activities in the forest, educational initiatives, and determining the benefit distribution model, among other issues.

Table 7 Comments generated and resolution actions

Summary of comments received	Actions taken
During the meetings held in 2021 suggestions were provided by the concessionaires to develop productive pilots	3 pilot projects were implemented:

related to agroforestry, reforestation, organic certification and technical assistance (see: 06_Comunidad/04_Impacto/02_Economia y medios de vida/2021).	- Brazil nut reforestation and agroforestry systems. - Organic certification of Brazil nuts. - Palm fruit harvesting
In October 2022, surveys and interviews were conducted with 125 Brazil nut partners, who commented on the need for the project to support educational issues, including covering the costs of housing, food and maintenance for the children/grandchildren who are pursuing higher education away from their family homes. (see: 06_Comunidad/02_Participacion/2022).	In 2023 the first edition of the scholarship program of the project was launched, benefiting 3 sons of Brazil nut partners.

2.3.11 Stakeholder Consultation Channels (CCB, G3.5)

All participatory and consultation processes have been carried out directly with the project partner concessionaires, their representatives and relevant authorities, considering their internal channels and processes. The project recognizes the concession holder representatives duly registered in the FEPROCAMD board of directors (see: *6_Comunidad/4_Impacto/3_FEPROCAMD*), but this does not prevent direct communication with the concession holders through decentralized workshops and personal visits according to the needs of the project and its Brazil nut partners as can be seen in meetings implemented (see: *6_Comunidad/2_Participacion*) and in the different social surveys/evaluations carried out.

As described above, the project ensures that there is an adequate level of information exchange through planning meetings with representatives, informative workshops, as well as the dissemination of printed and digital communication material, among others.

2.3.12 Stakeholder Participation in Decision-Making and Implementation (VCS, 3.18, 3.19; CCB, G3.6)

The project has strengthened FEPROCAMD and its organizations to achieve better representation and participation of concessionaires. This can be seen in the organization's activities. (see: 6_Comunidad\04_Impacto\03_FEPROCAMD\Informe gestión FEPROCAMD 2021_2023). The meetings, workshops, training and ongoing communication described in the previous sections allowed for the effective participation of concession holders in issues such as planning, carbon credit trading and validation/verification processes.

In relation to cultural considerations, the project developed the meetings and workshops considering the schedules and work calendar of the Brazil nut community to ensure adequate participation without affecting their traditional activities. In addition, the project respects the Brazil nut institutions and their decision-making processes.

In relation to gender considerations, female concessionaires were identified as those who occupy leadership positions (see: *06_Comunidad/04_Impacto/03_FEPROCAMD*) and those with leadership potential for empowering them by increasing their participation in meetings and workshops, providing them with the necessary support and identifying their particular needs and interests. For example, in August 2023, a leadership workshop was held in which more than 9 women participated to strengthen

women's participation in the Brazil nut organizations and in the project's activities. (see: *06_Comunidad/02_Participacion/2023/Reportes/Reporte actividad 18_08_23*).

To conclude, all the information gathered by the project on the needs and interests of concessionaires can be segmented by gender to identify specific needs of the populations.

Figure 6 Leadership workshop with women's participation

2.3.13 Anti-Discrimination Assurance (VCS, 3.19; CCB, G3.7)

To ensure that no project team during any of its stages is involved in any act of discrimination or sexual harassment, BAM has a Gender Equity, Diversity and Inclusion Policy, as well as a Human Rights Policy which is socialized for strict compliance by all parties involved in BAM projects. In this regard, the project has made available its complaints and grievance mechanism that can be used by any of the stakeholders.

During the period under review, no acts of sexual harassment or discrimination were recorded through any of the project's formal or informal channels. On the other hand, women concessionaires actively participate in project activities, meetings, in FEPROCAMD and their chestnut associations as can be seen in the table below.

Table 8 Women's participation

Tipo	Total	Women	%
FEPROCAMD board	6	2	33%
Associations' presidents	14	3	21%
Association's directors	109	36	24%
Workshops participations	577	254	44%
Project partners	488	151	30%

2.3.14 Grievances (VCS, 3.18.4; CCB, G3.8)

Table 9 below shows the complaints/suggestions received through the complaints and suggestions mailbox, which is part of the mechanism for handling complaints and suggestions. Ver: *17_Partes interesadas/03_Mecanismo PQRS/Registro de atención de quejas y sugerencias.*

Table 9 Complaints and suggestions received by participants

Grievances received	Resolution and outcome
Anonymous (2021) - Provide information on the initial proposal to implement a Brazil nut processing plant and hold the project accountable.	Workshops were held in which it was explained that implementing a processing plant in the current context is not an adequate strategy due to the high costs and the existence of other plants in Puerto Maldonado. Other more efficient strategies are being evaluated to improve the conditions of the Brazil nut activity, such as organic certification and direct group sales.
Anonymous (2021) - More transparency and accountability.	Accountability meetings/workshops were held with FEPROCAMD and a summary table was presented at the benefit delivery workshops. For more detailed information, concessionaires were invited to visit the project offices.
Anonymous (2021) - Information on payment dates	Possible payment dates were established based on the sale of credits marketed in the previous year, which was communicated in meetings with the concessionaires.
Anonymous (2021) - Provide more information on the project and involve FEPROCAMD more.	Accountability meetings were held with FEPROCAMD and the planning of activities and the budget were approved in a participatory manner.
Anonymous (2021) - Fulfill commitments and accountability.	Accountability meetings/workshops were held with FEPROCAMD and a summary table was presented at the benefit delivery workshops. For more information, concessionaires were invited to visit the project offices.
Anónimo (2023) – Implement the workshops and meetings in more suitable locations	The project team identified the best locations for the decentralized workshops, taking into account that some of the workshops are held in rural settings with limited space. Emphasis is placed on planning to provide concessionaires with the best possible experience.

2.3.15 Worker Training (VCS, 3.19; CCB, G3.9)

The informative meetings and socialization workshops described in the previous sections provide a space for training partners in issues related to concession management, compliance with regulations, use of monitoring tools (applications), among other aspects relevant to sustainable forest management. In addition, as part of the productive pilots, training is provided for the sustainable use of aguaje, compliance with organic certification requirements and technical aspects for the reforestation of degraded areas in the concessions.

The community is also trained in the activities implemented by the project, such as the development of the monitoring, control and surveillance system, so that the community can become actively

involved in forest protection as part of the project and develop long-term capacities. In addition, the project team, concession partners, and FEPROCAMD participate in training in alliance with other institutions or authorities, such as OSINFOR on forestry regulations, the fire department to prevent forest fires, tax issues in the Brazil nut sector, leadership, and biodiversity monitoring with national and international institutions as part of BAM's science program. For more detail: 06_Comunicacion/02_Participacion/Matriz talleres y capacitaciones REDD+ BNC.

Training "Let's watch over our forests" 2021

Trai. in prevention and control of forest fires 2023

Training in Agroforestry Systems 2022

2.3.16 Community Employment Opportunities (VCS, 3.19.13; CCB, G3.10)

The Project has a team of qualified professionals to meet the established goals, according to the different specialties and profiles required for each of the areas. Hiring processes and labor relations comply with the Gender Equity, Inclusion and Diversity Policy established by BAM and with national labor regulations.

It is important to note that the relationship between BAM and the project's concession partners is not a labor relationship. Through the project, compliance with their rights and duties under their concession contracts is strengthened, as well as obtaining benefits through the conservation and good management of their concessions.

Currently, the project team is made up of people from Madre de Dios and other regions, of various ages, approximately 32% of whom are women. Also, in order to improve employment opportunities for future generations, a scholarship program for university studies for the project's partner brazil nut families began in 2023.

2.3.17 Occupational Safety Assessment (VCS, 3.19; CCB, G3.12)

No occupational risks other than those previously described in the PDD have been identified. In compliance with the Occupational Health and Safety Policy (ver: 6_Comunidad/05_Salud y Seguridad/Protocolo), the proposed measures have managed to control and minimize these risks, so that no serious event was recorded during the verification period. The following table summarizes the risks and their control measures.

Table 10: Occupational risk assessment

N°	Activity	Risk	Control measures	Level of risks	
				Prob.	Sever.
1	Monitoring, control and surveillance of concessions. Technical and legal support in the concessions. Development of productive projects in the concessions. Science program.	Accidents or falls during the access to concessions	Prior analysis of accessibility. Hiring of insurance. Motorcycles implemented for the type of terrain. Protection equipment. Accompaniment of experienced drivers.	MEDIUM	MEDIUM
2	Monitoring, control and surveillance of concessions.	Ergonomic risks of traveling long distances on motorcycles	Trip planning and rest stops	HIGH	LOW
3	Monitoring, control and surveillance of concessions. Technical and legal support in the concessions. Development of productive projects in the concessions. Programa de ciencia.	Acts of violence by actors involved in illegal activities	Use of drones in risky areas and support of authorities	LOW	HIGH

4	Monitoring, control and surveillance of concessions. Technical and legal support in the concessions. Development of productive projects in the concessions. Science program.	Attack, bite or sting of animals or insects in the forest.	Mapping of nearby health centers and use of field first aid kit.	LOW	HIGH
5	Monitoring, control and surveillance of concessions. Technical and legal support in the concessions. Development of productive projects in the concessions. Science program.	Accidents in the field due to unstable terrain.	Use of field first aid kit and assistance of other team members.	MEDIUM	LOW
6	Monitoring, control and surveillance of concessions. Technical and legal support in the concessions. Development of productive projects in the concessions. Science program.	Violent acts due to social protests	Previous analysis of the social and political situation and remote work.	LOW	MEDIUM
7	Monitoring, control and surveillance of concessions. Technical and legal support in the concessions. Development of productive projects in the concessions. Science program.	Exposure to existing diseases in the region such as dengue and leishmaniasis.	Well maintained sanitary facilities and access to drinking water in the office. Health monitoring of workers who go out on concessions.	MEDIUM	MEDIUM

	Office work				
8	Monitoring, control and surveillance of concessions. Technical and legal support in the concessions. Development of productive projects in the concessions. Science program.	Health harms due to prolonged exposure to the sun in field activities.	Use of special clothing for field activities, sunscreen, hat, sunglasses and camelbag.	HIGH	LOW

2.4 Management Capacity

2.4.1 Required Technical Skills (VCS, 3.19; CCB, G4.2)

The Project proponent has a team of competent professionals experienced in community development projects in the area (as evidenced in 2.4.1 of the PDD), which is responsible for project design and implementation, as well as for consolidating and submitting the monitoring report in partnership with FEPROCAMD and its respective associations.

BAM has been monitoring carbon stocks from deforestation rates and GHG emissions produced or avoided during the project. In addition, it has a team of social specialists, who have the necessary skills to involve the community and stakeholders, so the team will be able to ensure community participation, design activities and monitor socioeconomic indicators.

For the monitoring of fauna and flora, BAM has hired a team of specialists to compile and write reports with the information found in the field; preference was given to the team that prepared the PDD, which has experience in carrying out this type of activity in the area.

2.4.2 Management Team Experience (VCS, 3.19; CCB, G4.2)

BAM is a company with more than 20 years contributing to the restoration, conservation and sustainable development of the Peruvian Amazon, including the development of GHG mitigation projects, including a pioneering project for the conservation and protection of forests dominated by Peruvian chestnut. The development of these actions has led to the consolidation of a multidisciplinary technical team which is presented in session 2.4.2 of the PDD.

2.4.3 Project Management Partnerships/Team Development (VCS, 3.19; CCB, G4.2)

However, it is necessary to mention that the project has had the support of Paskay, a Peruvian consulting firm with extensive experience in the development of forestry projects registered in the carbon market, in the process of consolidating and structuring the PDD and its respective validation, elaborating some components of the monitoring reports.

Similarly, the project has generated and seeks to continue establishing cooperation agreements with other leading organizations and companies to strengthen their capacity to implement project activities. For example, with universities and scientific organizations to implement activities of the Science program (see *3_Biodiversidad\Inter-institutional cooperation agreements*). For this verification period, no organizations other than the management and development teams were required to support the project.

For this verification period, no organizations other than the management and development teams were required to support the project (see Section 2.4.1).

2.4.4 Financial Health of Implementing Organization(s) (CCB, G4.3)

Detailed information on the financial stability of the project implementing entities is presented in Section 2.4.5 of the Project Document (PDD).

2.4.5 Avoidance of Corruption and Other Unethical Behavior (VCS, 3.19; CCB, G4.3)

BAM encourages its employees and business partners to report any bribery attempts or violations of ethical standards confidentially. A system of sanctions is established for those who fail to comply with the Internal Rules of Conduct. All employees will receive and must commit to comply with the Rules, and orientation on its fundamental principles will be provided during induction activities (See *9_Gestion de Informacion\.d Política Anticorrupción y Prevención PLAFT_VF*).

The company implements policies for the prevention of money laundering and terrorist financing, based on its Corporate Governance Policy and the Prevention of Money Laundering and Terrorist Financing Regulations issued by the Superintendency of the Securities Market. Although it is not subject to regulatory supervision, the company operates following these guidelines (See *9_Gestion de Informacion\7. BAM SAC Política Sostenibilidad Corporativa*):

- Not to participate and in no case to collaborate in money laundering and financing of terrorism, having as main commitment to abide by and comply with the rules on the matter.

- Directors, managers and all company personnel are committed to comply with the PLAFT Standards through the application of the policies described in the Risk Management System document.

- The company will offer its support to the competent authorities by providing the information they require for investigation and analysis purposes.

The company, in accordance with the provisions of the PLAFT regulations, considers prohibited operations those involving the following:

- Clients receiving transfers from countries considered non-cooperative by the FATF, with risk related to money laundering and terrorist financing, with little banking supervision, or from countries included in the OFAC list.

- Clients acting through trusts without identifying the identity of the settlor, trustee and fiduciaries.

- Politically exposed persons (PEP) or who manage public resources. It is not considered a PEP when acting on behalf of a participating legal entity of the State.

● Legal persons in which a PEP holds at least 5% of the share capital, contribution or participation and which, according to the regulated entity, presents a high risk of money laundering or terrorist financing.

BAM is an organization in which all processes carried out for hiring personnel and service providers avoid nepotism and favoritism. As part of its Corporate Sustainability Policy (See *9_Gestion de Informacion\7. BAM SAC Política Sostenibilidad Corporativa*) agrees to support the principles of the United Nations Global Compact in the fight against corruption.

2.4.6 Commercially Sensitive Information (VCS, 3.5.2-3.5.4; CCB Program Rules, 3.5.13 – 3.5.14)

Information on BAM's financial statements reporting the company's assets, liabilities and equity, commercial contracts, contracts with project partners and sales details with information on transactions, amount of credits sold per year and price will be available and shared only with the VVB team during the validation process and with VERRA if required. No commercially sensitive information was presented in this document.

2.5 Legal Status and Property Rights

2.5.1 National and Local Laws (VCS, 3.1, 3.6. 3.7, 3.14, 3.18, 3.19; CCB, G5.6)

A list of relevant national and local laws and regulations related to the project is presented in Section 2.5.1 of the Project Document (PDD), which outlines the principles of the MRV system for mitigation actions and compliance with the main Social and Environmental Safeguards criteria for REDD+ in Peru. The project complies with all national and regional laws and regulations relevant to project activities. Also, during the monitoring period there have been no new regulations or modifications to existing regulations.

2.5.2 Relevant Laws and Regulations Related to Worker's Rights (VCS, 3.18, 3.19; CCB, G3.11)

A list of relevant laws and regulations related to workers' rights is presented in Section 2.5.2 of the Project Document (PDD). Workers enjoy the rights established in the Peruvian Labor Law, receiving a fair salary, higher than the minimum wage established by the Peruvian State, vacation days, retirement, bonuses, health insurance, occupational health and safety activities, education scholarships and other benefits established by law. All workers are supported at the corporate level under the BAM Policy (1_VAL & VER_20239_Gestion de Informacion).

2.5.3 Human Rights (VCS, 3.19)

The Project recognizes, respects and promotes the protection of the rights of local communities, especially the Brazil nut community and other stakeholders that are part of it, in line with the Universal Declaration of Human Rights and in compliance with our internal Human Rights policy. We have promoted participation and access to better living conditions through the various activities described throughout the document (see Section 4). We also recognize the cultural, ethnic, political and religious diversity of our partners by providing equal opportunities for participation (see Section 2.3) and equitable benefit sharing. This diversity is monitored and recognized through the various community

assessments implemented during the life of the project (see: 14_Reporte de Monitoreo/02_Comunidad).

In addition, stakeholders have at their disposal the mechanism for complaints and suggestions so that any issues affecting human rights can be resolved in a timely manner, in addition to all the meetings and participatory spaces described in Section 2.3.

2.5.4 Indigenous Peoples and Cultural Heritage (VCS, 3.18, 3.19)

As mentioned in the Project Document (PDD) and in the previous section, there is no presence of indigenous peoples in the project area, however, we consider the forest areas with high density of Brazil nut trees as cultural and natural heritage due to their economic, social, ecological and cultural importance for the local communities.

These areas are being protected by the activities implemented by the project, the results of which can be seen in Section 4. The activities include permanent monitoring, technical and legal support for concessionaires, capacity building, among others.

2.5.5 Recognition of Property Rights (VCS, 3.7, 3.18, 3.19; CCB, G5.1)

Disputes over rights to territories and resources	There have been no land rights disputes within the Project area.
Respect for property rights	To protect the rights of the Brazil nut harvesters in their concessions, the project implements a monitoring, control, and surveillance system with daily satellite information and field interventions in conjunction with the authorities. Technical and legal support and ongoing training activities are provided to the concessionaires. In this way, the concessions are better protected against threats from external actors that violate the rights granted by the State to Brazil nut concessionaires. In addition, the right to the economic benefits from the ecosystem services that the State granted them through their concession contracts is recognized by distributing the economic benefits generated by the commercialization of carbon credits, according to the agreements signed in a voluntary and previously informed manner.

2.5.6 Benefit Sharing Mechanism (VCS, 3.18, 3.19)

Summary of the benefit sharing plan	The project's benefit sharing mechanism consists first of the joint preparation and approval of the planning including the annual project budget jointly by FEPROCAMD, which represents the concessionaires and their local associations, prioritizing compliance with the theory of change and the expected co-benefits. After covering all the implementation costs of the jointly defined activities, the remaining income is distributed as direct economic (monetary) benefits between the project concession partners and BAM. It should be noted that the distribution of the

	direct economic benefit is only one of the benefits for the Brazil nut farmers and the community, in addition to the permanent technical and legal support, capacity building, education initiatives, development of productive projects, commercial strategies for Brazil nuts, among others, which are always defined after consultation and jointly planned. For more details on the benefit distribution mechanism see:: 5_Cobeneficios\03_Distribucion Beneficios\Modelo de distribución de beneficios REDD+ BNC_2024_V3.
Benefit sharing during the monitoring period	During the period under verification 2021-2023, activities were implemented to achieve the benefits for the community. The description of the activities and the benefits generated can be found in Section 4. From the sales of VCUs from the 2020 and previous vintages, direct economic benefits were distributed to each verified partner in those periods. The amounts delivered to each concessionaire were as follows: 2021 - 13,000 soles 2022 - 35,000 soles 2023 – 37,100 soles

2.5.7 Free, Prior, and Informed Consent (VCS, 3.18, 3.19; CCB, G5.2)

Consent	The process to obtain the free, prior and informed consent of the local Brazil nut community was carried out through a series of meetings described in the PDD and continued through the meetings and workshops described in Section 2.3. The process consisted of informative meetings to discuss the project proposal, its activities and distribution of benefits, agreements. This process was carried out in coordination with representatives of the Brazil nut harvesters from different localities. The signing of the agreements, the framework agreement with FEPROCAMD and the contracts for the assignment of rights by the concessionaires was carried out on a completely voluntary basis and the concessionaires were informed in advance.
Outcome of FPIC	As a result of the continuous consultation process during the last few years, more concessionaires have decided to participate in the project after having been previously informed about the project activities, the functioning of the REDD+ mechanism, the voluntary carbon market, among other topics. The voluntary agreement to participate in the project is reflected in the contract signed by each concessionaire. The project does not require any type of displacement or resettlement of the participants or any type of change of ownership of the concessions.

