

MONITORING REPORT

JAGUAR AMAZON REDD+ PROJECT



Project title	The Jaguar Amazon REDD+ Project
Project ID	2278
Crediting period	01 January 2018 - 31 December 2057
Monitoring period	01 January 2022 - 31 December 2023
(CCB) GHG accounting period	01 January 2018 - 31 December 2057; 40-year total period
Original date of issue	07 - 07 - 2025
Most recent date of issue	07 - 07 - 2025
Version	01
VCS Standard version	4.7
CCB Standards version	3.1
Project location	Perú, Madre de Dios
Project proponent(s)	FORESTAL OTORONGO SAC Vittorio De Dea Peña vdedea@bozovich.com Carretera a La Cachuela Km. 1.8, Tambopata, Madre de Dios, Perú +51 989 067 284 GREENOXX SC Silvia Gómez Caviglia silvia@greenoxx.com Plaza Independencia 753, Montevideo, Uruguay +5982 604 0869

Validation/verification body	AENOR
History of CCB Status	28 June 2022 - Validation 27 October 2022 – 1st Verification 13 October 2025 – 2nd Verification
Gold Level criteria	Biodiversity Gold Level Key flora and fauna species (as <i>Atheles chamek</i>, jaguars and Brazil nut trees) are being protected by the project activities. Boundaries surveillance and supporting sustainable activities within local communities are expected to help to preserve those species.
Prepared by	Paskay SAC Jorge Torres Padilla contacto@paskay.pe Calle Grimaldo del Solar 162 – oficina 904. Miraflores, Lima, Perú

CONTENTS

1	SUMMARY OF PROJECT BENEFITS	6
1.1	Unique Project Benefits	6
1.2	Standardized Benefit Metrics	7
2	PROJECT DETAILS	10
2.1	Summary Description of the Implementation Status of the Project.....	10
2.2	Project Implementation Status.....	21
2.3	Stakeholder Engagement & Safeguards	31
2.4	Management Capacity	41
2.5	Legal Status and Property Rights.....	44
3	CLIMATE	58
3.1	Monitoring GHG Emission Reductions and Removals.....	58
3.2	Quantification of GHG Emission Reductions and Removals	89
3.3	Optional Criterion: Climate Change Adaptation Benefits	106
4	COMMUNITY	106
4.1	Net Positive Community Impacts	106
4.2	Other Stakeholder Impacts.....	108
4.3	Community Impact Monitoring	109
4.4	Optional Criterion: Exceptional Community Benefits	112
5	BIODIVERSITY	113
5.1	Net Positive Biodiversity Impacts.....	113
5.2	Offsite Biodiversity Impacts.....	122
5.3	Biodiversity Impact Monitoring.....	123
5.4	Optional Criterion: Exceptional Biodiversity Benefits.....	135
	LIST OF EVIDENCE	136

Tables

Table 2.1. Coordinates of Otorongo A (ex-Consolidated Otorongo).....	14
Table 2.2. Coordinates of Otorongo B (ex-Consolidated Chullachaqui)	15
Table 2.3. Sustainable Development Contributions	18
Table 2.4. Project implementation milestones	21
Table 2.5. Changes in deforestation rate in the reference region (including project area and leakage belt).....	23
Table 2.6. Changes in deforestation rate in Project and Leakage Areas	24
Table 2.7. Readjusted baseline emissions	25
Table 2.8. Updated Net Emission Reductions (NERs).....	25
Table 2.9. Annual areas deforested per forest class within the project area in the baseline case (baseline activity data per forest class)	26
Table 2.10. Annual areas deforested per forest class within the leakage belt in the baseline case (baseline activity data per forest class)	26
Table 2.11. List of variables, maps, and factor maps.....	27
Table 2.12. Engagement process with stakeholders	32
Table 2.13. Number of workshops for communities 2022-2023.....	34
Table 2.14. Training in REDD+ Project and diffusion Risk, Costs and Benefits of the projects in 2022-2023 ..	35
Table 2.15. Origin of personnel involved in the project 2022 -2023.....	40
Table 2.16. Summary of technical skills	42
Table 2.17. Summary of staff expertise.....	42
Table 2.18. Relevant national legal framework	44
Table 2.19. Legal framework on labor issues.....	52
Table 2.20. Legal framework on health and safety issues	54
Table 2.21. Illegal activities to be monitored and mitigation measures considered.....	57
Table 2.22. Illegal activities reported by project proponent within the REDD project area.....	57
Table 3.1. Baseline emissions from deforestation in Project Area excluding ANR and harvest areas.....	90
Table 3.2. Baseline emissions from changes in long-lived wood products.....	91
Table 3.3. Baseline emissions from deforestation from areas under harvest	92
Table 3.4. Total baseline emissions in 2022-2023 period.....	92
Table 3.5. Land use change matrix for the Project area in 2022 and 2023	94
Table 3.6. Land use change matrix for the Leakage.....	94
Table 3.7. Land use change matrix for the Reference Region	94
Table 3.8. Confusion matrix for year 2022	97
Table 3.9. Confusion matrix for year 2023.....	97
Table 3.10. Kappa index year 2022 and 2023	97
Table 3.11. Project emissions from deforestation excluding ANR and harvest areas	98
Table 3.12. Project emissions derived from changes in long-lived wood products (7).....	99
Table 3.13. Discounting factors.....	101
Table 3.14. Long-term average carbon stock density contained in harvested areas	101
Table 3.15. Emissions/Removals in areas under harvest in the project scenario.....	102
Table 3.16. Project emissions or removals.....	102
Table 3.17. Discounting factors and Emission Factor	103
Table 3.18. Emissions from deforestation due to leakage (tCO ₂)	104
Table 3.19. Leakage emissions or removals (tCO _{2e})	104
Table 3.20. Sources of emissions.....	104
Table 3.21. Net GHG emission reductions or removals (tCO _{2e}).....	105
Table 4.1. Communities.....	107
Table 4.2. Community monitoring plan.....	109
Table 4.3. Indicators of forestry incomes.....	110
Table 4.4. Forestry Incomes by gender 2022-2023	111
Table 4.5. Trainings by subject and gender 2022-2023	111