2.5.8 Property Right Protection (VCS, 3.18, 3.19; CCB, G5.3)

Project activities at no time lead to the involuntary removal or relocation of land ownership rights and do not force communities associated with the project area to relocate activities important to their culture or livelihoods.

For more information on recognition of property rights and recognition of use rights see Sections 2.5.9 and 2.5.5 of the Project Document (PDD).

Project activities at no time lead to the involuntary removal or relocation of land ownership rights and do not force communities associated with the project area to relocate activities important to their culture or livelihoods.

For more information on recognition of property rights and recognition of use rights see Sections 2.5.9 and 2.5.5 of the Project Document (PDD). The project refers to forest concessions, which have a real right over the area granted by the Peruvian State through the enabling title and the corresponding contract (forest concession contract). The State granted the concessionaires the right to use the forest resources, including ecosystem services such as carbon sequestration, and the right to own the benefits of the ecosystem services generated by the management of their forest concessions. Consequently, in the event that a third party affects the concession area, the concessionaire has legal recourse to protect its rights (Article 66 of the Peruvian Constitution and Article 51 of Law No. 29763).

2.5.9 Identification of Illegal Activity (VCS, 3.19, CCB, G5.4)

Detailed information on the illegal activities identified in the project area that could potentially affect the associated benefits is presented in Section 2.5.10 of the Project Document (PDD).

2.5.10 Ongoing Disputes (VCS, 3.18, 3.19; CCB, G5.5)

During the monitoring period, the concession partners and the trend in the project area identified illegal mining activities as a social and environmental threat; this reflects the importance of the Sustainable Economic Growth and Territorial Development strategic line, which includes the need to develop alternative productive systems that offer resistance to the expansion process of the mining corridor.

So far, all approved legal mining titles have been excluded from the project area, which avoids disputes regarding the development of the project within the territory. As the project generates benefits and improves well-being, there will be greater ownership and social commitment from project partners and neighbors.

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1 Data and Parameters Available at Validation (VCS, 3.16)

Within the subchapter the variables related to the validation process are raised and are maintained in the present monitoring period of the initiative. All these parameters will be compiled in the folders of the audits according to the certifications given, thus obtaining the management of the information and conservation of the data.

Data / parameter	$\Delta C_{BSL,unplanned}$
Data unit	t CO_2e
Description	Net greenhouse gas emissions in the baseline from planned deforestation.
Source of data	Calculated based on VMD0007 v3.3 Equation 25.
Value applied	21,630,257 tCO2e
Justification of choice of data or description of measurement methods and procedures applied	Estimated based on net carbon stock changes in all reservoirs in the baseline ($\Delta C_{BSL,i,t}$) and GHG emissions as a result of deforestation activities within the project boundaries in baseline stratum i in year t ($GHG_{BSL-E,i,t}$), according to equation 25 of VMD0007 V 3.3.
Purpose of data	Calculation of baseline emissions
Comments	-

Data / parameter	*LB*
Data unit	hectareas
Description	Leakage belt area
Source of data	Remote sensing data, information provided by the National Forest Conservation Program for Climate Change Mitigation - GEOBOSQUE Platform.
Value applied	592,984.3 ha

Justification of choice of data or description of measurement methods and procedures applied	Determined according to the forest area bordering the project area that may suffer an increase in deforestation due to the commitment generated within the project area. The description of the methods and procedures is presented in Section 3.2.1.1.4 of the PDD
Purpose of data	Calculation of leakage
Comments	-

Data / parameter	*PA*
Data unit	hectares
Description	Unplanned deforestation project area
Source of data	Remote sensing data, information provided by the National Forest Conservation Program for Climate Change Mitigation - GEOBOSQUE Platform
Value applied	647,675.90 ha
Justification of choice of data or description of measurement methods and procedures applied	Determined according to the forest area owned by the concession partners under threat of afforestation, based on deforestation drivers. The description of the methods and procedures is presented in Section 3.2.1.2 of the PDD.
Purpose of data	Calculation of baseline emissions
Comments	This area may change at each verification, according to the addition of new project areas.

Data / parameter	P_{PA}	
Data unit	Adimensional	
Description	Ratio of project area to total RRD area.	
Source of data	Calculated from the result of the analysis of remotely sensed data	
Value applied	P_{PA} (2021)	0,4588
	P_{PA} (2022)	0,4435
	P_{PA} (2023)	0,4907

Justification of choice of data or description of measurement methods and procedures applied	Given that the project area includes concessionaires that carry out legal logging, it has been decided to exclude these concessions from the area accounted for during the year in which such activity is carried out. The methods and procedures used for this analysis are detailed in Section 3.2.1.5 of the PDD.
Purpose of data	Calculation of baseline emissions
Comments	This ratio may change at each verification, according to the addition of new project areas.

Data / parameter	*RRD*
Data unit	hectares
Description	Geographical limits of the reference area for the deforestation rate projection.
Source of data	Remote sensing data, information provided by the National Forest Conservation Program for Climate Change Mitigation - GEOBOSQUE Platform
Value applied	1,307,103.6 ha
Justification of choice of data or description of measurement methods and procedures applied	The description of the methods and procedures is presented in Section 3.2.1.1.1. of the PDD, Reference Region for Deforestation Projection (RRD).
Purpose of data	Calculation of baseline emissions
Comments	-

Data / parameter	T_{hrp}
Data unit	Years
Description	Length of historical reference period in years
Source of data	The validation time of the ExAnte removals corresponds to the validity period of applicability of the methodology and its years to be verified[15]

[15] https://verra.org/methodologies-main/vm0048-vmd0055-faqs/

Value applied	(2011-2020) 10 años
Justification of choice of data or description of measurement methods and procedures applied	For the deforestation projection under the historical approach, the reference period corresponds to the years elapsed between three spatial data points. Considering the availability of satellite images for the classification and delimitation of forest areas, the historical reference period selected was 2013-2016-2020 (10 years into the past with respect to the project start date).
Purpose of data	Calculation of baseline emissions
Comments	-

Data / parameter	$A_{BSL,RRD,unplanned,t}$
Data unit	hectareas
Description	Total area deforested during historical reference period in DRR
Source of data	Calculated from the result of the analysis of remotely sensed data.
Value applied	

Project year (t)	Calendar year	Deforestación no planeada anual proyectada $A_{BSL,PA,unplanned,t}$ (ha)
12	2021	6,409.19
13	2022	6,574.66
14	2023	7,693.07
Total		**20,676.92**

Justification of choice of data or description of measurement methods and procedures applied	The description of the methods and procedures is presented in Section 3.2.1.3. of the PDD. These areas are established in accordance with the procedures outlined in VMD0007.
Purpose of data	Calculation of baseline emissions
Comments	-

Data / parameter	$C_{AB_treel,i}$

Data unit	t CO_2e/ha
Description	Average carbon content in the aboveground biomass of the forest by stratum i
Source of data	FREL 2022[16] – Lowland tropical rainforest
Value applied	See values applied in PDD session 3.2.1.7.2
Justification of choice of data or description of measurement methods and procedures applied	The selected sources meet VMD0001 v1.1 criteria.
Purpose of data	• Estimation of baseline emissions • Estimation of project emissions • Estimation of leaks
Comments	-

Data / parameter	$C_{BB_treel,i}$
Data unit	t CO_2e/ha
Description	Average carbon content in belowground forest biomass by stratum i
Source of data	FREL 2022[17] – Lowland tropical rainforest
Value applied	See values applied in PDD session 3.2.1.7.2
Justification of choice of data or description of measurement methods and procedures applied	The selected sources meet VMD0001 v1.1 criteria.
Purpose of data	• Estimation of baseline emissions • Estimation of project emissions • Estimation of leaks
Comments	-

Data / parameter	*CF*

[16] https://redd.unfccc.int/files/nref_peru_final.pdf

[17] https://redd.unfccc.int/files/nref_peru_final.pdf

Data unit	t C/ t d.m.
Description	Carbon fraction
Source of data	Literature values from IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Table 4.3
Value applied	0.47, for all species
Justification of choice of data or description of measurement methods and procedures applied	Globally accepted literature defaults
Purpose of data	Constant used for carbon equivalent calculation (tCO2e)
Comments	-

Data / parameter	FCO_2e
Data unit	Tons of carbon dioxide equivalent per ton of carbon (tCO2e/tC)
Description	CO2e factor
Source of data	IPCC (2006)
Value applied	44 / 12
Justification of choice of data or description of measurement methods and procedures applied	Value proposed by the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2006) to convert tons of carbon sequestered (tC) by tree to tons of carbon dioxide equivalent (tCO2e)..
Purpose of data	• Estimation of baseline emissions • Estimation of project emissions • Estimation of leaks
Comments	-

Data / parameter	$C_{AB_tree,post}$
Data unit	t CO_2e/ha
Description	Post-deforestation carbon stocks in the aboveground tree biomass in stratum i.

Source of data	See values applied in session 2.2.3.2
Value applied	See values applied in session 2.2.3.2
Justification of choice of data or description of measurement methods and procedures applied	Selected sources meet VMD0007 v3.3 criteria.
Purpose of data	• Estimation of baseline emissions • Estimation of project emissions • Estimation of leaks
Comments	-

Data / parameter	$\Delta C_{BSL,i,t}$
Data unit	t CO2e
Description	Changes in net carbon stocks in all pools of reference stratum i in year t.
Source of data	Calculated based on VMD0006 v3.3 Equation 22.
Value applied	See the values applied in 2.2.3.2
Justification of choice of data or description of measurement methods and procedures applied	Estimated based on the reference annual area of unplanned deforestation for stratum i in year t ($AA_{unplanned,i,t}$), the reference carbon stock change in aboveground tree biomass in stratum I ($\Delta C_{AB_tree,i}$), the reference carbon stock change in belowground tree biomass in stratum I ($\Delta C_{BB_árbol,i}$), according to Equation 22 of VMD0007 v3.3.
Purpose of data	Calculation of reference emissions.
Comments	-

Data / parameter	*Forest Cover Reference Map for the Project*
Data unit	Hectares
Description	Map showing the location of forest land within the Project Activity Instance at the beginning of the project crediting period.
Source of data	Remote Sensing
Value applied	The description of the selected value is given in section 3.1.3.4.

Justification of choice of data or description of measurement methods and procedures applied	The overall accuracy and classification process is described in Section 3.2.1.3.5. of the PDD, The overall accuracy for forest/non-forest classification in the Project Activity Instance at the beginning of the crediting period is 90%.
Purpose of data	Calculation of baseline emissions.
Comments	-

3.1.2 Data and Parameters Monitored (VCS, 3.16)

This subchapter includes variables related to the verification processes of the initiative, each time the process is carried out, for a maximum of 5 years. All these parameters will be compiled in the folders of the audits according to the certifications that are given, thus obtaining the management of the information and conservation of the data.

Data / parameter	$\Delta C_{WPS-REDD}$
Data unit	t CO2e
Description	Net GHG emissions in the REDD project scenario until year t.
Source of data	Calculated according to VMD0015 v2.3, Equation 01.
Description of measurement methods and procedures to be applied	Calculated based on Net carbon stock change as a result of deforestation in the project area in the case of the project in stratum i in year t ($\Delta C_{P,DefPA,i,t}$), Net carbon stock change as a result of degradation in the project area in the case of the project in stratum i in year t ($\Delta C_{P,Deg,i,t}$), Net carbon stock change as a result of natural disturbances in the project area in the case of the project in stratum i in year t ($\Delta C_{P,DistPA,i,t}$) and Greenhouse gas emissions as a result of deforestation and degradation activities within the project area in the case of the project in stratum i in year t ($GHG_{P-E,i,t}$), according to VMD0015 v2. 3, Equation 01..
Frequency of monitoring/recording	Before each verification event, or in its absence, at most every 5 years.
Value applied	Calculated according to the emissions generated in the project area, with project
Monitoring equipment	GHG information system and controls associated with the project and its monitoring in Excel, associating the emission values obtained.
QA/QC procedures to be applied	GHG information system and associated project controls and monitoring. This information system governs the process of obtaining, recording, compiling, and analyzing data and information important

	for quantifying and reporting GHG emissions and removals relevant to the project (including leakage) and the baseline scenario.
Purpose of data	Calculation of project emissions
Calculation method	See VMD0015 v2.3, Equation 01.
Comments	-

Data / parameter	$\Delta C_{LK\text{-}AS,unplanned}$
Data unit	t CO2e
Description	Net GHG emissions due to leakage due to activity change for projects that prevent unplanned deforestation up to year t*.
Source of data	Calculated according to VMD0010 V 1.2, Equation 21
Description of measurement methods and procedures to be applied	Calculated based on net CO2 emissions due to displacement of unplanned deforestation out of the leakage belt in year t ($\Delta C_{LK\text{-}A\text{-}SU\text{-}LB}$), net CO2 emissions due to unplanned deforestation displaced from the project area to the leakage belt up to year t, ($\Delta C_{LK\text{-}ASU\text{-}OLB}$) and greenhouse gas emissions as a result of leakage prevention activities up to year t ($GHG_{LK,E,i,t}$), according to VMD0010 v1. 2, Equation 21.
Frequency of monitoring/recording	Before each verification event, or in its absence, at most every 5 years.
Value applied	Calculated according to the emissions generated in the leakage area attributed to the impact of the project.
Monitoring equipment	GHG information system and controls associated with the project and its follow-up in Excel, associating the emission values obtained.
QA/QC procedures to be applied	GHG information system and associated project controls and monitoring. This information system governs the process of obtaining, recording, compiling, and analyzing data and information important for quantifying and reporting GHG emissions and removals relevant to the project (including leakage) and the baseline scenario.
Purpose of data	Calculation of leakage
Calculation method	Calculated in accordance with VMD0010 V 1.2, equation 21.
Comments	-

Data / parameter	$A_{DefPA,i,u,t}$

Data unit	Hectares per year (ha/year)
Description	Area of unplanned deforestation in the project area in stratum i converted to land use u in year t
Source of data	Remote sensing images
Description of measurement methods and procedures to be applied	Annual deforestation is measured in GIS using remote sensing techniques and reported with spatially explicit data using raster and shapefiles. evidence
Frequency of monitoring/recording	Annual
Value applied	Calculated according to the area of forest lost in the project area.
Monitoring equipment	See section 3.2.2.1
QA/QC procedures to be applied	GIS measurement using remote sensing techniques and field assessments.
Purpose of data	Calculation of project emissions
Calculation method	Monitoring will be done with the official country tool GEOBOSQUES.
Comments	-

Data / parameter	$A_{burn,i,t}$
Data unit	Hectares
Description	Area burned for stratum i in year t.
Source of data	Equal to ADistPA,q,i,t + ADefPA,i,u,t in the case of the project.
Description of measurement methods and procedures to be applied	For the calculation of project emissions, the area burned is considered equivalent to the monitored burn scars, assuming that all such deforestation is preceded by a fire to clear the land in the case of the project.
Frequency of monitoring/recording	Annual
Value applied	Calculated based on the area of forest lost to fire in the project area.

2021	2022	2023

	46.7 has	16.36 has	34.6 has
Monitoring equipment	-		
QA/QC procedures to be applied	Monitoring and surveillance system.		
Purpose of data	Calculation of project emissions		
Calculation method	-		
Comments	-		

Data / parameter	$GHG_{P,E,i,t}$
Data unit	t CO2e / year
Description	Greenhouse gas emissions resulting from deforestation activities within the project area in stratum i of project case in year t.
Source of data	Calculated based on satellite data
Description of measurement methods and procedures to be applied	Calculated based on emissions other than CO2 from biomass burning in stratum i in year t ($E_{BiomassBurn,i,t}$) from session 5.2.9 of VMD0015 v2.3.
Frequency of monitoring/recording	Before each verification event, or otherwise at most every 5 years.
Value applied	Result of the annual analysis of the emissions given in the instance with project, displayed in each RM.
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of data	Calculation of project emissions
Calculation method	Calculated based on Equation 24 of VMD0015 v2.3
Comments	Net CO2e emission from fossil fuel burning in stratum i in year t (EFC,i,t) and direct N2O emission as a result of nitrogen application in alternative land use within the project boundary in stratum i in year t (N2Odirect-N, i,t) are conservatively excluded from the project scope and calculation of baseline estimates following the criteria in Section 5.4 of VM0007 v1.7.

Data / parameter	$Uncertainty_{REDD\text{-}WPS}$
Data unit	%
Description	Total uncertainty in REDD+ project scenario
Source of data	Calculated according to VMD0017 v2.2 Equation 13.
Description of measurement methods and procedures to be applied	Calculated according to the percentage uncertainty in the combined carbon stocks and GHG sources in stratum i in the REDD project scenario ($UREDD\text{-}_{WPS,SS,i}$) and the sum of the combined carbon stocks and GHG sources multiplied by the area of stratum i (A_i) in the REDD project scenario ($EREDD\text{-}_{WPS,SS,t,i}$), according to VMD0017 v2.2 Equation 13.
Frequency of monitoring/recording	Prior to each verification event, or otherwise at most every 5 years.
Value applied	Result of the annual analysis of the emissions given in the project instance, visualized in each RM
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of data	Calculation of VCUs
Calculation method	Calculated according to VMD0017 v2.2 Equation 13.
Comments	-

3.1.3 Monitoring Plan (VCS, 3.16, 3.20)

3.1.3.1 Monitoring Organizational Structure

The organizational structure of the activity monitoring process is detailed in session 2.4.1 and 2.4.2 of the project document (PDD), within which there is continuous communication between the project developer and the Federation. Making use of the work team contemplated by BAM, with the help of temporary audiovisual and communication assistants.

3.1.3.2 Activity monitoring

During the monitoring period 2021, 2022 and 2023, among the various activities developed, a comprehensive monitoring, control and surveillance system was implemented, which was carried out in two ways:

a. **Satellite monitoring:** Alerts are reported on a daily basis on hot spots and early deforestation alerts, using the Fire alerts platform (NASA) and GeoBosque (MINAM, National Forest Conservation Program for Climate Change Mitigation) respectively, in order to permanently identify any possible risk of deforestation in the area, giving the opportunity to respond immediately and safeguard contiguous areas.
   All reports found are recorded in the company's system, which are verified and monitored by the technical team, which makes the corresponding field trips and reports any possible event or action that occurs in the monitored area.
b. **Technical monitoring**, as part of the control and surveillance system for the project areas, field trips were carried out as patrols. Field trips are scheduled according to the criteria of prioritization of areas with the highest risk of deforestation and/or at the request of the concessionaires.
   The monitoring system is based on ground patrols, constant supervision, and overflight of the area using drones. An exhaustive evaluation of the entire terrain is carried out, both at the time of entry and at the end of the supervision, covering not only the internal areas of the concession, but also the external areas and access roads. Any threats identified are reported immediately to ensure the comprehensive protection of the area.

In general, all monitored reports that show threats to the area are followed up and, if necessary, are followed up with legal complaints, which are prepared by the company's legal department with the corresponding lawyer.