Table 5.1. Quality Assessment of RIL Monitoring (2022-2023).....	121
Table 5.2. Logging operations impacts (2022-2023) in Otorongo B	123
Table 5.3. Average clearing area by species in Otorongo B.....	124
Table 5.4. Area affected by logging operations in Otorongo B.....	125
Table 5.5. Remnant vegetation in Otorongo B.....	126
Table 5.6. Wildlife sightings recorded in each concession	131
Table 5.7. Temporal dynamics of wildlife diversity by Concessions.....	133

Figures

Figure 2.1. Location of Project Area, Leakage Belt and Reference Region.....	14
Figure 3.1. Sources of Information by Type	86
Figure 3.2. Project Governance	87
Figure 3.3. Dissemination website.....	88
Figure 3.4.. Forest and non-forest cover in 2023 within the Project Zone.....	93
Figure 3.5. Map of distribution of validation points for year 2022	96
Figure 3.6. Map of distribution of validation points for year 2023	96
Figure 5.1. Puma (Felis concolor)	128
Figure 5.2. Monitoring with trap cameras helped for the registry of species in the area.....	128
Figure 5.3. Location of the sample points in study.....	129
Figure 5.4. Deer feces are a clear indicator of the presence of the species.....	130
Figure 5.5. Mammal footprints. It indicates the presence of jaguars	131

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) Jaguar Conservation	43 individuals	5.1.3	43 individuals
2) Brazil Nut Conservation	12,069 trees	5.1.3	12,069 trees
3) Eco-tourism Initiative	53 visitors	5.1.3	61 visitors

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	-	-	-
	Net estimated emission reductions in the project area, measured against the without-project scenario	673,416 tCO ₂ e	3.2.4	3,996,288.91 tCO ₂ e
Forest ¹ cover	For REDD ² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	1,495.76 ha	3.2.4	9,331.66 ha
	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
Training	Total number of community members who have improved skills and/or	823	4.3.1	579

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*)

	knowledge resulting from training provided as part of project activities			
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	326	4.3.1	157
Employment	Total number of people employed in of project activities, ⁵ expressed as number of full-time employees ⁶	484	2.3.16	480
	Number of women employed in project activities, expressed as number of full-time employees	87	2.3.16 4.3.1	69
Livelihoods	Total number of people with improved livelihoods ⁷ or income generated as a result of project activities	484	2.3.16 4.3.1	480
	Number of women with improved livelihoods or income generated as a result of project activities	87	2.3.16 4.3.1	69
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	484	2.3.16	264
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	87	2.3.16	37
Education	Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	823	4.3.1	546

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.

	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	326	4.3.1	217
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	484	2.1.12 2.3.16	6795
	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	89	2.1.12 2.3.16	3148
Well-being	Total number of community members whose well-being ⁸ was improved as a result of project activities	484	2.3.16	266
	Number of women whose well-being was improved as a result of project activities	89	2.3.16	579
Biodiversity conservation	Change in the number of hectares significantly better managed by the project for biodiversity conservation, ⁹ measured against the without-project scenario	183,015 ha	5.1.4	183,015 ha
	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	IUCN Red List: Fauna: EN (2 species), VU (5 species) Flora: EN (2 species); VU (4 species)	5.1.3 5.3.1	IUCN Red List: Fauna: EN (2 species), VU (5 species) Flora: EN (2 species); VU (4 species)

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

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 Jaguar Amazon REDD+ Project comprises a total of 181,579.77 hectares that are sustainably managed by the certified timber consolidated concessions Otorongo A (Forestal Otorongo SAC) and Otorongo B (Inversiones Forestales Chullachaqui SAC) in the province of Tahuamanu, department of Madre de Dios, in the southeast of Peru. It is certified by FSC for sustainable forest management.