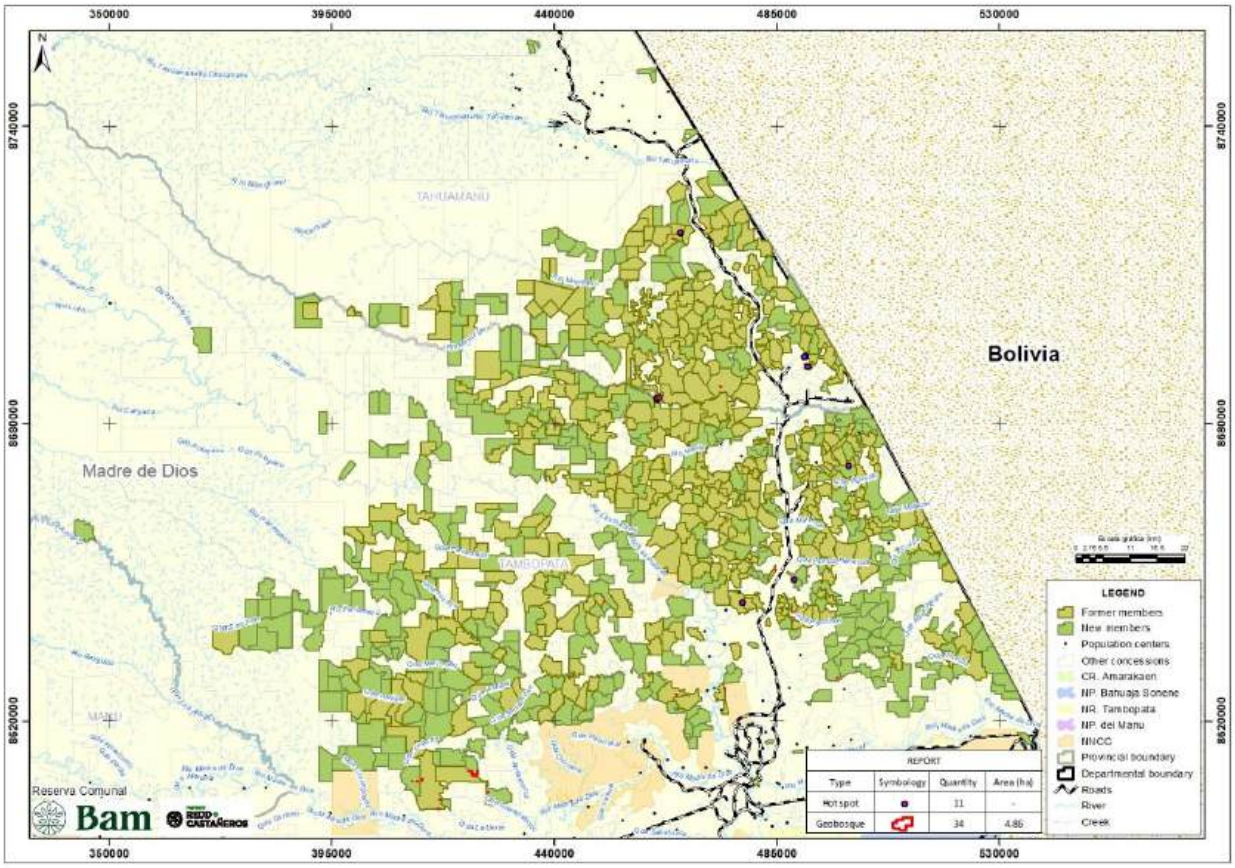

Figure 7 Map Satellite reports of the REDD+ Castañeros Project
Source: Own elaboration (2024)

Table 11 Activities implemented as part of the Monitoring, Control and Surveillance System

No.	Activity	Date	Comment (si aplica)
1.	Report hot spots and early warnings of deforestation.	01-2021 Monthly report	5 hot spot reports 13.37 ha of early warnings of deforestation
		02-2021 Monthly report	0 hot spot reports 0.71 ha of early warnings of deforestation
		03-2021 Monthly report	0 hot spot reports 0 ha of early warnings of deforestation
		04-2021 Monthly report	0 hot spot reports 3.49 ha of early warnings of deforestation
		05-2021 Monthly report	7 hot spot reports 32.35 ha of early warnings of deforestation

		06-2021 Monthly report	4 hot spot reports 31.29 ha of early warnings of deforestation
		07-2021 Monthly report	28 hot spot reports 118.61 ha of early warnings of deforestation
		08-2021 Monthly report	208 hot spot reports 316.82 ha of early warnings of deforestation
		09-2021 Monthly report	353 hot spot reports 538.39 ha of early warnings of deforestation
		10-2021 Monthly report	133 hot spot reports 193.28 ha of early warnings of deforestation
		11-2021 Monthly report	32 hot spot reports 115.26 ha of early warnings of deforestation
		12-2021 Monthly report	3 hot spot reports 5.70 ha of early warnings of deforestation
		01-2022 Monthly report	5 hot spot reports 4.11 ha of early warnings of deforestation
		02-2022 Monthly report	1 hot spot reports 1.73 ha of early warnings of deforestation
		03-2022 Monthly report	0 hot spot reports 12.70 ha of early warnings of deforestation
		04-2022 Monthly report	3 hot spot reports 12.38 ha of early warnings of deforestation
		05-2022 Monthly report	0 hot spot reports 2.99 ha of early warnings of deforestation
		06-2022 Monthly report	15 hot spot reports 42.87 ha of early warnings of deforestation
		07-2022 Monthly report	16 hot spot reports 49.83 ha of early warnings of deforestation
		08-2022 Monthly report	155 hot spot reports 169.79 ha of early warnings of deforestation
		09-2022 Monthly report	393 hot spot reports 306.91 ha of early warnings of deforestation
		10-2022 Monthly report	36 hot spot reports

			50.48 ha of early warnings of deforestation
		11-2022 Monthly report	93 hot spot reports 89.65 ha of early warnings of deforestation
		12-2022 Monthly report	4 hot spot reports 7.95 ha of early warnings of deforestation
		01-2023 Monthly report	1 hot spot reports 1.61 ha of early warnings of deforestation
		02-2023 Monthly report	1 hot spot reports 1.16 ha of early warnings of deforestation
		03-2023 Monthly report	3 hot spot reports 0.31 ha of early warnings of deforestation
		04-2023 Monthly report	2 hot spot reports 11.04 ha of early warnings of deforestation
		05-2023 Monthly report	3 hot spot reports 5.13 ha of early warnings of deforestation
		06-2023 Monthly report	0 hot spot reports 32.16 ha of early warnings of deforestation
		07-2023 Monthly report	36 hot spot reports 90.05 ha of early warnings of deforestation
		08-2023 Monthly report	202 hot spot reports 310.03 ha of early warnings of deforestation
		09-2023 Monthly report	298 hot spot reports 169.29 ha of early warnings of deforestation
		10-2023 Monthly report	92 hot spot reports 120.68 ha of early warnings of deforestation
		11-2023 Monthly report	25 hot spot reports 33.05 ha of early warnings of deforestation
		12-2023 Monthly report	1 hot spot reports 14.93 ha of early warnings of deforestation
	Field inspections and interventions	From January to December 2021	# Assisted concessions: 54
		From January to December 2022	# Assisted concessions: 94
		From January to December 2023	# Assisted concessions: 120
	Technical assistances	From January to December 2021	# Assisted concessions: 62 para lindero y 15 para ordenamiento

		From January to December 2022	# Assisted concessions: 25 para lindero y 22 para ordenamiento
		From January to December 2023	# Assisted concessions: 22 para lindero y 35 para ordenamiento
	Legal assistance	From January to December 2021	# Legal assistance: 168
		From January to December 2022	# Legal assistance: 301
		From January to December 2023	# Legal assistance: 300

3.1.3.3 Handling of internal auditing data

The project's organizational structure with BAM's corporate financial planning and budgeting environment tracks the implementation of the activities carried out in accordance with the established budget. The company's EEFFs are reported and audited (externally) on a quarterly basis.

In turn, BAM's corporate legal area, led by an expert advisor, is in charge of monitoring and ensuring the highest standards of good corporate governance, following the policies implemented by the company (e.g., sustainability policies, fair labor, etc.).

The results of the company's activities, including those of the project, are reported at annual project board meetings between BAM and FEPROCAMD, which in turn are publicly disclosed to the carbon market through the Certification Program.

During the monitoring process, process flow diagrams have been established for the correct follow-up of operations, such as the monitoring, control and surveillance system, community complaints and suggestions, etc.

3.1.3.4 Sampling approaches and QA/QC procedures

Climate monitoring includes the generation of annual deforestation maps to quantify the loss of forest cover during the monitoring period. Considering that geospatial information provided by the GEOBOSQUES platform (MINAM, Programa Cambio Climático para la Conservación del Medio Ambiente) was used as the base data for the activity, since it is official information of the Peruvian State, it was necessary to perform an accuracy and reliability assessment through a comparative analysis with the reference data, using the Kappa index as a measure to meet the requirements of the VMD0015 tool. For this purpose, control points were established and distributed in a completely random and stratified manner (according to the classification established by GEOBOSQUES).

This procedure consisted of establishing visual areas 30 meters around the random control points. Reference data including satellite images were obtained and used as a basis for comparison with the generated maps. Both the generated maps and the reference data were classified in the same categories, forest, non-forest, forest loss and hydrography, having reached a Kappa index of 0.91, which exceeds the threshold value of 0.9 proposed by the VMD0015 methodology; which guarantees the quality and reliability of the maps used in the project.

The frequency of deforestation assessment is annual. As quality control measures, assessment points were selected (40) per class, as well as the validation focused on a reduced extension that included the project area and surrounding areas, reducing the noise generated by a map made on a national scale.

The degradation monitoring was a field evaluation that considered the sampling criterion of 1% of the area potentially subject to degradation, the distribution of the points was done by a systematic distribution of transects. It was found that emissions were not significant, as they did not exceed the 5% threshold of the T-GIS tool, as described in section 4_Carbon Calculations Illegal Degradation - Illegal Degradation Report-21_ExPost_REDD+_BNC_VF. This monitoring responds to the frequency of establishment of the PRA (every 2 years).

3.1.4 Dissemination of Monitoring Plan and Results (VCS, 3.18; CCB, CL4.2)

All results will be publicly available at Madre de Dios offices and efforts will be made to develop summaries that will be communicated to communities and other stakeholders through appropriate and defined means in the Spanish language. In addition, all documents and information on monitoring and verification results will be published on the VCS and CCB standards platforms following project validation and verification.

During the monitoring period, mechanisms for accessing and disseminating project information were implemented and are described in more detail in Sections 2.3.2 and 2.3.3.

Periodically the results of the project activities carried out are published on social networks such as Facebook through the official project page (See Ver Proyecto REDD+ Castañeros MDD | Facebook) and WhatsApp some graphic examples of the communication of results are set out in the following figures.

Finally, the project information, including its results, is also published in a summarized form on the BAM blog (https://www.bosques-amazonicos.com/blog/), some examples of which are the First group sale of organic Brazil nuts, The Monitoring, Control and Surveillance System for the conservation of Brazil nut forests, Bosques Amazónicos participates in a discussion on the carbon market and the National REDD+ process together with MINAM and VERRA, The Brazil Nut University Scholarship Program, Fighting deforestation: Forest fire prevention training in Madre de Dios, leadership and soft skills workshop strengthens the Brazil nut community, celebration of Amazonian Brazil Nut day in Madre de Dios, among others.

Figure 8 Training on tax issues for the brazil nut sector

Figure 9 Joint work output with competent authorities to safeguard concessions

Figure 10 Workshop "My commitment as a partner in the Castañeros REDD+ project".

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions (VCS, 3.15)

Baseline emissions associated with aboveground and belowground biomass were calculated using the *VMD0007 Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation and unplanned wetland degradation (BL-UP), version 3.3.* The historical approach was used to delimit the reference region for the deforestation rate projection (DRR) and for the estimation of annual areas of unplanned deforestation in the project area.

3.2.1.1 Project area

According to the BL-UP module, the project area corresponds to the discrete plots of land, entirely covered by stable forest at the start date of the project activity (year 2010), which are under threat of deforestation and in which the project proponents will undertake activities to reduce unplanned deforestation and consolidate the REDD activity.

In this case, the Project Area corresponds to the Amazonian forests that have remained as Brazil nut dominated forests in the period 2001 - 2010 within the area of the project's partner forest and Brazil

nut concessionaires; area granted by Law N° 26821. Organic Law for the Sustainable Use of Natural Resources.

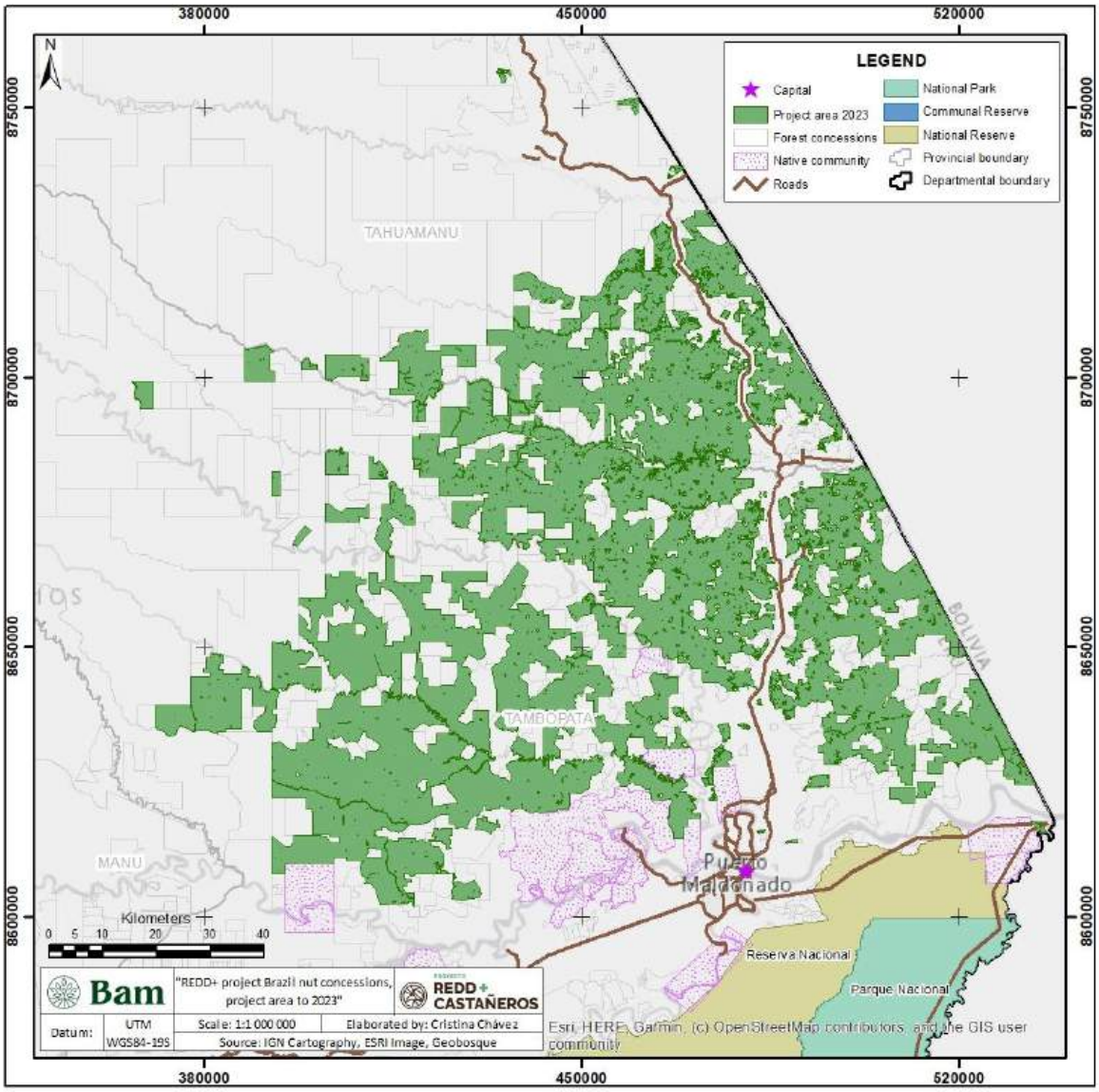

Figure 11 Map of project area in concessions to 2023
Source: Own elaboration (2024)

For the monitoring report corresponding to the 2021-2023 period, it is confirmed that there were no modifications in the Deforestation Reference Region, nor in the Leakage Belt. Both parameters remained unchanged from previous analyses, ensuring consistency in deforestation assessments and accounting of carbon emissions and removals for the project during this monitoring period.

3.2.1.2 Definition of time limits

According to the selected methodology, the following temporal limits were considered:

- Historical reference period: for deforestation projection under the historical approach, the reference period corresponds to the years elapsed between three spatial data points. Considering the availability of satellite images for the classification and delimitation of forest areas, the historical reference period selected was 2013-2016-2020 (10 years into the past with respect to the date of completion of the first baseline).
- REDD project crediting period: the crediting period selected was 2010-2041, 31 years from the project start date.
- Date for baseline revalidation: considering that the baseline must be renewed every 6 years or earlier if required, this baseline revalidation will have a period from 2021-2023.

3.2.1.3 Estimation of annual unplanned deforestation areas under the simple historical approach.

It is based on the analysis of historical deforestation data over a reference period of at least 10 years. From this data, an average annual deforestation rate is calculated, which is then projected into the future for the project area.

The estimation of unplanned deforestation was carried out using spatial models based on satellite data for the years 2010, 2016 and with an additional corroboration for 2020. Initially, the analyses showed a low correlation of 11% between spatial patterns and deforestation projections. This low correlation indicated that the spatial model was not adequately capturing the dynamics of forest cover change, prompting the need to seek a more accurate and reliable approach.

To improve the accuracy of the projections, a linear regression model was implemented, which showed a correlation of over 90%. This mathematical model allowed for a better estimation of unplanned deforestation, as it more effectively captured the observed temporal and spatial trends. Because of this greater effectiveness and model fit, a more robust and reliable estimate of deforestation rates was achieved, improving the ability to predict future impacts in the study area.

This approach assumes that observed deforestation trends will continue if no intervention measures are implemented. The projection is validated and adjusted through constant monitoring to ensure its accuracy in the current project context. The description of the methods and procedures is presented in Section 3.1.1.1.4 and Section 1.2.1.5 of the PDD.

3.2.1.4 Estimated annual unplanned deforestation emissions in the PA under the baseline scenario.

According to the VCS module VMD0007 (BL-UP), the annual deforestation area model should be based on data from the historical reference period. For the project, a linear regression of deforested area as a function of time was used, which was found to be significant ($p \leq 0.05$, with a p value = 0.000012), with an $r^2 \geq 0.75$ ($r^2 = 0.9181$) and no apparent bias (demonstrated by selecting the fit with the lowest residuals).

This model reflects an increasing trend of deforestation, showing a solid relationship between the variables and an adequate behavior in the pattern of generated residuals. The residuals are randomly distributed around zero and do not exceed a value of +/- 2, confirming that the model is consistent and free of bias.

The projected annual unplanned deforestation areas for the project area under the baseline scenario were estimated using equation 5 of the VCS module VMD0007 (BL-UP). The ratio between the project area (exclusively forested) and the forest present in the reference region, results in the P_{PA} with a value of 0.496.

As the project excludes concessionaires that do not comply with FSC certification in a given year from accounting, this does not imply that they are engaging in unsustainable deforestation or degradation practices. Concessionaires that carried out these activities during the period 2022-2023 have been identified and excluded in the determination of the project area for P_{PA} identification. Table 12 presents the projected annual unplanned deforestation and cumulative deforestation for the PA during the project monitoring period, corresponding to 44,895.50 ha of forest.