The general objective of the project is to manage the forest extension granted by the Peruvian State, improving the production of forest goods and services in a continuous and sustainable manner with an adequate long-term strategy for its implementation. The specific objectives are:

- Climate objective: Reduce the rate of deforestation.
- Community Objective: promote and consolidate sustainable use of agricultural land by increasing family income without the need to expand to new areas.
- Biodiversity objective: protect the rich ecosystem that is home to many important species of fauna and flora in danger of extinction.

In the current monitoring period, the project continues to avoid unplanned deforestation of forests, through the conservation of the forest and its resources through sustainable forest management, working together with families to increase their income without the need to expand into new forest areas, and protecting the valuable ecosystem that is home to many important species of fauna and flora in danger of extinction. The following activities were carried out:

- Strengthening the capacities of interested organizations.
- Promotion of sustainable productive projects.
- Current agreement with the Iberia Technological Institute (Training in new technologies and sustainable economic activities).
- Training for surrounding communities in the sustainable use of non-timber resources.
- Incorporation of a new community, called “Alerta”, as a beneficiary of the project.
- Conservation of the entire study area through low-impact logging and the design and construction of infrastructure to reduce the impact on habitats and trees important for fauna, as well as the prohibition of hunting and raising awareness among workers about the importance of fauna in the forest ecosystem; and FSC certification.
- Fauna monitoring through surveillance personnel and camera traps and flora monitoring through the forest census of the annual cutting areas.
- Monitoring of open area, remaining vegetation, trees for future harvest, etc.

The emissions avoided for monitoring period 2022-2023 are 673,416 tCO₂e.

The documents used with their respective versions for this verification process were as follows:

- VCS Standard, v4.5
- Climate, Community & Biodiversity Standards, v3.1
- VM0006. Methodology for Carbon Accounting for Mosaic and Landscape-scale REDD Projects. Version 2.2 - 17 March 2017 - Sectoral Scope 14.
- VT0001: Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities. Version 3.0 - 1 February 2012 - Sectoral Scope 14
- VM0015. Methodology for Avoided Unplanned Deforestation, v1.2. 18 December 2023. Sectoral Scope 14.
- AFOLU Non-Permanence Risk Tool, v4.2.

2.1.2 Audit History (VCS, 4.1)

Audit Type	Period	Program	VVB Name	Number of years
Validation	01 January 2018 – 31 December 2057; Renewable	VCS	SCS Global Services	40
Validation	01 January 2018 – 31 December 2057; Renewable	CCB	AENOR Internacional S.A.U	40
Verification	01 January 2018 - 31 December 2020	VCS	AENOR Internacional S.A.U.	3
Verification	01 January 2018 - 31 December 2020	CCB	AENOR Internacional S.A.U.	3
Verification	01 January 2021 - 31 December 2021	VCS and CCB	ICONTEC	1
Verification	01 January 2022 - 31 December 2023	VCS and CCB	AENOR Internacional S.A.U.	2

2.1.3 Sectoral Scope and Project Type (VCS, 3.2)

Sectoral Scope	14: Agriculture, forestry, and other land use
AFOLU Project Category	Reduced Emissions from Deforestation and Degradation (REDD)
Project Activity Type	Avoiding Unplanned Deforestation

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

Organization name	Forestal Otorongo SAC
Contact person	Vittorio De Dea Peña
Title	Legal Representative

Address	Road to La Cachuela Km. 1.8, Tambopata, Madre de Dios, Peru
Telephone	+51 989 067 284
Email	vdedea@bozovich.com

Organization name	Greenoxx Sociedad Civil
Contact person	Rocco Cheirasco Silvia Gómez Caviglia
Title	Chairman CEO Executive Vice-President
Address	Costa Rica 1661 of. 7; CP 11500; Montevideo, Uruguay
Telephone	+598 2604 08 69
Email	rocco@greenoxx.com silvia@greenoxx.com ngo@greenoxx.com

2.1.5 Other Entities Involved in the Project

Organization name	Paskay SAC
Role in the project	Technical assistance in AFOLU project design and certification
Contact person	Jorge Torres Padilla
Title	Chief Executive Officer
Address	Calle Grimaldo del Solar 162, Of. 904, Miraflores - Lima
Telephone	+51 943 206 810
Email	jtorres@paskay.pe

2.1.6 Project Start Date (VCS, 3.8)

Project start date	08 November 2017
Justification	The project start date was chosen to meet with a new forest cycle and to be comparable with official forest loss maps provided by MINAM, through GEOBOSQUES platform. The FSC certificate obtained by the Otorongo concession started on 8 November 2017, while the transfer of the two smaller forest concessions to Otorongo also occurred in 2017. With both

	achievements, the forest area was consolidated into a contiguous managed area and with the FSC certification, the guarantee of sustainable management has been confirmed by an independent audit team. Forest certification is considered the milestone for the project start date not only because it ensures that the forest is being well managed environmental and socially, under independent international recognized standards (in a contiguous area that facilitates the logging and transportation stages and the patrolling of borders) but also because, with the extra incomes of carbon sales, it ensures financially the operations as certified timber allows the access to more attractive market niche.
--	---

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

Crediting Period	01 January 2018 - 31 December 2057 Crediting period of 40 years, which is more than the minimum period requested in the VCS Standard v.4.7 (Section 3.9.3) of 20 years.
Start Date of First or Fixed Crediting Period	01 January 2018 - 31 December 2057.
Total Number of Years of Crediting Period	40 years, renewable at most 4 times up to 100 years.
CCB Benefits Assessment Period	01 January 2022 - 31 December 2023

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

☒ KML file has been provided

The project is in Madre de Dios, a region in the south-east area of Peru, in the province of Tahuamanu (districts of Iñapari, Iberia and Tahuamanu).

The project comprises the forested areas within the forestry concessions of the Otorongo and Chullachaqui consolidates¹² (now named as Otorongo A and Otorongo B, respectively), covering a total of 171,584.07 ha. The coordinates of each consolidate are shown below.

¹² A consolidate refers to a group of Forestry Concessions under the same concession holder and managed as a unity, rather than separate concessions. The 2 consolidates where the project is located have changed their denomination as explained in Section 2.2.4.

Figure 2.1. Location of Project Area, Leakage Belt and Reference Region

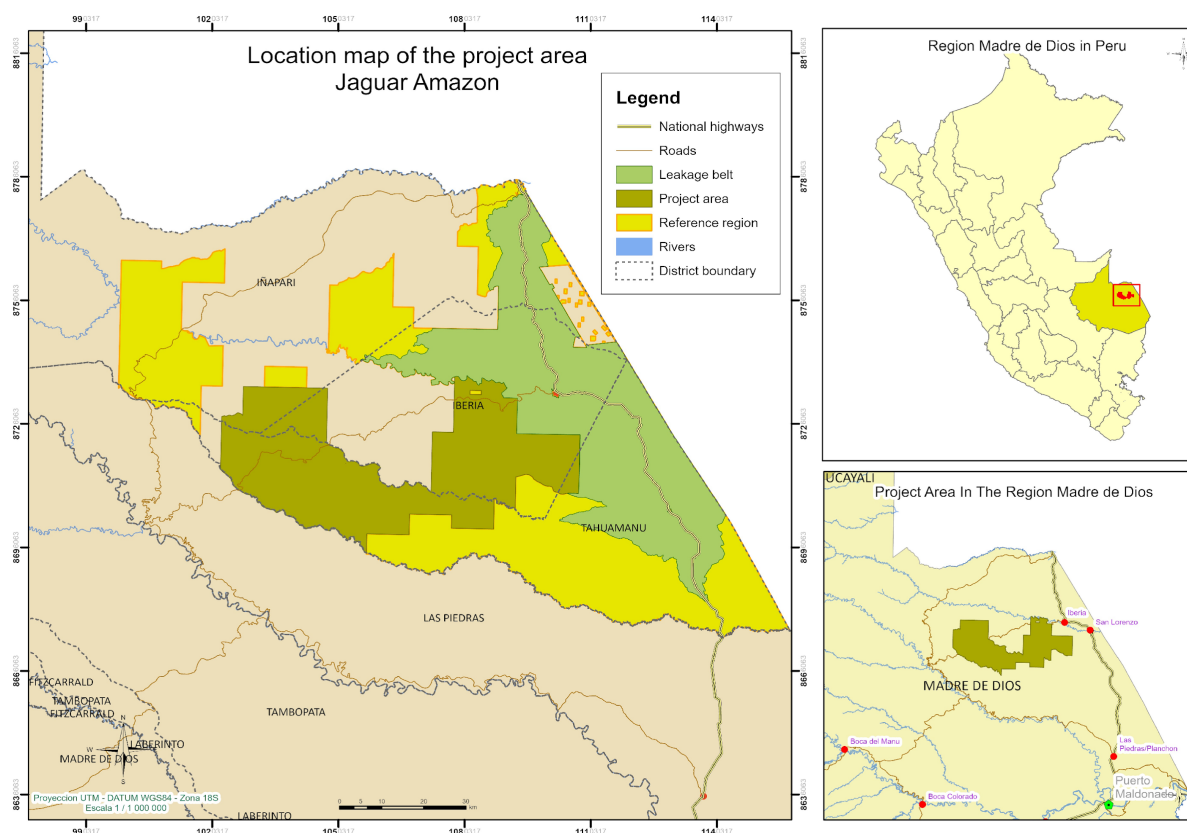


Table 2.1. Coordinates of Otorongo A (ex-Consolidated Otorongo)