Table 12 Projected annual and cumulative unplanned deforestation in the PA during the baseline scenario validation

Project year (t)	Calendar year	Projected annual unplanned deforestation $A_{BSL,PA,unplanned,t}$ (ha)	Accumulated unplanned deforestation $\sum A_{BSL,PA,unplanned}$ (ha)
12	2021	6,409.19	6,409.19
13	2022	6,574.66	12,983.85
14	2023	7,693.07	20,676.92
Total			**20,676.92**

The transition from deforestation to other land uses is justified by considering the use patterns in the reference region and the changes observed in deforested areas during the historical reference period, evaluated in 2013, 2016 and 2020, using the area-weighted historical average. This analysis reveals that change from forest to cropland accounts for 16.8%, change to non-mining settlements is 2.20%, to mining areas 34.99%, to wetlands/water 2.51%, to grasslands 38.50% and to other land 5.00%. The detailed spatial distribution is presented in Table 13.

Table 13 Modeling rates in the project area for the baseline scenario

Project year (t)	Calendar year	*Aunplanned,1,t*	*Aunplanned,2,t*	*Aunplanned,3,t*	*Aunplanned,4,t*	*Aunplanned,5,t*	*Aunplanned,6,t*	Total deforestation (ha)
		Forest to Cropland (ha)	Forest to Non-Mining Settlements (ha)	Forest to Mining Settlements (ha)	Forest to Grassland (ha)	Forest to other lands (ha)	Forest to weatlands (ha)	
12	2021	1,076.98	140.74	2,242.66	2,467.63	320.38	160.81	6,409.1
13	2022	1,104.78	144.37	2,300.56	2,531.34	328.65	164.97	6,574.6
14	2023	1,292.71	168.93	2,691.90	2,961.94	384.56	193.03	7,693.0

Taking into account the Emission Factors, baseline emissions were calculated for the deforested areas in the without-project scenario. The estimated emissions for the baseline monitoring period are detailed in Table 14

Table 14 Emissions from deforestation of LB in the project area annual and accumulated

Project year (t)	Calendar year	Aboveground biomass emission ($\Delta C_{AB,tree,t}$) (tCO_2e)	Underground biomass emission ($\Delta C_{AB,tree,t}$) (tCO_2e)	Baseline net emissions from deforestation in the AP ($\Delta C_{BSL,i,t}$ (tCO_2e)	Baseline net emissions from deforestation in the cumulative AP ($\sum \Delta C_{BSL,i}$)(tCO_2e)
12	2021	2,688,697	119,683,72	2,808,380	2,808,380
13	2022	2,758,113	242,457,42	3,000,570	5,808,951
14	2023	3,227,295	386,116,12	3,613,411	9,422,362
Total		**8.674.104**	**748,257**	**9,422,362**	**9,422,362**

Since fires after deforestation are not a common practice and with the approach of being conservative, emissions from burning biomass will not be calculated, i.e. counted as zero. In this way $GHG_{BSL-E,i,t} = 0$

In order to obtain whole numbers without decimals and following a conservative approach in the issues of the reference project, rounding down has been applied.

Table 15 Net and cumulative baseline GHG emissions from deforestation

Calendar year	$\Delta C_{BSL,i,t}$ ($tCO2e$)	GHG_{BSL-E} ($tCO2e$)	$\Delta C_{BSL,planned}$ ($tCO2e$)	$\Delta C_{BSL,planned,accum}$ ($tCO2e$)
2021	2,808,380	0	2,808,380	2,808,380
2022	3,000,570	0	3,000,570	5,808,950
2023	3,613,411	0	3,613,411	9,422,361
Total	9,422,362	0	9,422,361	9,422,361

3.2.2 Project Emissions (VCS, 3.15)

The expected emissions from the project are identified in the monitoring scenario by applying Equation 1 of module VMD0015 (M-REDD). the CH4 and N2O emissions were not considered as it is considered conservative not to include it since in the project scenario no biomass burning has been generated. N fertilizers are not applied and GHG emissions from fossil fuel burning are not significant.

According to the NPRT assessment, although some natural hazards, such as fires or droughts, have been identified in the project area, these have not triggered activities that exceed forest loss. This loss is already accounted for in the emissions from deforestation in the AP, so the emissions attributable to these risks are considered zero.

The land cover transition used corresponds to the trend of the percentage distribution evidenced in the historical reference period, under the assumption that the transition activities follow the historical pattern evidenced.

In order to obtain whole numbers without decimals and following a conservative approach in the ExAnte emissions of the project with project, a rounding up has been applied, resulting in an emission of 2 tCO2e more. see Table 16.

$$C_{WPS-REDD} = \sum_{t=1}^{t*}\sum_{i=1}^{M}(\Delta C_{P,DefPA,i,t} + \Delta C_{P,Deg,i,t} + \Delta C_{P,DistPA,i,t} + GHG_{P-E,i,t} - \Delta C_{P,Enh,i,t})$$

Where:

$\Delta C_{WPS-REDD}$	Net GHG emissions in the REDD project scenario up to year t*; tCO2e;
$\Delta C_{P,DefPA,i,t}$	Net change in carbon stocks as a result of deforestation in the project area in the case of the project in stratum i within the project area in year t; tCO2e;
$\Delta C_{P,Deg,i,t}$	Net change in carbon stocks as a result of degradation in the project area in the case of the project in stratum i within the project area in year t; tCO2e;
$\Delta C_{P,DistPA,i,t}$	Net change in carbon stocks as a result of natural disturbances in the project area in the case of the project in stratum i within the project area in year t; tCO2e;
$GHG_{P-E,i,t}$	Greenhouse gas emissions as a result of deforestation and degradation activities within the project area for the project in stratum i in year t; tCO2e;
$\Delta C_{P,Enh,i,t}$	Net change in carbon stocks as a result of forest growth and sequestration during the project in areas projected to be deforested in the baseline[2] in stratum i in year t; tCO2e;
i	1, 2, 3,… M stratums
t	1, 2, 3,… t* years since the start of the REDD VCS project activity

CH4 and N2O emissions were not considered because it is considered conservative not to include them since the project scenario does not generate biomass burning. N fertilizers are not applied and GHG emissions from fossil fuel burning are not significant.

Table 16 Net GHG emissions in the REDD project scenario with project

Project year (t)	Calendar year	$\Delta C_{P,DefPA,i,t}$ (tCO2e)	$\Delta C_{P,Deg,i,t}$ (tCO2e)	$GHG_{P-E,i,t}$ (tCO2e)	$C_{WPS-REDD}$ (tCO2e)	$C_{WPS-REDD}$ accum (tCO2e)
12	2021	408,828	0	0	408,829	408.829
13	2022	255,917	0	0	255,918	664.747
14	2023	198,165	0	0	198,165	862.912
Total		**862.910**	**0**	**0**	**862,912**	**862,912**

3.2.2.1 Monitoring deforestation

Monitoring deforestation in the project area project scenario based on forest cover loss will produce an estimate of emissions resulting from any deforestation, using the following equations.

$$\Delta C_{P,DefPA,i,t} = \sum_{u=1}^{U} (A_{DefPA,u,i,t} * \Delta C_{pools,P,Def,u,i,t})$$

Where:

$\Delta C_{P,DefPA,i,t}$	Net change in carbon stock as a result of deforestation in the project case in the project area in stratum i in year t; t CO_2e
$A_{DefPA,u,i,t}$	Area of deforestation recorded in project area i converted to land use u in year t; ha
$\Delta C_{pools,Def,u,i,t}$	Net changes in carbon stocks in all pools in the case of the project in land use u in stratum i in year t; t CO_2e ha^{-1}
u	1, 2, 3, … U post-deforestation land uses
i	1, 2, 3, … M stratums
t	1, 2, 3, … t* years since the start of the project's activity

Emission per unit area is equal to the difference between the stock before and after deforestation.

$$\Delta C_{pools,Def,u,i,t} = C_{BSL,i} - C_{P,post,i} - C_{WP,i}$$

Where:

$\Delta C_{pools,Def,u,i,t}$	Net change in carbon stocks in all pools as a result of deforestation in the case of the project in land use u in stratum i in year t; t CO_2e ha^{-1}
$C_{BSL,i}$	Carbon stocks in all reservoirs in the stratum reference case i; t CO_2e ha^{-1}
$C_{P,post,u,i}$	Carbon stocks in all pools in the post-deforestation land use u in stratum i; t CO_2e ha^{-1}
$C_{WP,i}$	Carbon stocks sequestered in wood products from harvested crops in strata i; t CO_2e ha^{-1}
u	1, 2, 3, … U post-deforestation land uses
i	1, 2, 3, … M Stratums
t	1, 2, 3, … t* years since the start of the project's activity

The deforested areas are identified using GIS software to process the information from the Geobosque Platform reports, which in turn are contrasted with the monitoring reports, and are presented in Table 17.

Table 17 Deforestation areas recorded in the project area in the monitoring period with project

Project year (t)	Calendar year	$A_{DefPA,u,1,t}$ (ha)
12	2021	933.01
13	2022	544.28
14	2023	389.29
Total		**1,866.58**

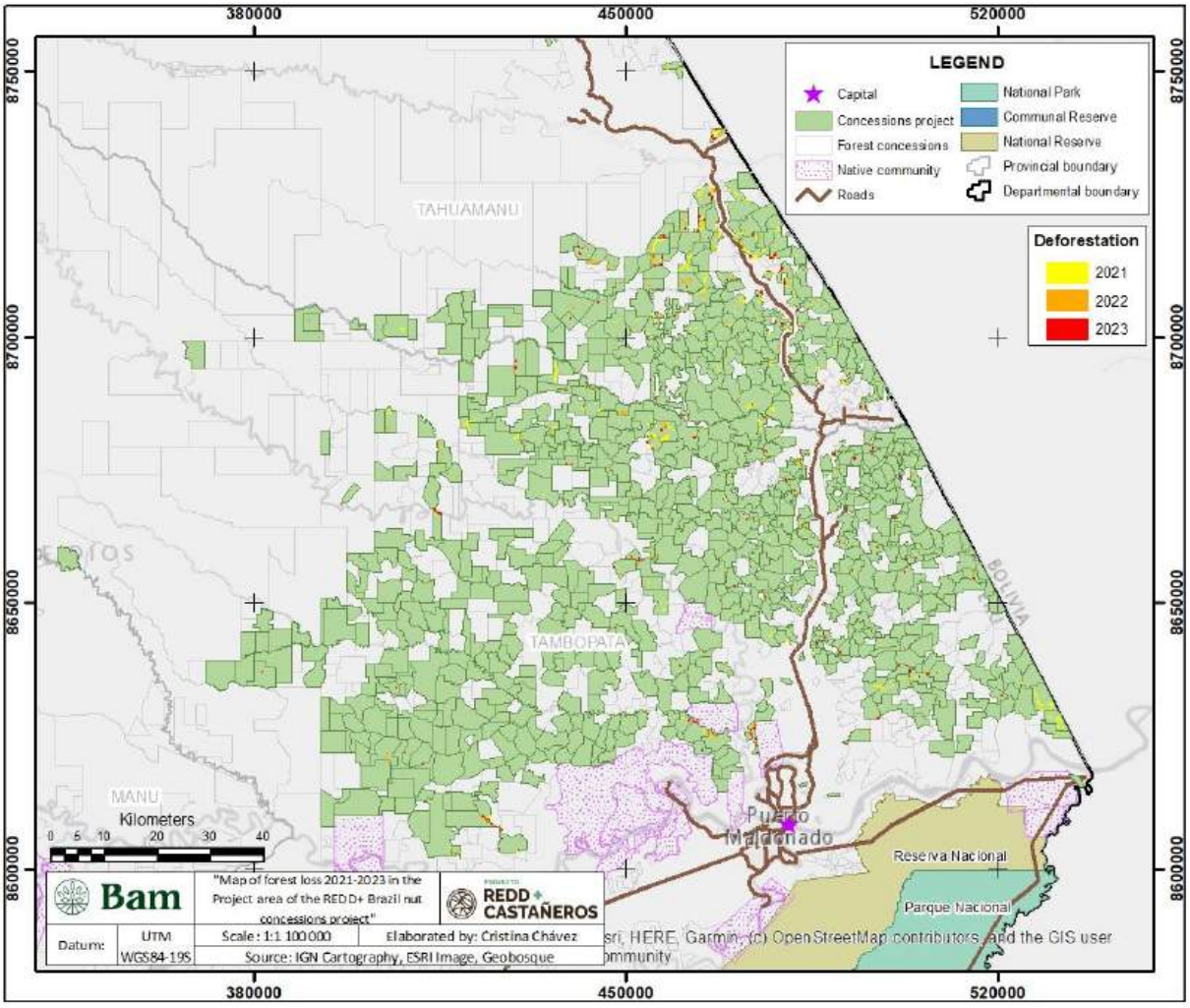

Figure 12 Deforestation map in the project area
Source: Authors

The attributed emissions correspond to the multiplication of the lost area by the emission factor established in session 2.2.3.2, which establishes the emissions attributed by the project within the project area, as presented in Table 18.

Table 18 Net change in carbon stocks as a result of deforestation with project

Project year (t)	Calendar year	Aboveground biomass emission ($\Delta C_{AB,tree,t}$) (tCO2e)	Underground biomass emission (ΔC_{DWt}) (tCO2e)	$\Delta C_{P,DefPA,i,t}$ (tCO2e)	$\Delta C_{P,DefPA,accum}$ (tCO2e)
12	2021	391,405	17,423	408,828	408,828
13	2022	228,330	27,587	255,917	664,745

14	2023	163,309	34,856	198,165	862,910
Total		**783,044**	**79,866**	**862,910**	**862,910**

3.2.2.2 Accuracy assessment remotely sensed data

Assessing the accuracy of remotely sensed data is fundamental to validate the accuracy and reliability of the information provided by platforms such as Geobosques. Geobosques, a platform of the Ministry of Environment, provides forest cover maps for recent years, such as 2021, 2022 and 2023, with forest and non-forest classifications that allow identifying changes in cover on an annual basis. The accuracy of this data is verified through cross-validation methods with satellite imagery and ground truthing, which is essential to ensure that the classification of forest and non-forest areas correctly reflects actual conditions on the ground.

In reviewing the 2021 and 2022 data, certain inconsistencies have been detected in the delimitation of forest and non-forest areas, attributable to factors such as cloud cover and variability in the resolution of the satellite images used; these factors make accurate classification difficult, especially in transition areas. Forest and non-forest classifications for these years may also differ due to changes in the vegetation density threshold used to define an area as “forest”. For 2023, Geobosques has improved some of these aspects, allowing for greater accuracy in identifying deforested areas and detecting regeneration in previously affected areas.

To validate the accuracy of Geobosques data, the Ministry of Environment (MINAM) uses satellite images from sources such as Landsat and Sentinel-2, which are analyzed to monitor forest cover and detect forest and non-forest areas on an annual basis. Accuracy levels can vary, being higher in areas of dense forest (85% or more) and decreasing in areas with high cloud cover or transition areas, where they can reach 70%-75% agreement.

3.2.2.3 Monitoring forest degradation

The degradation emissions attributed to the development of the project are developed below and are summarized as zero emissions ($\Delta C_{P,DegW,i,t} = 0$).

3.2.2.3.1 Degradation through extraction of trees for illegal timber or fuelwood and charcoal

As described in section 2.2.3.1, some chestnut concessionaires have chosen to carry out legal logging activities. Although they do not have FSC certification, these concessionaires implement sustainable practices aligned with the principles of conservation and responsible forest management, ensuring forest protection and compliance with current environmental regulations.

Therefore, net emission reductions generated in concessions where legal logging has taken place are excluded from the project's total climate contribution during the evaluation period. This means that emission reductions and Verified Carbon Units (VCUs) generated by the project are not attributed to these areas. This approach has been verified several times under the established standards, demonstrating its conservative nature.

Table 19 Excluded areas in the period 2021-2023

	# Concession	# Remaining concessions	Excluded area (ha)	PA (ha)
# Total concessions	793	-	-	647,675.9

Exclusion 2021	56	737	48,000.8	599,675.1
Exclusion 2022	77	716	67,958.0	579,717.9
Exclusion 2023	7	786	6,292.7	641,383.2

This procedure ensures that areas with legal logging are set aside from the area generating results, which means that potential emissions from degradation due to logging are considered zero. In addition, this practice does not modify the non-permanence risk assessment, since concessionaires that carry out selective logging are still part of the project. As mentioned, logging occurs sporadically and within the legal framework, while concessionaires continue to receive training and benefits. In this way, the level of forest protection and land use remain stable, without increasing the risk of non-permanence.

3.2.2.3.2 Degradation through extraction of trees for illegal timber or fuelwood and charcoal

The project does not contemplate degradation emissions from illegal logging, as this activity is not expected to occur within the project area. In order to gather basic information to monitor potential emissions from illegal degradation activities. In this context, an assessment of forest degradation was carried out, focusing on the illegal extraction of trees without authorization from the competent authorities, for the sale of timber or conversion to fuel or charcoal (See *4_Calculos Carbono\Degradación Ilegal*).

For this evaluation, the procedure established in the VMD0015 v2.3 was followed, by surveying transects in the sites where the concessionaires had informed the Monitoring, Reporting and Surveillance team about the presence of illegal loggers. These transects made it possible to evaluate the presence of stumps, their dimensions, species, among other relevant aspects.

The application of semi-structured interviews (PRA) with a sample of 78 people (concession holders or family members) within the scope of the REDD+ project, between March 19 and April 16, 2021, it was determined that there is potential for illegal logging in the project area. Both indicators (firewood use-21% and threats from illegal logging-28%) exceed 10%, so a field assessment of degradation should be conducted, as indicated in module VMD0015.

Area that is potentially subject to degradation ($ADeg,i$): The evaluation area corresponds to the concessions that are part of the project. In these areas, it is necessary to delimit the access routes, such as roads, rivers and streams, that impact the deforestation areas, in order to identify all feasible roads for the transport of illegally sourced timber

The result of the Participatory Risk Analysis (PRA) was the penetration distance, which refers to the distance that the deforestation agent is willing to advance to extract timber. This distance was identified by the concession partners on the map and through dialogue with the Monitoring, Reporting and Surveillance team. It was determined that the penetration distance is 1.75 km. Based on this information, a buffer with that fixed distance was established around all demarcated access roads, resulting in 86,909.61 ha as the potential area of impact (ADegW). This is illustrated in Figure 10.