Point	X	Y	Reference
V1	452,557	8,715,097	
V2	437,563	8,718,743	From V1 to V2: Cocama River or Sta Cruz
V3	437,561	8,711,044	
V4	432,534	8,712,939	From V3 to V4: Muymanu River
V5	432,558	8,706,061	
V6	422,557	8,706,061	
V7	422,557	8,709,251	
V8	412,548	8,709,253	
V9	412,547	8,714,619	
V10	417,557	8,714,619	From V9 to V10: Muymanu River
V11	417,557	8,729,249	
V12	422,557	8,729,249	
V13	422,557	8,742,595	
V14	428,591	8,741,203	From V13 to V14: Tahuamanu River
V15	429,002	8,741,203	
V16	429,010	8,742,538	
V17	435,037	8,740,215	From V16 to V17: Tahuamanu River

Point	X	Y	Reference
V18	434,216	8,737,823	From V17 to V18: Gorge N. N
V19	437,568	8,737,804	
V20	426,279	8,738,490	
V21	426,279	8,739,490	
V22	428,979	8,739,491	
V23	428,979	8,738,491	
V24	437,566	8,729,249	
V25	452,557	8,729,249	

Table 2.2. Coordinates of Otorongo B (ex-Consolidated Chullachaqui)

Point	X	Y	Reference
V1	412548	8704241	
V2	402569	8704242	
V3	402569	8699534	From V3 to V4: Manuripe River
V4	382557	8709608	From V4 to V5: Manuripe River
V5	367557	8719141	
V6	367557	8731899	From V6 to V7: Muymanu River
V7	372557	8732250	
V8	372557	8739249	
V9	392557	8739249	
V10	392557	8725980	From V10 to V11: Muymanu River
V11	412547	8716142	

2.1.9 Title and Reference of Methodology (VCS, 3.1)

Type (methodology, tool, module)	Reference ID (if applicable)	Title	Version
Methodology	VM0006	Methodology for Carbon Accounting for Mosaic and Landscape-scale REDD Projects	2.2
Methodology	VM0015	Methodology for Avoided Unplanned Deforestation	1.2
Tool	VT0001	Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities	3.0

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

2.1.10.2 Registration in Other GHG Programs

Was 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

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

If yes:

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, “Carbon credits may be issued through Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities].”?

☐ Yes

☒ No

2.1.12 Sustainable Development Contributions (VCS, 3.17)

The Amazon Jaguar REDD+ project contributes directly with at least five of the Sustainable Development Goal (SDG) in this monitoring period, according to the planned project activities and the expected results (specified in 2.1.1 Summary description of the project).

Table 2.3. Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	1.2	1.2.1: Proportion of population living below the national poverty line, by sex and age	4.3.1 Increase the family's income of Alerta (see the results in Section 4.3.1 Tables 4.3 Incomes and table 4.4 table by gender 2022-2023).	The work of collecting Brazil nuts in the project concessions has provided economic benefits in Alerta families.	In this report, the results of income from harvesting Brazil nuts have been positive. However, it has been lower than in 2021 and this is due to the sale price of the nut that is unstable year after year and can limit or increase. However, the project increases and safeguards the price of the nut that it buys from these families. This allows the income to remain very positive and to be part of their main income for the well-being of the families.
2)	6.6	6.6.1: Change in the extent of water-related ecosystems over time.	Maintenance of continues monitoring measures as to rain and flow in strategic sites to allow dynamic management (see Evidence 2.01 (2022-2023))	Maintained according to the records of the monitoring period	Maintained according to the records of the project.