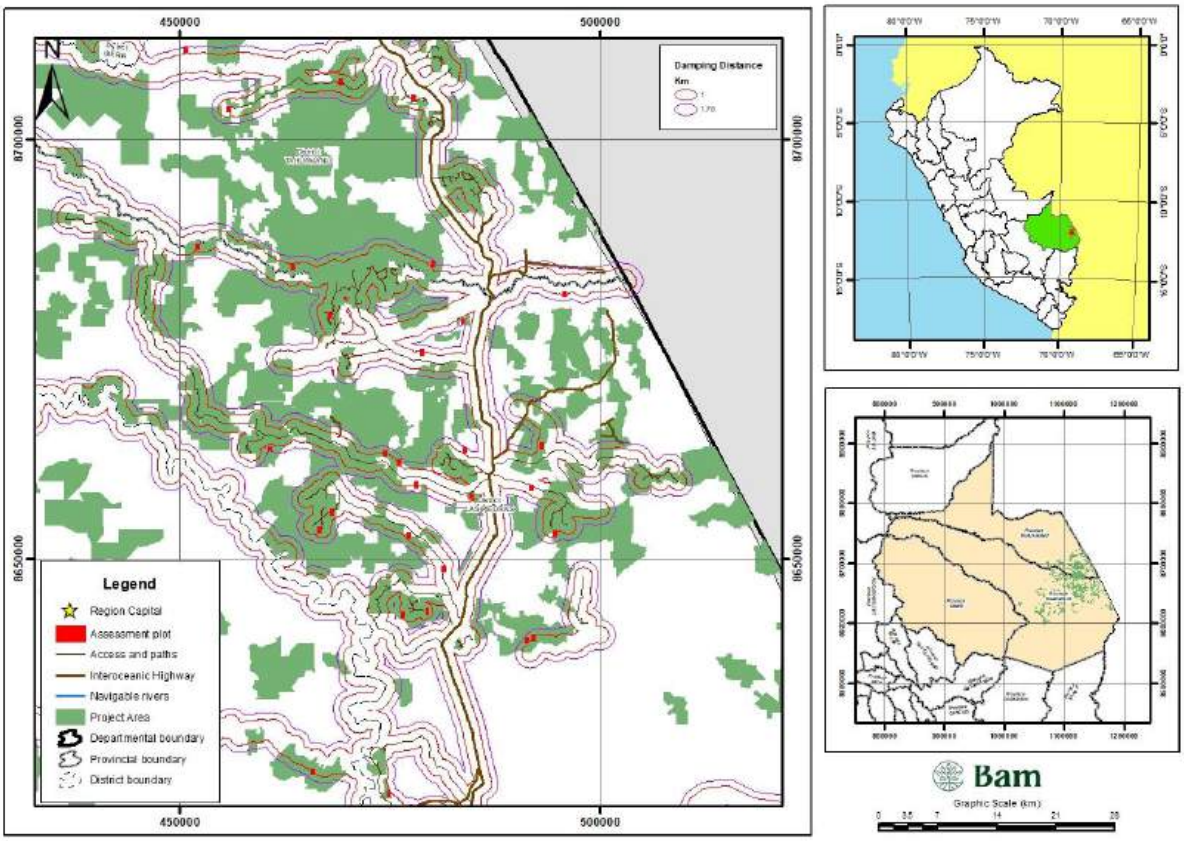

Figure 13 Map of buffer identification and sampling points

Plot design: Stratified random sampling will be carried out in the Project area to collect information on illegal logging of unauthorized trees of forest species. This sampling will be carried out in the Project area with the aim of documenting unauthorized harvesting, taking into account seasonality. The objective is to collect data on the current status of individuals of forest species in non-timber forest concessions. The information obtained will be used to identify degradation impacts, such as illegal logging. A specifically designed field sheet will be used to assess degradation caused by illegal logging of unauthorized trees in the Project's non-timber forest concessions.

Sample unit design and installation: The modified Whittaker plot design (Campbell et al., 2002; Ghorbani, Taya, Shokri, & Naseri, n.d.), which is proposed to assess degradation, including illegal logging, will be used. This design has been adapted to a rectangular shape of 700 meters x 400 meters, consisting of 28 subplots of 100 x 100 for a total of 28 hectares or 28,000 square meters equivalent to 280 Whittaker plots.

Fifty-two plots were developed in the field, with the dimensions of 28 hectares according to the methodology developed. The work was developed throughout 2021, according to the field trips carried out by the MRV team. A total of 1,456 ha of forest were evaluated, and 56 stumps were found during the evaluation.

Figure 14 Proof of illegal logging at concessionaire assessed

The calculation method used was consistent with that used for the determination of the project's Emission Factor, based on the Forest Reference Emission Level (NREF) developed for Peru in 2021, as shown in Table 20

Table 20 Biomass Equation used for calculation

Parameter	Equation	Variables	Fuente
Aboveground biomass	$AGB = 0{,}0673 \times (qHDAP^2)^{0{,}976}$	q = species density (g/cm3) D= DBH (cm) H= Height (m)	Chave, J., Réjou-Méchain, M., Búrquez, A., Chidumayo, E., Colgan, M. S., Delitti, W. B. C., … Vieilledent, G. (2014). Improved allometric models to estimate the aboveground biomass of tropical trees. Global Change Biology, 20(10), 3177–3190. doi:10.1111/gcb.12629

The final result of the carbon equivalent estimates for the felled trees is 580.88 tCO2e (See *4_Calculos Carbono\Degradación\ Degra-Ilegal-21_ExPost_REDD+_BNC_VF*) Illegal, a value consistent with the dimensions in diameter and height of the stumps found in the field. This data will allow extrapolating the values at the level of potential impact area, thus evaluating the effect of degradation.

Using equation 8 of module VMD00015 v.2.2 to calculate the effect of degradation, a net change in the carbon stock of 34,673 tCO2e was obtained. This value, compared to the baseline emissions according to the T-GIS tool, is classified as de minimis, as it represents only 0.96% of the baseline emissions expected to be generated in the period 2021-2026. Since logging is less than 5%, it is assumed that degradation is minimal, so no additional discounting or more extensive monitoring is required.

This is due to the low presence of local inhabitants engaged in illegal firewood or charcoal extraction, an assertion supported by the monitoring reports between 2010 and 2020, where no such activity has been recorded.

3.2.3 Leakage Emissions (VCS, 2.5, 3.2, 3.6, 3.15, 4.3)

Monitoring deforestation in the leakage belt project scenario based on the loss of forest cover will produce an estimate of emissions resulting from any deforestation, using the following equations.

$$\Delta C_{P,DefLB,i,t} = \sum_{u=1}^{U} (A_{DefLB,u,i,t} * \Delta C_{pools,P,Def,u,i,t})$$

Where:

$\Delta C_{P,DefLB,i,t}$	Net change in carbon stock as a result of deforestation in the case of the project in the leakage belt in stratum i in year t, t CO2e
$A_{DefLB,u,i,t}$	Area of recorded deforestation in the escape belt stratum i converted to land use u in year t; ha
$\Delta C_{pools,Def,u,i,t}$	Net changes in carbon stocks in all pools in the case of the project in land use u in stratum i in year t; t CO_2e ha^{-1}
u	1, 2, 3, … U post deforestation land uses
i	1, 2, 3, … M strata
t	1, 2, 3, … t* years elapsed since the start of project activity

The carbon contents in aboveground and belowground biomass of the lowland rainforest used to quantify carbon stock changes in the leakage belt were the same as those used for the project area.

The estimation of total GHG emissions under the baseline scenario in the LK was carried out in a similar manner to the estimation carried out for the project area

The deforested areas are identified using GIS software to process the information from the Geobosque Platform reports, which in turn are contrasted with the monitoring reports, and are presented in Table 21

Table 21 Deforestation areas recorded in the leakage belt area in the monitoring period with project

Project year (t)	Calendar year	$A_{DefPLKBu,1,t}$ (ha)
12	2021	2,179.9
13	2022	1,816.0
14	2023	1,787.5
Total		**5,783.4**

Leakage emissions are generated when the monitored deforestation in the LKB (Leakage Belt) exceeds the deforestation trend that would occur in the absence of the project. This approach is based on comparing the deforestation observed during the monitoring period with the average deforestation analyzed in the same area for the historical period without intervention. If deforestation in the LKB exceeds the baseline projection, emissions are attributed to the project due to displacement of

deforestation activities outside the project area. Therefore, although deforested areas were observed, these are not fully attributed to the project activity, thus considering a discount for leakage emissions.

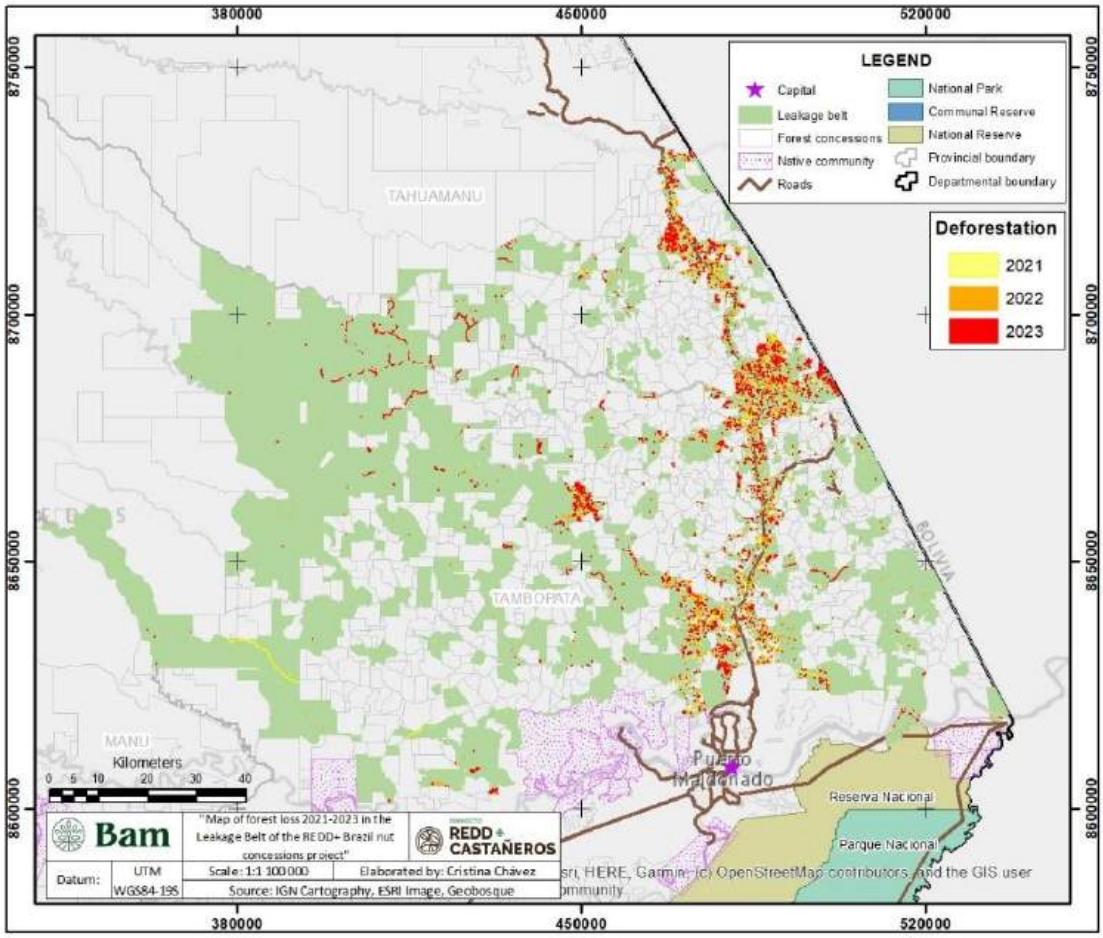

Figura 15~~14~~ Loss of forest in the leakage belt
Source: Authors

The calculation of leakage emissions follows a principle of conservatism, ensuring that any negative impacts on adjacent areas attributable to the project are accounted for and that net emission reductions remain accurate and verifiable. The assessment of forest transition to other land cover is distributed and assigned through a satellite analysis which assesses land use as seen in the deforested areas in the monitoring period following the same percentage distribution as the modeling. This process includes a regeneration discount consistent with that calculated in the modeling, as shown in Table 22

Table 22 Transition from deforested forest to other cover during the monitored period in the escape belt.

Project year (t)	Calendar year	Forest to Croplands (ha)	Forest to Grasslands (ha)	Forest to Settlements (ha)	Forest to Mining (ha)	Forest to Other Lands (ha)	Forest to water (ha)	Total Deforestation (ha)

12	2021	103.42	236.96	13.51	215.36	30.77	15.44	615,46
13	2022	42.27	96.85	5.52	88.02	12.57	6.31	251,56
14	2023	37.48	85.88	4.90	78.05	11.15	5.60	223,06
Total		**183,17**	**23.94**	**381.43**	**419.70**	**54.49**	**27.35**	**1090.08**

Using the emission factors distinguished for each transition, the emissions produced by the project in the monitoring period within the leakage belt detailed in Tabla 23 are calculated.

Tabla 23 Net GHG emissions due to unplanned deforestation in the Rift Belt

Project year (t)	Calendar year	$\Delta C_{LK\text{-}ASU\text{-}LB,\ unplanned}$	$\sum \Delta C_{LK\text{-}ASU\text{-}LB,\ unplanned\ accum}$
12	2021	269,682	269.682
13	2022	121,722	391.404
14	2023	113,931	505.335
Total		**505.335**	**1,166,422**

3.2.4 GHG Emission Reductions and Carbon Dioxide Removals (VCS, 3.15, 4.1)

The total net greenhouse gas emission reductions from the REDD project activity were calculated as follows:

$$NER_{REDD+} = \Delta C_{BSL,REDD} - \Delta C_{WPS,REDD} - \Delta C_{LK,REDD}$$
$$= \Delta C_{BSL,unplanned} - \Delta C_{WPS,unplanned} - \Delta C_{LK-AS,unplanned}$$

Where:

NER_{REDD+}	Net reduction of GHG emissions for the year t*; tCO_2e
$\Delta C_{BSL,REDD}$	Net GHG emissions in year t* under baseline scenario; tCO_2
$\Delta C_{WPS,REDD}$	Net GHG emissions in year t* under project scenario; tCO_2
$\Delta C_{LK,REDD}$	Net GHG leakage emissions in year t* under project scenario t*; tCO_2
$\Delta C_{BSL,unplanned}$	Net GHG emissions due to unplanned deforestation under the baseline scenario; tCO_2e
$\Delta C_{WPS,unplanned}$	Net GHG emissions due to unplanned deforestation under the project scenario; tCO_2e
$\Delta C_{LK-AS,unplanned}$	Net GHG leakage emissions due to unplanned deforestation under the project scenario tCO_2e

It is established that the Project's emission reductions occurred in the monitored period from 2021 to 2023, as shown in **Error! Reference source not found.**.

Table 24 Net GHG emission reductions from REDD activity

Vintage period	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage emissions (tCO_2e)	Buffer pool allocation (tCO_2e)	Reductions VCUs (tCO_2e)	Removals VCUs (tCO_2e)

01-01-2021 to 31-12-2021	2,808,380	408,829	269,682	255,585	1,874,284	0
01-01-2022 to 31-12-2022	3,000,570	255,918	121,722	314,752	2,308,178	0
01-01-2023 to 31-12-2023	3,613,411	198,165	113,931	396,158	2,905,157	0
Total	**9,422,361**	**862,912**	**505,335**	**966,495**	**7,087,619**	**0**

For REDD project activities. According to the non-permanence risk assessment developed by the project, using the NPRT V 4.2. the results obtained are summarized in the following Table 24, to see the generated assessment go to 4_Carbon Calculations "*4_Calculos Carbono\01_Analisis de Reserva\Informe NPRT del REDD+ BNC*.

Table 24. NPRT summary for the project

State the non-permanence risk rating (%)	12%
Has the non-permanence risk report been attached as either an appendix or a separate document?	☒ Yes ☐ No
For ARR and IFM projects with harvesting, state, in tCO2e, the Long-term Average (LTA).	The project is a project to avoid unplanned deforestation, so the LTA is not estimated.
State, in tCO2e, the expected total GHG benefit to date.	26.790.092 VCUs

The buffer was calculated as:

$$Buffer_{total} = Buffer_{unplanned} = NER_{REDD+} * Buffer\%$$

Where:

Total reserve for non-permanence risk; tCO_2e

Total reserve for non-permanence risk associated with activities to reduce unplanned deforestation; tCO_2e

Net reduction of GHG emissions in year t*; tCO_2e

Percentage of reserve due to risk of non-permanence; %.

Estimation of Verified Carbon Units (VCUs)

The following equation was used to estimate the number of VCUs:

$$VCU_t = NER_{REDD+} - Buffer_{total}$$

Where:

VCU_t Number of Verified Carbon Units (VCU); tCO_2e
NER_{REDD+} Net reduction of GHG emissions in year t*; tCO_2e
$Buffer_{total}$ Total reserve for non-permanence risk; tCO_2e

In order to show the differences in the estimated ExAnte and ExPost GHG emission reductions achieved during the monitoring period, **Error! Reference source not found.** shows that the percentage differences are low, because the ExAnte emission assumptions are established based on the information collected during the monitoring period.

Tabla 25 Comparative analysis between Ex-Ante and Ex-Post emissions

Vintage period	Ex-ante estimated reductions/ removals	Achieved reductions/ removals	Percent difference	Explanation for the difference
01-01-2021 to 31-12-2021	2,011,816	1,874,284	6.84%	There is a high correspondence between the ExAnte and ExPost emission reduction estimates, with a difference of 3.79%. This value confirms that the methodological approach and data processing used in both scenarios are consistent and accurate. The low variation between both estimates reinforces the reliability of the results, validating the robustness of the methods applied to project and verify emission reductions.
01-01-2022 to 31-12-2022	2,295,940	2,308,178	0.53%	
01-01-2023 to 31-12-2023	2,793,599	2,905,157	3.99%	
Total	**7,101,355**	**7,087,619**	**3.79%**	

3.3 Optional Criterion: Climate Change Adaptation Benefits

The project does not seek to be validated at the Gold Level for its climate change adaptation benefits.

3.3.1 Activities and/or processes implemented for Adaptation (CCB, GL1.3)

The project does not seek to be validated at the Gold Level for its climate change adaptation benefits.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CCB, CM2.1)

Community group	Project partners: 793 Brazil nut concessionaires
Impacts	• Increased capacity and support for the management of their concessions, in compliance with the provisions of the concession contracts with the Peruvian State. Between 2021 and 2023, concessionaires received 1,513 technical assistance, 769 legal assistance, attended more than 77 workshops, among other activities. • Improved economic conditions that favor their livelihoods around conservation, strengthening Brazil nut production and other sustainable activities. Three productive pilots were initiated: forest recovery through agroforestry plots and enrichment, organic certification of Brazil nut, and palm fruit harvesting. In addition, as a result of the conservation efforts, direct monetary benefits were provided to the concession partners. In addition, in 2023 the University Scholarship Program was launched, which was awarded to 3 children of Brazil nut producers. (See: 5_Cobeneficios/ Resumen avances REDD+ Castañeros 2021-2023) • The interests and needs of the Brazil nut concessionaires are represented by their Federation and the Project at different levels of government and with other actors. FEPROCAMD held more than 28 meetings, assemblies and other activities on behalf of the Brazil nut sector. (See: 6_Comunidad/04_Impacto/03_FEPROCAMD/ Informe gestión FEPROCAMD 2021_2023_V1).
Type of benefit/cost/risk	Actual and direct benefits
Change in well-being	• Strengthened and sustainable livelihoods. • Increased income and economic security. • Increased representation and defense of their interests.

Community group	Partners and non-partners of the project
Impact	• The interests and needs of the Brazil nut concessionaires are represented by their Federation and the Project at different levels of government and with other actors.

	FEPROCAMD held more than 28 meetings, assemblies and other activities on behalf of the Brazil nut sector. (See: 6_Comunidad/04_Impacto/03_FEPROCAMD/ Informe gestión FEPROCAMD 2021_2023_V1).
Type of benefit/cost/risk	Actual and direct benefits
Change in well-being	• Increased representation and defense of their interests.

4.1.2 Negative Community Impact Mitigation (VCS, 3.19; CCB, CM2.2)

No negative impacts on the well-being of the Brazil nut community were identified as a result of the activities implemented by the project. However, strategies were implemented under a precautionary approach to adequately manage any conflicts between stakeholders and to protect areas of high conservation value related to community well-being. These strategies include:

Socialization of activities: during 2021 and 2023 more than 35 decentralized workshops were held with the participation of Brazil nut concessionaires (see: *17_Partes Interesadas/01_Socializacion*).

Direct communication and feedback: formal channels such as the complaints, claims and suggestions mechanism and other channels such as the WhatsApp and Facebook groups were made available to all stakeholders. Periodic participatory evaluations were also carried out as part of the monitoring plan (see: *06_Comunidad/01_Herramientas de recolección*).

Control and surveillance monitoring system: the control and surveillance monitoring system were implemented, allowing the identification and permanent attention of alerts from geographic information systems and alerts from the concessionaires themselves. By receiving and analyzing these alerts, field inspections were carried out in the concessions involved to prevent or stop any negative impact (see: *06_Comunidad/04_Impacto/04_Monitoreo Control Vigilancia*).

Technical and legal assistance: the project provided permanent assistance to correctly delimit the boundaries of the project areas and concessions, as well as helping concessionaires to comply with all regulatory requirements, preventing negative impacts and conflicts related to boundaries and territorial limits (see: *06_Comunidad/04_Impacto/04_Gestion de las Concesiones*).

4.1.3 Net Positive Community Well-Being (VCS 3.19; CCB, CM2.3, GL1.4)

All impacts generated by the project on the Brazil nut community and other stakeholders are positive. These net positive impacts are described below:

The consolidation of FEPROCAMD with the support of the project allows it to have the capacity to represent the chestnut concessionaires before the authorities and to establish together with BAM strategies that improve the Brazil nut activity. Between 2021 and 2023, FEPROCAMD held more than 20 meetings with the project team, authorities and grassroots Brazil nut associations to address the interests and needs of the community (see: 6_Comunidad/04_Impacto/03_FEPROCAMD). For other example see: https://www.bosques-amazonicos.com/blog/bosques-amazonicos-participa-en-conversatorio-sobre-el-mercado-de-carbono-y-proceso-redd-nacional-junto-a-verra-y-minam/

Improved conditions for the sustainable management and protection of their concessions through ongoing technical and legal assistance, reducing the costs borne by concessionaires and providing support to combat external threats. Between 2021 and 2023, technical and legal assistance was provided as indicated above (see6_*Comunidad/ 04_Impacto/01_Gestion de las Concesiones*).

Concessionaires' capacities have been strengthened through training and activities that enable them to improve their livelihoods and generate more income through sustainable use of forest resources. For example, 28 workshops were held to train concessionaires in sustainable activities such as palm fruit harvesting, agroforestry systems and organic certification of Brazil nuts (see: 6_Comunidad/ 04_Impacto/02_Economía y medios de vida y 6_Comunidad/02_Participacion). On this last point, the project provided support for the formation of ARCOMAD (Association of Organic Brazil Nut Collectors of Madre de Dios) to obtain North American, European and Peruvian certification. Subsequently, with technical assistance from the project team, ARCOMAD signed a commercial agreement with a Brazil nut exporting company to obtain better conditions for the sale of 2000 barrels for the benefit of the members. See more at: https://www.bosques-amazonicos.com/blog/redd-castaneros-primera-venta-directa-de-castana-organica/

In 2023, the University Scholarship Programme was launched, providing financial support to 3 children of Brazil nut concessionaires so that they can continue their university studies and become future leaders in the Brazil nut sector. See more at: https://www.bosques-amazonicos.com/blog/becas-castaneras-universitarias/.

In addition, between 2021 and 2023, direct economic benefits were distributed to the project's Brazil nut partners for the sale of carbon credits. See more: https://www.bosques-amazonicos.com/blog/redd-castaneros-entrega-de-beneficios-dic-2022/

Figure 15 FEPROCAMD meeting with congressman's participation (2022)

Figure 16 Legal support for the handling of complaints filed by concessionaires (2022)

Figure 17 Delivery of economic benefits (2022)

Figure 18 Organic certification workshop (2022)

Figure 19 1st Winners of the University Scholarship Program of the REDD+ Castañeros Project

The project has developed activities that contribute to the adaptation of Brazil nut concessionaires to the possible impacts of climate change:

- Diversification of income and livelihoods: in 2021, workshops were held to receive suggestions for projects to improve the income of members through the diversification of sustainable economic activities. After evaluating the suggestions, 3 projects were initiated in 2022: forest recovery through agroforestry plots and enrichment of clearings with Brazil nut, organic certification of Brazil nut, and palm fruit harvesting, whose activities continued to be implemented during 2023 (see: 6_Comunidad/04_Impacto/02_Economía y medios de vida). In this regard, more than 28 workshops were held to strengthen capacities in sustainable economic activities.

- Forest recovery and reforestation: through an agreement with the IIAP, 7 training workshops were held, the production of seedlings in nurseries and the preparation of areas to start the planting process began (see: 5_Cobeneficios/ Resumen avances REDD+ Castañeros 2021-2022).

- Capacity building: in the period 2021-2023, more than 77 workshops were held to train the Brazil nut community on issues related to the REDD+ mechanism, conservation, sustainable management of concessions and compliance with regulations, generation of new production chains, among other issues (see: 06_Comunidad/02_Participacion/Matriz talleres y capacitaciones REDD+ BNC).

4.1.4 Protection of High Conservation Values (CCB, CM2.4)

The project has not negatively affected the high conservation values (HCV), on the contrary, it has implemented strategies to preserve these areas and the benefits they provide to the Brazil nut partners.

As mentioned above, one of the main strategies is the implementation of a monitoring, control and surveillance system that helps prevent and control threats affecting Brazil nut forests in the project area. Furthermore, with the technical and legal support provided by the project, concessionaires are better able to protect these areas and manage them in a sustainable manner.

4.2 Other Stakeholder Impacts

4.2.1 Mitigation of Negative Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.2)

No negative impacts on Other Stakeholders have been identified, however, permanent communication and cooperation between the project team, FEPROCAMD and other stakeholders (environmental authorities and institutions) was promoted as a strategy to generate mutual benefits and manage any possible negative impacts in time.

Thanks to permanent communication, joint training workshops were held with the participation of REDD+ project partners and other stakeholders (see: 06_Comunidad/02_Participacion/Matriz talleres y capacitaciones REDD+ BNC).

Likewise, FEPROCAMD together with the project team participated in work and coordination meetings with institutions and authorities. In the period 2021-2023, FEPROCAMD met with various authorities and institutions, such as meetings with the congressman of the region, the Ministry of Environment and other institutions through the Brazil nut technical roundtable (see: 6_Comunidad/04_Impacto/03_FEPROCAMD).

Figure 20 GEOBOSQUES-MINAM training with FEPROCAMD

4.2.2 Net Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.3)

The impacts generated by the project on the Other Stakeholders are net positive. No negative impacts have been identified and through ongoing communication and coordination, any potential risks are mitigated, and mutual benefits are generated. Relationships are positive and cooperative with all other stakeholders, which is reflected in the jointly implemented activities that contribute to the achievement of the common objectives.

4.3 Community Impact Monitoring

4.3.1 Community Monitoring Plan (CCB, CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

Objective: Strengthen the organizational and operational capacity of FEPROCAMD and its members to ensure the sustainable management of concessions.

Indicator	Frequency	Results
Active organization in compliance with its statutes	Every two years	FEPROCAMD proves to be an active organization that represents and supports Brazil nut producers in the sustainable management of their concessions. See: 6_Comunidad/04_Impacto/03_FEPROCAMD/Informe gestión FEPROCAMD 2021-2023
Number of women in leadership positions in the organization	Every two years	2/6 (33.3%) of the FEPROCAMD board of directors are women. See: 6_Comunidad/04_Impacto/03_FEPROCAMD
Number of project concessionaires with approved/current management documents (DEMA)	Every year	• 2021: 12% of concessionaires with DEMA in effect • 2022: 31% concessionaires with DEMA in effect • 2023: 37% concessionaires with DEMA in effect.
Number of technical and legal support services for the management and protection of the concessions	Every year	• 2021: 231 assistances • 2022: 407 assistances • 2023: 875 assistances See: 6_Comunidad/04_Impacto/Gestion de las Concesiones

Objectives: Provide operational and commercial support to increase the income generated by the Brazil nut activity. Contribute to community sustainable livelihoods.

Indicator	Frequency	Results
Number of workshops and trainings/ Number of participants	Cada año	• 2021: 22 workshops and trainings with a cumulative participation of 650 people (44% women). • 2022: 33 workshops and trainings with a cumulative participation of 391 people (43% women). • 2023: 22 workshops and trainings with a cumulative participation of 645 people (43% women). See: 06_Comunidades/02_Participacion/Matriz talleres y capacitaciones REDD+ BNC
Number of initiatives implemented or in process	Cada año	**2021**: 10 workshops were held to identify proposals for productive projects in a participatory manner. The process gathered 560 suggestions. **2022**: 3 productive projects started Restoration through agroforestry plots and enrichment of clearings. Organic certification of chestnuts Palm fruit harvesting **2023**: the Association of Organic Collectors of Madre de Dios (ARCOMAD) was consolidated with the participation of 24 members, obtaining North American, European and

		Peruvian certification. A trade agreement was signed with an export company for the sale of 2000 barrels of organic Brazil nut at a better price. Ver: 6_Comunidad/04_Impacto/02_Economia y medios de vida
Number of women participating in the initiatives	Every year	• 2021: 70 suggestions by women received • 2022: +20 women registered in the initiatives • 2023: +9 women in the organic certification initiative (56%).
Ingresos familiares mensuales reportados	Every two years	• Income above poverty line: 36.8% Income reported without considering the direct monetary benefit delivered by the REDD+ project.
Perception of livelihood improvement in the project's Brazil nut concessionaires	Every two years	74% of concessionaires surveyed said the project has helped them improve their livelihoods.
Perception of the protection of Brazil nut concessions (HCV)	Every two years	• 66% of concessionaires surveyed are satisfied or very satisfied with the monitoring, control and surveillance activities of their Brazil nut concessions.

4.3.2 Monitoring Plan Dissemination (CCB, CM4.3)

Project progress, activities and results considered in the monitoring plan are publicly disseminated through the BAM website (https://www.bosques-amazonicos.com/). In addition, as mentioned above, summaries are disseminated through printed newsletters that are handed out at meetings and workshops with project partners (see: 17_Partes interesadas/02_Material informativo).

Figure 21 Illustrative images of information dissemination

4.4 Optional Criterion: Exceptional Community Benefits

4.4.1 Short-term and Long-term Community Benefits (CCB, GL2.2)

As demonstrated in the previous sections, the project has generated net benefits to the well-being of Brazil nut concessionaires in the short term and is on track to continue to generate benefits in the long term. The results of the monitoring plan (Section 4.3.1) show short-term benefits linked to participation in workshops and training, support for concession management and the consolidation of an organization capable of representing and defending their interests.

In the long term, improvements in the socio-economic conditions of the concessionaires will continue to be consolidated through the continuity of productive and commercial initiatives that strengthen the Brazil nut activity, in addition to diversifying their income through other sustainable activities, thus improving the well-being of Brazil nut families.

4.4.2 Marginalized and/or Vulnerable Community Groups (CCB, GL2.4)

Community Group	Elderly concessionaires (more than 60 years[18])

[18] LEY Nº 30490

Net positive impacts	The elderly partners of the Project have received net positive impacts by obtaining permanent support for the management of their concessions as demonstrated in the previous sections, constant monitoring of their areas and the improvement of their living conditions thanks to the economic benefits received from the emission reductions certified and sold.
Benefit access	The strengthening of the Brazil nut organizations and their capacity makes it possible to ensure transparency and equity in the distribution of and access to the benefits of the project, with due representation of the elderly population. In addition, mechanisms are in place to allow this population to participate in the project, present doubts or suggestions in a variety of ways, according to their needs. For example, due to the existing mobility and transportation barriers faced by older adults, the project holds decentralized workshops in population centers close to the partners to facilitate the participation of all. As another measure, the inclusion of family members who can provide support to the older concessionaires is also considered.
Negative impacts	There have been no negative impacts on any vulnerable populations or Brazil nut concessionaires in general. In order to prevent and manage any negative impacts in a timely manner, constant communication is maintained through face-to-face (meetings, workshops, interviews) and virtual (social networks) channels (see: *17_Partes Interesadas/01_Socializacion*).

4.4.3 Net Impacts on Women (CCB, GL2.5)

The project has generated net positive impacts on women's well-being and encourages their participation in all activities. This is demonstrated by the following facts:

- Participation of women in leadership positions in FEPROCAMD: 33% of the board of directors.
- Participation in project activities: 43% participation of women in workshops and 20 women participating in pilot projects.
- Specific monitoring of results and impacts on women concessionaires (see: 14_Reporte de Monitoreo/02_Comunidad).

4.4.4 Benefit Sharing Mechanisms (CCB, GL2.6

The implementation of the benefit sharing mechanism is described in Section 2.5.6. For more details see: 05_Cobeneficios\03_Distribucion Beneficios.

4.4.5 Governance and Implementation Structures (CCB, GL2.8)

The project's governance structure has allowed the effective participation of partner concessionaires in the decision-making processes and in the implementation of activities. Through ongoing coordination with the FEPROCAMD, which represents the Brazil nut community, the project team carries out annual planning of activities that respond to the concerns, needs and interests of the

concessionaires. Once this planning is approved and socialized, the different activities are implemented in coordination with FEPROCAMD and its associations, encouraging the participation of concessionaires and their families.

In addition, in decentralized workshops held in the main population centers where concessionaires live, they express their suggestions or resolve any doubts they may have about the project's activities in order to make the necessary improvements.

Table 26: Coordination meetings between FEPROCAMD and the REDD+ 2022-2023 project:

#	Meetings with FEPROCAMD	Date
1	Dialogue meeting about sales made during 2020 and 2021, profit sharing, payments, and planning.	12/05/2022
2	Dialogue meeting about sales made during 2020 and 2021, profit sharing, payments, and planning.	28/06/2022
3	Dialogue meeting about sales made during 2020 and 2021, profit sharing, payments, and planning.	02/07/2022
4	Meeting on the planning and annual budget for the implementation of the REDD project activities	30/03/2023
5	Meeting to define education and health initiatives	03/05/2023
6	Budget and Accountability Meeting	08/05/2023
7	Carbon Market Situation Report	21/07/2023

4.4.6 Smallholders/Community Members Capacity Development (CCB, GL2.9)

Over the years, the project has developed the capacity of concessionaires so that they can have an active and informed participation in the REDD+ project. This has been achieved thanks to the constant workshops and trainings implemented with the project together with FEPROCAMD, which highlight the objectives of the REDD+ project, discuss the main threats to forests, solution strategies, monitoring, control and surveillance of forests, sustainable management alternatives, and the voluntary carbon market, among other topics.

Aditionally, the information is complemented with the development of other skills, such as leadership, teamwork, use of mobile applications, and a university scholarship program for future leaders of the Brazil nut community. In total, more than 77 workshops have been implemented to develop the community's capacity to actively participate in the project, which are registered in

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

5.1.1 Biodiversity Changes (VCS, 3.19; CCB, B2.1)

Changes in biodiversity as a result of project activities during the monitoring period are described. These changes are monitored and measured through indicators defined in the respective project monitoring plan, through biodiversity field assessments, which have allowed the collection of data from the project area. This monitoring report includes the results of the biodiversity assessments in 2021 and 2022. The monitoring plan to follow up on the floristic and faunal structure and composition of the Brazil nut-dominated forests to establish expected trends and mitigation strategies against potential negative impacts.

Change in Biodiversity	Ecosystem dominated by brazil nut forest, a threatened species (*Bertholletia excelsa*).
Monitored Change	The project activities are focused on restoring, maintaining and conserving the integrity or functionality of natural ecosystem spaces through actions of security and territorial surveillance, monitoring and protection of biological wealth in general and especially of Brazil nuts, hoping that the forest and the richness of the biological diversity contained in it will be maintained and improved over time. Three zones were monitored in the provinces of Tambopata and Tahuamanu, in two of them the dominance, frequency and abundance of Brazil nuts (*Bertholletia excelsa*) was evidenced, sustaining an Importance Value Index (IVI) higher than 20%, higher by about 13% compared to the next species with the highest IVI (see *33_Biodiversidad\01_Informes_Biodiversidad (MR)\Flora*); This is the result of project activities and workshops on the protection of the Brazil nut tree, based on its appropriate use as an NTFP. A monitoring plan was also designed to follow up on the structure and floristic composition of the forest's humid forests to establish expected trends and mitigation strategies against potential negative impacts.
Justification of Change	The identification of flora species, including Brazil nut, was carried out by applying the methodology proposed by the Rapid Assessment Program - RAP of Conservation International, for the evaluation of biodiversity through different methods and techniques, such as the study of permanent plots using the Modified Gentry method of 0.1 ha. The protection and conservation of the forest is done mainly through the implementation of a monitoring system, surveillance

	and implementation of the early warning system, avoiding the realization of any agro-industrial activity that generates a change in land use. As a result, forest cover, habitats and biodiversity of wild flora and fauna can be maintained in the natural ecosystems of the project area, and wildlife can continue to fulfill their ecological function.

Change in Biodiversity	Wildlife species richness in the Project Area.
Monitored Change	A monitoring plan was designed to follow up on the faunal richness of the project area's forests in order to establish expected trends and mitigation strategies against potential negative impacts.

Species Richness (No. Species Recorded)			
Taxonomic Group	**Baseline 2021**	**First MR 2022**	**Cumulative**
Avifauna	224	277	337
Mammals	35	34	35
Amphibians	18	35	38
Reptiles	11	25	29

The conservation status of the species with the highest levels of threat is as follows:

- Avifauna: Two species are in Vulnerable status, corresponding to *Primolius couloni* (Macaw) and *Pionites leucogaster* (Blond Parrot).
- Mammals: Two species are in Threatened status, which are *Alouatta seniculus* (Mono coto) and *Pteronura brasiliensis* (Giant Otter) and three in Vulnerable status, which are *Priodontes maximus* (Yungunturo), *Tapirus terrestres* (Sachavaca) and the *Tayassu pecari* (Huangana).
- Reptiles: The *Boa constrictor* (Boa) is in Threatened status.

Justification of Change	The identification of fauna species was carried out applying the methodology proposed by the Rapid Assessment Program - RAP of Conservation International, using counting points, playback and photographic shots, recordings, mist nets for capture (in evaluation of birds), linear. transects, indirect censuses through direct and indirect sightings, camera traps (assessment of medium and large mammals) and mist nets (capture of flying mammals), transects and visual encounter search (VES), used in assessments of amphibian

	and reptile groups (see *3_Biodiversidad\01_Informes_Biodiversidad (MR)*). The Scientific Program for the evaluation and permanent monitoring of biodiversity (flora, fauna) within the Project area has allowed field expeditions on the conservation status in the project area, permanently identifying high conservation values and involving the Brazil nut community as part of the permanent monitoring of biodiversity in the area.

5.1.2 Mitigation Actions (VCS, 3.19; CCB, B2.3)

No negative impacts on biodiversity resulting from the activities implemented by the project have been identified. However, strategies have been established under a precautionary approach to adequately manage any conflicts between the parties involved and to protect areas of high conservation value related to the well-being of the community. These strategies include:

- Direct communication and feedback: formal channels such as the complaints, claims and suggestions attention mechanism and informal channels of communication with concessionaires and their representatives, such as the WhatsApp and Facebook group, are available to all stakeholders.
- Monitoring, control and surveillance system: Through territorial security actions, as part of the threat and risk reduction process, they have promoted the maintenance of the forest in its greatest extension, so that it does not suffer fragmentation processes in various critical areas and reduce the pressure of external actors on the forest.
- Control of illegal timber extraction: An agreement (Memorandum of Understanding) has been signed with USAID's Prevenir project to establish a mutual understanding with clear parameters for coordination and effective collaboration in achieving the shared objectives established to facilitate the implementation of REDD+ mechanisms.