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
3)	12.8	12.8.1: Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment.	Indicator of the project: Section 4.3.1, Table 4.5 Trainings in communities around the project area. Activities and actions related to the project: Forest Management Certification and Chain of Custody, which guarantees the project's sustainability in the economic, ecologic, and social aspects. • Permanent capacity building and awareness to collaborators and nearby communities in Climate Change, Global Warming, Carbon Footprint, Adequate Waste Management, and Importance of Natural Resources. • Learning opportunities are promoted through an agreement signed with the Universidad Amazónica de Madre de Dios (UNAMAD) Instituto de Educación Superior Tecnológico Público (Public Technological Higher Education Institute) of Iberia (see Evidence 2.02)	58 training sessions were carried out (despite the difficult pandemic context) that contributed to strengthening the learning process and involvement with the communities around the project area. With the Brazil nut collectors (Alerta) greater consistency has been achieved due to the direct benefit represented by the economic opportunity that the project offers them.	128 trainings in actions related to the project. Benefits: 1399 participations from community members
4)	13.0	"Tonnes of greenhouse gas emissions avoided or removed"	Indicator of the project: Section 3.2.4, Table 3.20 Project emissions or removals (tCO ₂ e).	673,416 tCO ₂ e	3,996,288.91 tCO ₂ e
5)	15.2	15.2.1: Progress towards sustainable forest management	Forest Management Certification and Chain of Custody, which guarantees the project's sustainability in the economic, ecological, and social aspects.	Forest Management Certification and Chain of Custody, which guarantees the project's sustainability in the economic, ecological, and social aspects.	The project constitutes an example of sustainable forest management friendly with the environment, of social fairness and economic viability, which turns to be an example of success that results attractive international investment.

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
6)	17.14	17.14.1: Number of countries with mechanisms in place to enhance policy coherence of sustainable development.	The project constitutes an example of sustainable forest management friendly with the environment, social fairness and economic viability, which turns to be an example of success that results attractive for international investment.	The project constitutes an example of sustainable forest management friendly with the environment, of social fairness and economic viability, which turns to be an example of success that results attractive for international investment.	The project constitutes an example of sustainable forest management friendly with the environment, of social fairness and economic viability, which turns to be an example of success that results attractive for international investment.

2.2 Project Implementation Status

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

The following are the most relevant milestones for this monitoring period.

Table 2.4. Project implementation milestones

Date	Milestone(s) in the project's development and implementation
6/01/2022	Signing of Framework Agreement for Interinstitutional Cooperation with the Iberia Tahuamanu Public Technological Higher Education Institute
06/01/2022 to 13/10/2022	09 Patrolling events, Surveillance, and Boundary Marking Activity Reports
07/01/2022 to 30/12/2023	11 Trainings on REDD+ Project
	14 Trainings on productive economic activities
	18 Trainings on Protecting our forest
	09 Training Brazilian nuts contracts and others
29/03/2022 to 15/07/2022	06 Support and transportation of forest products
	Monitoring of Quality of Operations and Activities from ZAFRA (harvesting activities) 2022
5/04/2022	Signing of Framework Agreement for Interinstitutional Cooperation with National Amazonian University of Madre de Dios
2022 - 2023	Complaint and Suggestion Resolution: 12 cases
2022 - 2023	110 Internal Training Sessions for company workers in topics such as Directional Logging, Forest Certification, Chain of Custody, Industrial Safety, First Aid, REDD+ Projects, Current Forest Legislation, etc.
2022	Monitoring of the General Plan of Forest Management (Operations, Environmental Performance, Silvicultural, HCV forests, Social)
2022	Meetings with other Stakeholders for dissemination of project results
2022	The OBC Lodge, located in the Otorongo Concession, welcomed 24 tourists in 2022
12/20/2023	Forest concession flow and precipitation monitoring report 2018-2023

2.2.2 Baseline Reassessment (VCS, 3.2.6, 3.2.7)

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

2.2.3 Methodology Deviations (VCS, 3.20)

A main deviation was introduced in the previous Monitoring Report of 2021 that resulted in a more conservative baseline and project emissions reductions. It was maintained in the present Monitoring Report of 2022-2023.

The change consisted in the readjustment of the spatial model for projecting future deforestation, following the indications of VM0015 v.1.1 Methodology for Avoided Unplanned Deforestation. The analysis was performed using TerrSet v.2020 software, under its Land Change Modeler (LCM) module. Because the historical reference period ran from 2007 to 2017, it was decided to use three images close to the beginning of the crediting period (2011, 2014, and 2017), since the deforestation rates between these intervals were more similar than those occurring in the initial years. The first two years were used for the calibration phase of the spatial factors, while the last year was used as a reference image to validate the results.

A model based on neural networks (Artificial Neural Networks, ANN) was generated, which is a process that establishes relationships between certain drivers or spatial factors with the LULC (Land Use Land Cover) classes and their derived transitions; these relationships are expressed through multiple combinations (linear or nonlinear) of the spatial factors, evaluating the best possible combination that allows predicting the behavior of the transition evaluated in the determined time. As a result, the process provides a set of transition potentials for each combination considered. The detailed steps describing the modelling and location of unplanned deforestation are detailed in Evidence 3.05.

Once this procedure was completed, the allocation of future deforestation was performed following Section 4.2 and 5.1 of VM0015 v1.1, instead of Sections 8.1.5.1, 8.1.5.3 and 8.1.5.4 of VM0006 v.2.2. In practice, Equations 37 from VM0006 v.2.2 were not used.

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

There are no changes reported in the project design in this period. However, it is important to say that the Alerta community was included as a new beneficiary of the project. The inclusion of a new community in the stakeholders' universe does not have any impact on the applicability of the without project scenario nor the additionality, as the without project scenario is characterized by the expansion of agrarian frontier by surrounding communities and new migrants, which was already covered by stakeholders identified since the project design. Similarly, the additionality analysis is based on the comparison of economic profitability of agricultural activity with the forest activity.

The inclusion of Alerta enhances the impact of the project activities on rural families in the surrounding communities, obtaining direct income from these activities. The benefits that are generated for the residents of Alerta through the work of harvesting the Brazil nut can be seen in Evidence 4.01 List of Brazilian Nuts Collectors 2022 Alerta Family results.

Another update is related to the legal denominations used by the forestry concessions where the project is located, Consolidado Otorongo and Consolidado Chullachaqui, which are now formally known as Forestal Otorongo SAC (<https://aldoagain21.wixsite.com/cultura-forestal>). As such, each consolidated company has been renamed Otorongo A and Otorongo B, respectively. In the meantime, they were also called San Nicolás and Otorongo, names that were used only during year 2022. These changes do not imply a change in the areas, concessionaire holder or in the management carried out in each one.

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

The methodology deviations implemented in the previous monitoring period (2021) had impacted the validated baseline estimates, hence the corrected values are presented next. It is important to stress that the deviations do not impact the applicability of the methodology VM0006 v2.2 nor the appropriateness of the baseline scenario, and the alternative method provides more conservative results, as required in Sections 3.21 and 3.20 from VCS Standard 4.5, respectively.

Change in the Project area extension

The initial project area had a total extension of 183,015.29 ha. However, it was necessary to update the project area so that it only represents the area of forest present at the project start date (at the end of the historical reference period). In this way, deforestation and non-forest existing until the end of 2017 were removed, resulting in a corrected project area of 181,579.77 ha.

Recalculation of the baseline deforestation rate for the reference region

On the other hand, the use of the VM0015 methodology v.1.1 implies an additional change at the conceptual level, based on the definition of the reference region. In this methodology, the reference region includes the project area and the leakage belt (section 1.1.1 "Reference Region"), so the calculation of the deforestation rate must be modified to include the existing deforestation in the other two areas (Project and leakage areas), which the VM0006 methodology v.2.2 excluded.

Thus, there is a change in the historical data, which modifies the beta regression and therefore the deforestation rate in the reference region. This calculation is detailed in Evidence 3.06. The results are shown in the following table.

Table 2.5. Changes in deforestation rate in the reference region (including project area and leakage belt)

Year	Original Deforestation rate in the reference region (ha/year)	Deforestation rate in the reference region + leakage area + project area (ha/year)	Type of data
2007	614.76	1,192.14	Historical data
2008	781.81	2,879.37	
2009	989.50	1,119.96	

Year	Original Deforestation rate in the reference region (ha/year)	Deforestation rate in the reference region + leakage area + project area (ha/year)	Type of data
2010	1,245.87	1,856.79	
2011	1,559.07	2,332.26	
2012	1,935.23	1,380.60	
2013	2,374.39	2,354.13	
2014	2,866.50	3,562.92	
2015	3,397.49	3,893.13	
2016	3,963.36	4,271.67	
2017	4,570.12	6,160.23	
2018	5,224.81	5,525.41	
2019	5,931.44	6,284.70	
2020	6,690.42	7,107.27	Beta regression model results
2021	7,498.45	7,992.27	
2022	8,348.24	8,935.12	
2023	9,227.92	9,926.95	
2024	10,120.37	10,953.69	
2025	11,002.50	11,995.16	
2026	11,844.62	13,023.94	
2027	12,609.92	14,004.31	

Once the deforestation rate in the reference region is re-estimated, the existing deforestation in the project area and the leakage belt is extrapolated. According to VM0015 methodology v.1.1, the estimation of this rate is done by estimating the potential risk over the entire reference region (which includes the project area and the leakage belt), with the previously calculated rate. The risk estimation is generated by modeling the location of unplanned deforestation (see next section for more details). Subsequently, an intersection is made with the polygons representing the project area and the leakage belt, and the annual baseline risk is estimated. This differs from the VM0006 methodology v.2.2 calculations, where the deforestation rate is calculated by means of area ratios.

Thus, the table below shows the comparison between the baseline deforestation rate calculations for both the project area and the leakage belt by the two methodological approaches.