5.1.3 Net Positive Biodiversity Impacts (CCB, B2.2, GL1.4)

In terms of the forest's floristic biodiversity, the positive impacts have been presented in the form of avoiding the deforestation of 18,810.34 ha of Amazonian rainforest in the PA, with respect to the baseline scenario proposed. Associated with this avoided deforestation, the release of 8,054,114 tCO2e into the atmosphere was avoided, contributing to the maintenance of the structure and ecological composition of the ecosystem.

As shown in Figure 22, through participatory expeditions with the concessionaire community, the techniques and methods used in the study of biodiversity in the project area have been shared. The importance of these activities has been highlighted, as well as the specific methodologies for various species. Understanding of the specialties in monitoring ornithology, mastozoology and herpetology has been facilitated from their conceptual foundations, highlighting the objective and relevance of conservation, especially for vulnerable or indicator species (See *6_Comunidad\02_Participacion\2023\Reportes\Reporte actividad 28_04_23*).

Figure 22 Participatory biodiversity expedition

Likewise, in order to identify, protect and monitor the biological richness, through the implementation of the Science Program, two expeditions have been carried out (2021 - 2022) for the evaluation of biodiversity in four taxonomic groups (Flora, Mammals, Birds and Herpetofauna). To the sampling zone (outside the project area), both in the wet and dry seasons, with the team of expert scientists from the CORBIDI Ornithology and Biodiversity Center, generating relevant information for planning and identifying strategies for the conservation of biological diversity in the project area, species with high conservation value and with some degree of vulnerability.

The activities developed within the framework of the development of the science program and the care of the biodiversity present within the project area, for the monitoring period, are presented in Table 27, and can be found *3_Biodiversidad.*

Table 27 Activities carried out under the Biodiversity program of the project and BAM

Nº	Activities	Date	Supporting documents
1	Inter-institutional cooperation framework agreement between Universidad Nacional Agraria La Molina (UNALM) and Bosques Amazónicos S.A.	February 2021	Agreement document
2	First biodiversity assessment expedition to Mavila, Alerta and Alegría, Madre de Dios.	March 2021	-Reports from biological disciplines. - Photographic Archives

3	The biodiversity baseline was conducted as part of project monitoring	April 2021	-Biodiversity baseline -Reports from biological disciplines.
4	Agreement with the Museum of Natural History of the UNMSM	April 2021	Agreement document
5	Evaluation of biodiversity in the forests of Nuevo Paraíso, Madre de Dios with expert researchers from the Museum of Natural History of the University of San Marcos (UNMSM).	March 2022	-Reports from biological disciplines. - Photographic Archives
6	Field Report corresponding to Wet Season 2022 Evaluation - Madre de Dios (Concesión Castañera de Florencia Paredes)	March 2022	-Reports from biological disciplines. - Photographic Archives
7	Agreement with USAID's Prevenir project.	March 2022	Documento de acuerdo
8	Second biodiversity assessment expedition to Mavila, Alerta and Alegria, Madre de Dios Evaluating: Flora, Herpetology, Mammals and Ornithology.	September 2022	-Reports from biological disciplines. - Photographic Archives
9	Inter-institutional cooperation framework agreement between Rainforest Expeditions and Bosques Amazónicos S.A.	September 2022	Agreement document
10	Field Report corresponding to Evaluation in Humid Period 2023 - Madre de Dios (Marita Vargas Cardozo's "Los Angeles" Brazil nut Concession).	April 2023	-Reports from biological disciplines. - Photographic Archives
11	Participatory expedition with concessionaires sharing the techniques and methods used in the biodiversity study in the project area.	April 2023	-Reports from biological disciplines. - Photographic Archives
12	Survey of 188 brazil nut concessionaires, where the key fauna and flora species for their concession are socialized and questioned.	December 2023	- Excel file with answers

It is important to highlight that BAM's commitment goes beyond its own operations. It collaborates closely with renowned organizations such as CORBIDI, the Natural History Museum of the Universidad Nacional Mayor de San Marcos, the Herbarium of the Universidad Nacional Agraria - La Molina and the San Diego Zoo. This collaboration further strengthens conservation efforts.

The following are the actions carried out, which highlight that there has been no negative effect on the species found with any degree of threat, from the expeditions carried out.

Alouatta seniculus o Mono coto *Pteronura brasiliensis o Lobo de río* *Boa constrictor o Boa*	The project has developed actions aimed at the care and protection of endangered species, based on the conservation of natural vegetation cover and the restriction of bushmeat hunting, a habitat in which it develops and grows naturally; likewise, in the context of promoting the implementation of sustainable economic activities, the care and preservation of biodiversity is established as a criterion.

5.1.4 High Conservation Values Protected (CCB, B2.4)

The development of the components of the monitoring, control and surveillance system (MCV) and the Science Program has managed to protect the forest cover that involves maintaining the HCV identified as "Brazil nut-dominated forest", important for biodiversity conservation, as well as the fragile ecosystem called, mainly within the project area, which has allowed maintaining the integrity and functionality of habitats, natural ecosystems and species of flora and fauna, protecting them from external pressures and threats. Therefore, there is no negative impact on them and no related mitigation strategies have been required.

5.1.5 Species Used (VCS, 3.19; CCB, B2.5, 2.6)

In the project area, the natural regeneration of Brazil nut is promoted through rehabilitation and enrichment. The Brazil nut (*Bertholletia excelsa*) inhabits forests in the alluvial plains of the Peruvian, Bolivian and Brazilian Amazon. Seed dispersal is mainly by the agouti *(Dasyprocta variegate*,) which gnaws and leaves the seed exposed. In addition, the Agouti buries the seeds of the Brazil nut, allowing environmental factors to disintegrate the hard shell of the Brazil nut to obtain food with the least amount of energy, but sometimes the Agouti forgets where it stored the seeds, allowing in many cases their germination.

The other species that have been used for the productive pilots correspond to species with agricultural value, of local origin.

5.1.6 Invasive Species (VCS, 3.19; CCB, B2.5)

Considering the list of species used in Section 5.2.5 and the information in the Global Invasive Species Database[19], no known invasive species will be introduced into any area affected by the project.

5.1.7 GMO Exclusion (CCB, B2.7)

The conservation of existing forests and the restoration of degraded areas in the project area will use native species endemic to the Brazil nut forests of the project region, which will be sourced from seed trees in the area. In addition, this enrichment will not be considered in GHG accounting.

5.1.8 Inputs Justification (VCS, 3.19; CCB, B2.8)

No chemical fertilizers or agricultural products will be used in this project because of the proximity to bodies of water. The use of integrated pest management and natural fertilizers will be promoted.

5.2 Offsite Biodiversity Impacts

5.2.1 Negative Offsite Biodiversity Impacts (CCB, B3.1) and Mitigation Actions (CCB, B3.2)

The implementation of project activities during the reporting period has focused on the protection, territorial monitoring and conservation of the forest in order to maintain forest cover, avoiding

[19] *Global Invasive Species Database*. Disponible en: http://www.iucngisd.org/gisd/

deforestation due to change of use and degradation due to illegal logging activities. Therefore, there have been no negative impacts on biodiversity outside the project area.

5.2.2 Net Offsite Biodiversity Benefits (VCS, 3.19; CCB, B3.3)

With respect to the net benefits on biodiversity outside the project area, it is expected that the activities will generate more favorable conditions for the conservation and sustainable management of the Brazil nut forest within the project area, generating favorable conditions for the maintenance of local fauna. By conserving the rainforest, it is expected to contribute to the maintenance of ecological connectivity with other ecosystems in the region and, therefore, generate a positive impact on the movement of species. As evidenced in session 5.1.1, the results of the biodiversity monitoring show that the adjacent forest cover is expected to present similar ecological conditions.

Throughout the project activities carried out in this monitoring period, particularly in the creation of a monitoring plan and primary data for the fauna in the project area, the project has opted to improve community knowledge about the importance of biodiversity conservation through training workshops on best practices.

5.3 Biodiversity Impact Monitoring

5.3.1 Biodiversity Monitoring Plan (CCB, B4.1, B4.2, GL1.4, GL3.4)

The biodiversity variables monitored, methods used, dates, frequency and results of the evaluations carried out in the three sampling zones located within the project area are presented in the following table.

<table>
<tr><th>Biodiversity Components</th><th>Sampling methods, dates, frequency, locations</th><th>Indicators</th><th>Results</th></tr>
<tr><td rowspan="4">Flora (Forest)</td><td>Flora inventory, using the Gentry method, consists of surveying, in an area of 0.1 ha, all trees whose stem diameter at breast height (DBH) is 0.10 m or greater. For this purpose, 10 transects of 50 m x 2 m were carried out for each zone.</td><td>Species richness (no. of species, families and genera)</td><td>Record of 155 Individuals, 101 Species, 93 Genera, and 30 Families Presents a predominance of juvenile species, with diameters between 0.10 and 0.29 meters DBH.</td></tr>
<tr><td>Lista roja UICN/CITES/DS 004 2014 MINAGRI</td><td>IVI % (Importance Value Index)</td><td>See Table 28</td></tr>
<tr><td>Línea de base: marzo de 2021

Informe de Monitoreo 1: Septiembre y octubre de 2022</td><td>Biodiversity index (Shannon-Wiener index and/or Fisher's alpha parameter).</td><td><table><tr><th>Flora</th><th>Z1</th><th>Z2</th><th>Z3</th></tr><tr><td>Margalef</td><td>4.29</td><td>4.36</td><td>5.61</td></tr><tr><td>Fisher α</td><td>12.24</td><td>9.35</td><td>14.83</td></tr></table></td></tr>
<tr><td>Ubicaciones (3):

Áreas de muestreo: Alerta (Z1), Mavilla (Z2) y Alegría (Z3)

Frecuencia: Cada dos años</td><td>Threat status of species</td><td>MINAGRI: Copaifera paupera, Manilkara bidentata (VU)
UICN: Bertholletia excelsa (VU)</td></tr>
</table>

<table>
<tr><td rowspan="4">Large mammals</td><td>Linear transects with indirect records (including fresh tracks, feces, hair, burrows, excavations and partially consumed fruits/seeds) and complementary methods such as camera traps, mist nets and snares.</td><td>Species richness (no. of species, families and genera)</td><td>The composition of mammal species found showed a high diversity, with 34 species.
The family with the most species was Cebidae, with seven (07) species of the Order Primates.</td></tr>
<tr><td>Lista roja UICN/CITES/DS 004 2014 MINAGRI</td><td>Species accumulation curve estimators</td><td>See Figure 25<table><tr><th>Mammals</th><th>Z1</th><th>Z2</th><th>Z3</th></tr><tr><td>Margalef</td><td>3.38</td><td>3.67</td><td>3.90</td></tr><tr><td>Fisher α</td><td>5.55</td><td>5.66</td><td>6.35</td></tr></table></td></tr>
<tr><td>Línea de base: marzo de 2021
Informe de Monitoreo 1: septiembre de 2022</td><td>Species threat status</td><td rowspan="2">MINAGRI: Ateles chamek. (EN)
UICN: Sylvilagus brasiliensis y Ateles chamek). (EN); Tayassu pecari y Tapirus terrestres (VU).</td></tr>
<tr><td>Ubicaciones (3):
Áreas de muestreo: Alerta (Z1), Mavilla (Z2) y Alegría (Z3)
Frecuencia: Cada dos años</td><td>Key indicator species (presence)</td></tr>
<tr><td rowspan="4">Birds</td><td>Point counts, in which the observer remains at a fixed point for 10 minutes and records all birds seen and heard within and outside the 30-meter radius. Points were established systematically, with a distance of 200 meters between points.</td><td>Species richness (no. of species, families and genera)</td><td>A total of 277 bird species distributed in 22 orders and 48 families were recorded, representing almost 15% of the birds of Peru and 32% of the birds recorded in the department of Madre de Dios (eBird, 2022).</td></tr>
<tr><td>Lista roja UICN/CITES/DS 004 2014 MINAGRI</td><td>Species accumulation curve estimators</td><td>See Figure 27</td></tr>
<tr><td>Línea de base: marzo de 2021
Informe de Monitoreo 1: septiembre de 2022</td><td>Species threat status</td><td>MINAGRI: Primolius couloni (VU)
UICN: (EN); Pionites leucogaster, Primolius couloni (VU).</td></tr>
<tr><td>Ubicaciones (3):
Áreas de muestreo: Alerta (Z1), Mavilla (Z2) y Alegría (Z3)
Frecuencia: Cada dos años</td><td>Key indicator species (presence)</td><td>Endemic species: Malacoptila semicincta, Akletos goeldii and Lophotriccus eulophotes.</td></tr>
</table>

Amphibians / reptiles	Linear transects per sampling area of 50 m long by 4 m wide, separated by approximately 100 m, each was evaluated for an average time of 30 minutes in order to standardize the sampling effort, as a complementary method, timely records will be used.	Species richness (no. of species, families and genera)	Sixty species were recorded, 35 species of amphibians and 25 species of reptiles,
	Lista roja UICN/CITES/DS 004 2014 MINAGRI	Species accumulation curve estimators	See Figure
	Línea de base: marzo de 2021 Informe de Monitoreo 1: septiembre de 2022	Species threat status	None of the species found are categorized in any of the IUCN or MINAGRI threat lists, but most are in the Low Risk (LC) category,
	Ubicaciones (3): Áreas de muestreo: Alerta (Z1), Mavilla (Z2) y Alegría (Z3) Frecuencia: Cada dos años	Key indicator species (presence)	*Osteocephalus castaneicola* needs to be considered in this item, because, although its geographical distribution includes the Amazon of Bolivia, Brazil and Peru (Frost 2022), it is a species that depends on Brazil nut trees and dead bamboo stems for reproduction (Melo-Sampaio et al. 2021).

Flora evaluation method.

In the evaluation of the wild flora, the method used was the sampling based on Modified Gentry Plots (PGM), which consists of censusing, identifying the genus, species and family of individuals, in an area of 0.1 ha (10 50 m long x 2 m wide transects, randomly distributed, without overlapping and separated 20 m), measuring all tree individuals whose stem has a diameter at breast height (DBH) greater or equal to 0.10 m.

Figure 23 Photographic record of the biodiversity expeditions carried out in 2021 and 2022, Flora survey.

In addition, measurements of stem height, position and crown shape were taken. Among other parameters, the IVI (Importance Value Index) was calculated for each species, as the sum in percentages of relative abundance, relative frequency and relative dominance. With this index it is possible to evaluate the "ecological weight" of each species within the corresponding forest type. Obtaining similar IVI for the indicator species suggests the equality or at least the similarity of the stand in its composition, in its structures, in relation to the site and in its dynamics (See Table 28).

A total of 155 individuals, 101 species, 93 genera and 30 families were identified, with a predominance of juvenile species, with diameters between 0.10 and 0.29 meters DBH. The diameter distribution in the 3 evaluated zones presents the "inverted J" shape, typical of this type of primary forests.

Table 28 IVI result for each zone, for the first 5 species

Alerta			Mavila			Alegria		
No.	**Species**	**IVI %**	**No.**	**Species**	**IVI %**	**No.**	**Species**	**IVI %**
1	*Bertholletia excelsa*	22.13	1	*Bertholletia excelsa*	19.94	1	*Agonandra silvatica*	11.91
2	*Guarea macrophylla*	7.08	2	Tetragastris altissima	6.51	2	*Tetragastris altissima*	8.99
3	*Chromolucuma baehniana*	6.53	3	Tachigali poeppigiana	5.21	3	*Pausandra trianae*	8.15
4	*Iryanthera juruensis*	5.43	4	Iriartea deltoidea	4.78	4	*Tachigali vasquezii*	6.17
5	*Apuleia leiocarpa*	5.2	5	Pausandra trianae	3.49	5	*Iriartea deltoidea*	4.43

Mammal assessment method.

For the mammal assessment, the same sampling sites were selected for the baseline biological assessment. The methodology of the Rapid Assessment Program, RAP (Rapid Assessment Program), of Conservation International (CI. 2012) was used and field work was carried out. For the directed sampling, the reference points used were those registered as sites of direct, indirect or photographic sightings of mammals during the Biological Evaluation for the elaboration of the baseline.

The methodology for direct and indirect observation of small flightless mammals and larger mammals was based on line transect surveys, with a minimum bidirectional day and night average of 6.61 km per day, at each sampling station. As a support method, digital images were captured by means of heat-sensitive camera traps, active 24 hours a day. Twelve (12) BUSHNELL (IMA53) automated equipment with external camouflage and water resistance characteristics were used. Their use helped eliminate individual sampling bias and reduced field research hours; operating 24 hours a day, which allowed their camouflaged placement at georeferenced sampling stations, increasing detection rates of even very elusive species. Mist nets were also used for non-lethal capture of small flying mammals, only during nocturnal traverses, using eight 12 m long mist nets, placed at a height of 1.5 m above the ground.

The daytime line transect survey, as a recognized methodology for studying medium and large vertebrates in tropical forests, has the advantage of low cost and allows direct identification of species during the assessment, without requiring the lethal collection of specimens for processing. Transects had a minimum length of 2 km of bidirectional cumulative daytime and nighttime travel for the determination of sampling effort for each locality. Trail systems and the boundaries of each study area were used as line transects. The number of sampling sites and the distances between them varied at each sampling site and depending on their accessibility, proximity to water bodies (clay licks, lakes, ponds, and streams), and the topography of the site. Transects were separated by more than 300 m. from the base camp, to avoid biases in data collection due to reactive behavior of people close to the camp.

Efforts were focused on recording medium and large mammals, including easily observed species, which are important in the ecosystem, many of which are considered “umbrella species” that, due to their large size and diet (predators), require large spaces to complete their life cycle. The direct sighting included the animals: Seen (V) and Heard (E); and the indirect recording of the animals: Smelled (O), Tracked (R) and Tracks (H) (Carrillo et al. 2000), which formed the basis of the observation work carried out by the Mammalogy brigade. In addition, digital images recorded by camera traps were used. The sampling days provided twenty (25) 'visits' or detection events in the presence-absence matrix, an adequate number for site occupancy analyses for most of the species recorded. However, to obtain robust density estimates, a minimum of 40 detection events is recommended, although 20 sightings may provide sufficient estimates (Peres, 1999).

Figure 24 Camera trap samples from the 2021 and 2022 biodiversity expeditions, mammal surveys

Three (03) transects were walked, one in each Study Area, with a total length of 14.20 km in Zone 01 (Alert), 15.30 km in Zone 02 (Mavila) and 14.11 km in Zone 03 (Alegria), for a total sampling effort of 43.61 km. The Occurrence Index was calculated, which is qualitative and complementary to the use of other detection methods, such as camera traps, to confirm the presence of a species. It consists of the sum of direct and indirect records of medium and large mammals, assigning each record to three different categories, each of which is assigned a different value. Confirmation of a species is obtained when the sum of all types of records reaches a score equal to or greater than 10. It is suggested to perform this technique in places where there are few direct records and more indirect records.

The composition of mammal species found showed a high diversity, with 34 species. The family with the most species was Cebidae, with seven (07) species of the Order Primates with importance of the Pichico Monkey (Saguinus fuscicollis). In addition, the species Brown Stump-footed Monkey (Callicebus brunneus), presented surprising results of Relative Abundance in the three Study Areas.

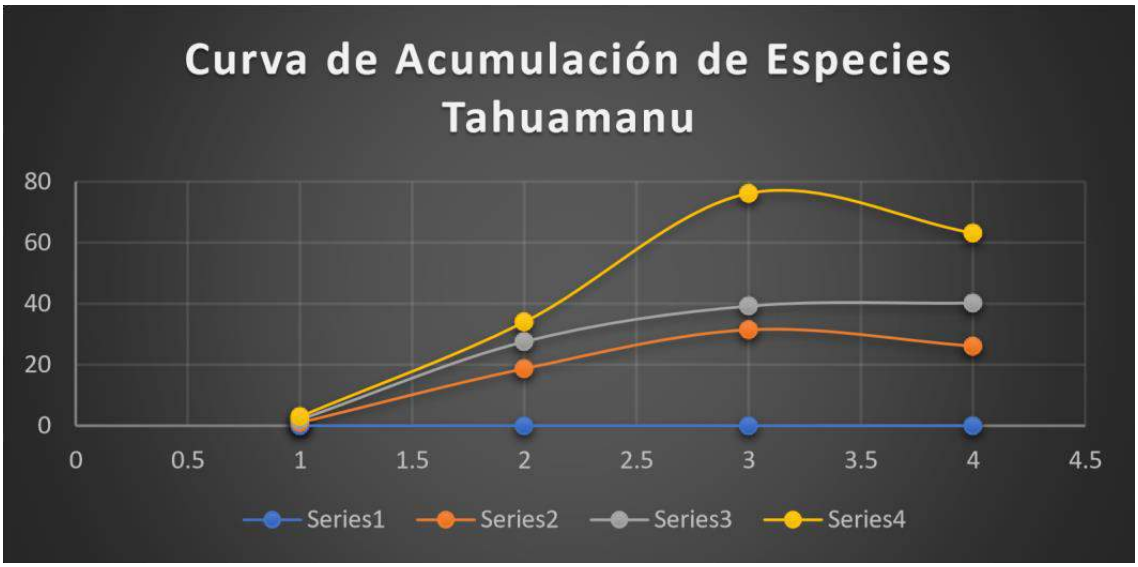

Figure 25 Mammal Accumulation Curve

Method to evaluate birds.

For the evaluation of the bird community, the main method used was the Point Counts, by means of which qualitative and quantitative data were obtained. Complementary methods such as the play-back technique and intensive search were also used, which were useful to record or confirm the presence of some birds during the evaluation. In point surveys, the observer remains at a fixed point and takes note of all birds seen and heard in a limited or unlimited area during a given period of time. To avoid bias in data collection, points were considered to be approximately 200 meters apart. The evaluation time was 10 minutes at each point. The main data considered were species and number of individuals, as well as start and end time, coordinates, type of vegetation, climatic conditions, among others.

To increase the probability of detection, a variant of the intensive search survey was used, which was carried out during the 200 m walk from point to point. The method consists of taking a census in an area that the observer walks completely in search of birds. In this way, unknown songs or calls are less of a problem, as the bird can be searched for and identified visually if necessary.

This method is very important because it makes it possible to follow species that vocalize at a distance or that generate doubts at the time of identification. The Playback technique is a complementary method to improve the inventory of species. It is a tool widely used by experienced ornithologists for the recognition of inconspicuous or cryptic species, which due to the similarity of their color patterns, or because they are especially shy, are difficult to detect visually. Basically, it consists of reproducing the vocalizations of a species, attentively awaiting an auditory or visual response that allows an objective record to be made. Photographic techniques are used to illustrate and confirm with greater certainty the recording of some species that are very elusive and difficult to observe. These techniques are complemented with the playback technique, using vocalization to attract the individual to a close distance, within the range of a 300 mm telephoto lens, for which a Canon EOS 6D Mark II camera with 400 mm EF lens and a NIKON D7000 with 300 mm EF Lens were used.

For species identification, the Birds of Peru book was available at all times in its digital version (Schulenberg et al. 2010); and Merlin, which is an application developed by the Cornell Lab of Ornithology that contains photographs, sounds, distribution maps and identification tips for more than 6,000 bird species worldwide. In addition, audio players with recordings of all the birds in Peru were used for comparison when necessary. A TASCAN DR05 recorder was also used to record vocalizations. Auditory identification was carried out following as a guide the songs of the Birds of Peru by Peter Boesman and the online xeno-song database (http://www.xeno-canto.org/). Taxonomic classification was performed according to SAAC (Remsen, et al. 2022) and for common names the list of birds of Peru (Plenge, M. A., 2022) was used.

Mist nets 12m long were placed in different sectors of the forest, trying to cover the whole area. These were placed to capture some rare species, as they complement the visual records, visually and aurally recording cryptic species with this method. On several occasions the nets had to be redirected to specific locations where there were doubtful records of some species, being necessary to capture the bird to confirm its presence.

Figure 26 Photographic record of the biodiversity expeditions carried out in 2021 and 2022, avifauna survey.

As a result of the evaluation, 277 bird species distributed in 22 orders and 48 families were recorded, representing almost 15% of the birds of Peru and 32% of the birds recorded in the department of Madre de Dios (eBird, 2022). Likewise, the results of this evaluation recorded 53 more species than in the previous evaluation and together they total 337 species, more or less 18% of the birds of all Peru inhabit these concessions.

Using the data obtained from the 82 point counts, Clench's equation estimates the total number of species that could be recorded in the area in this assessment at 245. The 191 species observed during the point counts represent 78% of the birds that could inhabit this community (See Figure 27).

The diversity found and some species in particular are of high value for exploring opportunities in the growing birding tourism industry. Considering the proximity to the interoceanic highway, it may represent an excellent place to develop birding programs, either as short or more extensive visits, both for domestic and international tourism.

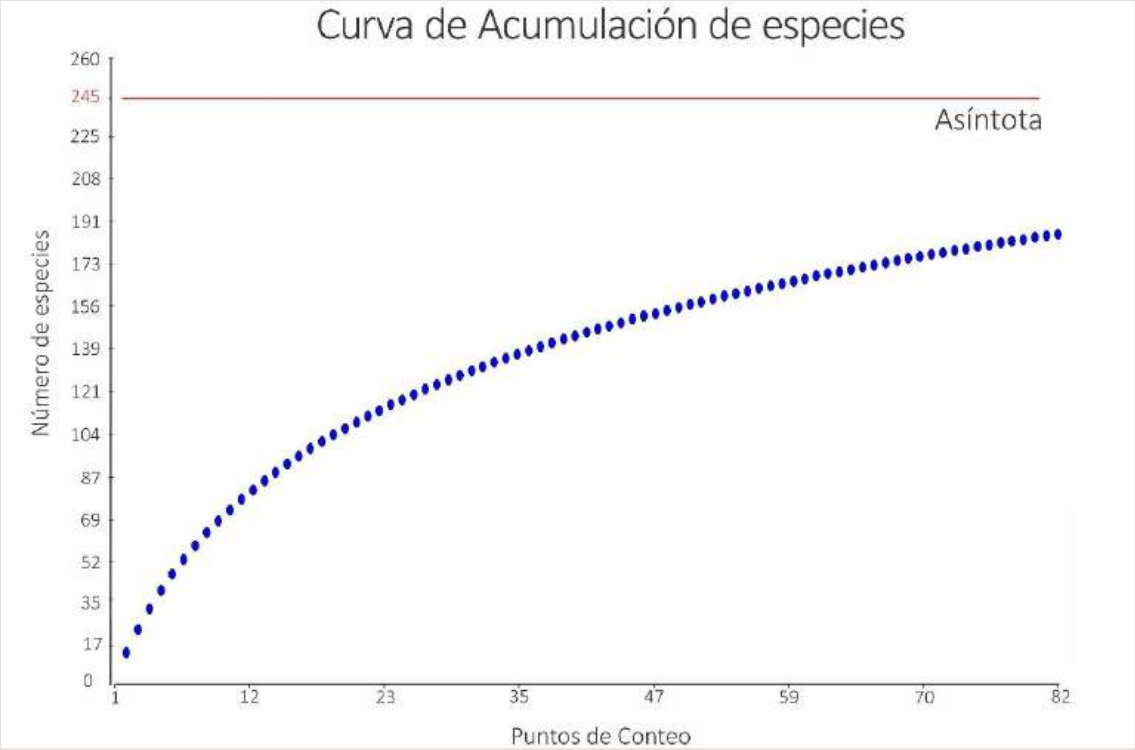

Figure 27 Bird accumulation curve

Herpetofauna assessment method.

Visual encounter search (VES) was used in the evaluation of reptiles and amphibians during the period. This methodology was chosen because it can be used for different types of habitats. For this purpose, free searches were used with a standardized effort of 5.5 hours of work per night on each sampling day. In this way the results can be compared between the areas evaluated. The searches were intensive and the movement was slow and constant, checking vegetation, water bodies, logs and diverse material that serves as shelter for both amphibians and reptiles. Sampling was carried out from 7:00 p.m. to 2:00 a.m. the following day. In addition, the species recorded in the areas surrounding the sampling areas were also counted, such as the search for breeding ponds and other environments where amphibians and reptiles might be present. Species recorded with this method were only considered to complement the richness. The individuals found were photographed, recorded in the field notebook and determined as soon as possible in the field or in the office with the help of guides, bibliographic material and comparison with specimens from scientific collections.

The field work was carried out with an effort of 154 man-hours in 12 sampling days, covering a sampling area of 8 km2 (2 km2/night) in each sampling area, recording a total of 196 individuals belonging to 60 species, including amphibians and reptiles. Amphibians were distributed in 8 families and 1 order; while reptiles were distributed in 12 families and 3 orders. The best represented families were Hylidae with 19 species and in reptiles Colubridae with 6, being the most diverse families in the Neotropics (Frost 2022, Uetz *et al.* 2022).

30

Accumulation curves, the variable on which comparisons will be based, calculate the effectiveness (in terms of species detected by the researchers) of the sampling and do not attempt to estimate diversities based on the number of species and individuals found in a sampling that may have had many biases during its field phase. They will be calculated through the EstimateS version 9.1.0 program using the Chao1 and 2 estimators and the ICE for the comparison of different non-parametric estimators. Care was taken to ensure that the log trends calculated for each of the curves had a confidence range greater than 95% for presentation. The ICE estimator seems to indicate that during this sampling we were far from achieving high effectiveness and that numbers greater than 100 species may be more equivalent to a highly effective sampling effort. Future sampling, both in the rainy and dry seasons, may elucidate these results, but at this time it is not possible to assume any of these results to be decisive.

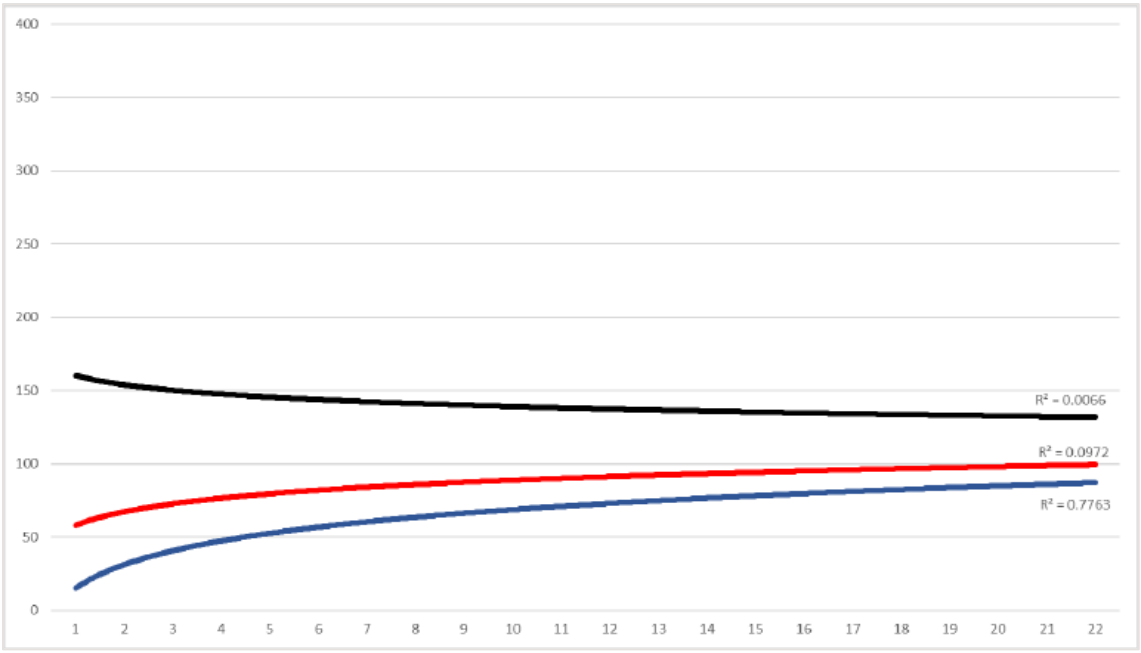

Figure 31 Herpetofauna accumulation curve

5.3.2 Biodiversity Monitoring Plan Dissemination (CCB, B4.3)

The summary of the most relevant aspects of the biological monitoring plan implemented in the project area was disseminated through informative meetings with the participation of authorities and residents of the surrounding local communities, using a very didactic and easy-to-use communication system.

Also, part of the results of the fauna assessment are available to the public through the BAM website, showing photographs and camera trap videos of the main flora and fauna species being conserved within the project area and their importance in the local ecosystem. (See Biodiversity assessment in the forests of Nuevo Paraíso, Madre de Dios, Science, technology and environment: BAM's Science Program) Once the Monitoring Report for the period 2021 - 2023 is registered under VERRA, the summary of the final documents will be shared with the community through their representatives and made public on BAM's website.

5.4 Optional Criterion: Exceptional Biodiversity Benefits

In the evaluation of mammals, according to national legislation, the presence of two endangered species (EN) was recorded, including the Red Howler Monkey (*Alouatta seniculus*). Ornithofauna sampling identified the White-bellied Parrot (*Pionites leucogaster*), classified as vulnerable (VU) by the IUCN, as a species of high importance for protection.

The project also focuses on the conservation of *Bertholletia excelsa*, classified as vulnerable (VU). This species, emblematic of the forested areas of the Peruvian Amazon, acts as an umbrella species that provides food for numerous species, which makes it highly sensitive to human and climatic disturbances. It also plays a crucial role in the promotion of non-timber forest products. All conservation activities are complemented by environmental education strategies and actions aimed at the local community that interacts with this species.

5.4.1 Trigger Species Population Trends (CCB, GL3.2, GL3.3)

If a causal model is considered with the main factors that are driving biodiversity loss processes include: demographic changes, poverty and inequality, market failures, political failures, poor and inefficient governance, corruption and illicit crops[20] . Project activities have helped to mitigate several of these through the implementation of a monitoring, control and surveillance system that aims to address the threats of deforestation and thus biodiversity loss.

Develop communication strategies around the conservation and sustainable management of forests promoting the welfare and development of the community in harmony with the environment; Strengthen the production and commercial chains of Brazil nut in FEPROCAMD concessionaires and promote productive activities around the proper management of forest resources (conservation, reforestation and agroforestry with a focus on the generation of value chains) contribute to the mitigation of poverty and inequality, market failures and illicit crops by generating productive alternatives in the region.

Providing project stakeholders with technical and legal knowledge, regulatory and other aspects that strengthen capacities in relation to the REDD+ Project, management and sustainable forest management; strengthening territorial governance and compliance with legal requirements of the FEPROCAMD and partner concessionaires as well as strengthening the management and organizational and executive capacity of this federation contributes to mitigating political failures, poor and inefficient governance and corruption.

Implementing a scientific program for the evaluation and permanent monitoring of biodiversity within the project area and promoting the conservation of biodiversity and the prevention of wildlife crime increases knowledge of the area's biodiversity and raises community awareness of its importance. Thus, by mitigating several of the causes of biodiversity loss, the project demonstrates its contribution to maintaining or improving the population status of each trigger species within the project area. The following is a detailed description of the trend of each species in the project scenario.

Trigger Species	*Bertollethia excelsa* H.B.K. (the brazil nut tree), emblematic symbol of Madre de Dios.
With-project Scenario	/n the current reporting period, in order to reduce the threats of illegal logging of Brazil nut, fire control and patrolling of the boundaries were carried out, avoiding unwanted events that may affect the forest cover and populations of protected species, especially Brazil nut. One of the main actions of the program is the participation of local communities in the protection and sustainable use of the forests. In this way, the involvement of the local population is essential to strengthen monitoring and ensure that these valuable resources are used in a sustainable manner.

[20] Technical Group on Economic Incentive Measures for the Conservation of Biological Diversity. *Report on the Analysis of Underlying Causes of Biodiversity Loss*. Presidential Resolution N° 040-2001-CD/CONAM. Available at: https://www.cbd.int/doc/case-studies/inc/cs-inc-pe-02-es.pdf

	Through participatory expeditions with the concessionaire community, the importance of protecting and conserving Brazil nut trees has been shared, not only because they are a source of resources, but also because of their characteristics as umbrella trees, caring for and protecting other fauna and flora species (See *6_Comunidad\02_Participacion\2023\Reportes\Reporte actividad 28_04_23*).

Trigger Species	*Pionites leucogaster* or White-bellied Parrot
With-project Scenario	The *Psittacidae* family to which the white-bellied parrot belongs is at risk of extinction due to habitat destruction and illegal trade. According to the IUCN Red List, this species is Vulnerable due to habitat loss, fragmentation and degradation. High rates of deforestation in the Amazon River basin is the main threat as this species is not believed to tolerate secondary forests or agricultural land[21] . Project activities have contributed to habitat conservation and a possible stabilization or increase of the population. In the ornithology field report (See folder *3_Biodiversidad\01_Informes_Biodiversidad (MR)\ornitología*), data on the species recorded in each of the sectors for the years 2013, 2021 and 2022 is presented, which shows an increase in the number of species recorded, which indicates that knowledge about birds is increasing in the area with better and better data. Throughout the implementation of the project, forest conservation measures have been promoted to protect the species' habitat. The measures defined in the theory of change are aimed at protecting the forest areas of the concessions where there are records of the species and to mitigate the main causes of biodiversity loss. For this parrot, in the sampling carried out in 2022, 30 individuals of the species were found distributed in the sectors of Mavila (9) and Alegria (21). Promoting reforestation activities in degraded areas is intended to increase the extent and quality of habitat available to the species. The implementation of monitoring, control and surveillance measures along with other activities can help control and prevent illegal hunting, one of the significant threats to this population.

[21] BirdLife International. 2022. Pionites leucogaster. The IUCN Red List of Threatened Species 2022: e.T62181308A209668837. https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T62181308A209668837.en

Trigger Species	*Alouatta seniculus* or Red Howler Monkey
With-project Scenario	This species is classified as of Least Concern according to the IUCN due to its tendency to decline as it is a species that is heavily hunted to supply food needs throughout its range[22]. The measures defined in the theory of change are aimed at protecting the forest areas included in the project. By encouraging more sustainable practices and appropriate forest management, the aim is to reduce the loss of habitat for this species. By implementing BAM's science program, knowledge of biodiversity is increased and by promoting biodiversity conservation and the prevention of wildlife crime, it is hoped to mitigate the greatest threat to the population by raising awareness in the communities about the importance and impact of uncontrolled hunting on this and other species. The implementation of these measures is intended to curb the negative trend of red howler monkey populations, with the aim of achieving a stabilization or increase, by providing effective measures to conserve their habitat and mitigate the anthropogenic pressures they face. In the biodiversity monitoring report - evaluation of mammals, 14 records of the species were presented in the forests that are part of the project, 2 in the alert sector and 12 in the Alegria sector. For more details, see folder *3_Biodiversidad\01_Informes_Biodiversidad (MR)\Mastozoología*.

[22] Link, A., Palacios, E., Cortés-Ortiz, L., Stevenson, P.R., Cornejo, F.M., Mittermeier, R.A., Shanee, S., de la Torre, S., Boubli, J.P., Guzmán-Caro, D.C., Moscoso, P., Urbani, B. & Seyjagat, J. 2021. *Alouatta seniculus*. The IUCN Red List of Threatened Species 2021: e.T198676562A198687134. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T198676562A198687134.en