Table 2.6. Changes in deforestation rate in Project and Leakage Areas

Year	Modeled deforestation rate in the Project Area (using VM0006 specifications)	Modeled deforestation rate in the Project Area (using VM0015 specifications)	Modeled deforestation rate in the Leakage Belt (using VM0006 specifications)	Modeled deforestation rate in the Leakage Belt (using VM0015 specifications)
2018	2,254.05	514.44	2,858.76	3,873.42
2019	2,558.90	393.21	3,245.40	4,226.58
2020	2,886.33	519.21	3,660.67	5,040.18
2021	3,234.93	654.03	4,102.79	5,324.40
2022	3,601.54	735.21	4,567.75	5,838.57

Year	Modeled deforestation rate in the Project Area (using VM0006 specifications)	Modeled deforestation rate in the Project Area (using VM0015 specifications)	Modeled deforestation rate in the Leakage Belt (using VM0006 specifications)	Modeled deforestation rate in the Leakage Belt (using VM0015 specifications)
2023	3,981.04	930.33	5,049.07	6,484.50
2021	4,366.06	1,058.49	5,537.37	6,991.74
2025	4,746.62	1,294.02	6,020.03	7,396.56
2026	5,109.92	1,521.81	6,480.80	7,829.10
2027	5,440.08	1,842.75	6,899.53	8,039.97

Change in the baseline emissions

Given the proposed changes, there was a new estimation of baseline emissions, detailed in the following table.

Table 2.7. Readjusted baseline emissions

Baseline emissions or removals (tCO ₂ e)	1: ΔGHG from avoided deforestation excluding ANR and harvest areas	7: ΔGHG from changes in long-lived wood products	10: ΔGHG from avoided deforestation from areas under harvest	Total
2018	114,537.18	0.00	19,166.41	133,703.59
2019	88,412.54	0.00	20,090.51	108,503.05
2020	119,957.80	0.00	27,558.93	147,516.73
2021	156,757.74	0.00	32,046.23	188,803.97
2022	181,218.73	0.00	36,741.30	217,960.03
2023	235,776.47	0.00	47,400.01	283,176.48
2021	275,765.94	0.00	54,962.59	330,728.52
2025	346,506.07	0.00	68,455.28	414,961.35
2026	418,772.75	0.00	81,990.62	500,763.37
2027	521,039.77	0.00	101,080.05	622,119.82
Total	2,458,744.98	0.00	489,491.93	2,948,236.90

Table 2.8. Updated Net Emission Reductions (NERs)

Year	Net Emission Reductions (NERs)
2018	129,898
2019	105,510
2020	143,450
2021	183,535
2022	211,868
2023	275,251
2021	321,459
2025	403,313
2026	486,686
2027	604,604
Total	2,865,574

Tables 10, 11.b and 11.c of Methodology VM0015 v.1.1 section 5.1 are presented to summarize the changes and comply with the requirements.

Table 2.9. Annual areas deforested per forest class within the project area in the baseline case (baseline activity data per forest class)

Project year	Area deforested per forest class within the project area (ha)	Total baseline deforestation in the project area	
		ABSLPA _t Annual (ha)	ABSLPA cumulative (ha)
2018	514.44	514.44	514.44
2019	393.21	393.21	907.65
2020	519.21	519.21	1,426.86
2021	654.03	654.03	2,080.89
2022	735.21	735.21	2,816.10
2023	930.33	930.33	3,746.43
2021	1,058.49	1,058.49	4,804.92
2025	1,294.02	1,294.02	6,098.94
2026	1,521.81	1,521.81	7,620.75
2027	1,842.75	1,842.75	9,463.50
Total	9,463.50	9,463.50	

Table 2.10. Annual areas deforested per forest class within the leakage belt in the baseline case (baseline activity data per forest class)

Project year	Area deforested per forest class within the project area (ha)	Total baseline deforestation in the project area	
		ABSLK _t Annual (ha)	ABSLK cumulative (ha)
2018	3,873.42	3,873.42	3,873.42
2019	4,226.58	4,226.58	8,100.00
2020	5,040.18	5,040.18	13,140.18
2021	5,324.40	5,324.40	18,464.58
2022	5,838.57	5,838.57	24,303.15
2023	6,484.50	6,484.50	30,787.65
2021	6,991.74	6,991.74	37,779.39
2025	7,396.56	7,396.56	45,175.95
2026	7,829.10	7,829.10	53,005.05
2027	8,039.97	8,039.97	61,045.02
Total	61,045.02	61,045.02	

Table 2.11. List of variables, maps, and factor maps

Factor Map		Source	Variable represented		Meaning of the categories or pixel value		Other maps and variables used to create the factor map		Algorithm or equation used
ID	File Name		Unit	Description	Range	Meaning	ID	File Name	
1	DIST_CROPS_2016	Map of Land Change /Land Use, GEOBOSQUES from 2005 to 2016	m	Distance to croplands	0 – 10,000	Least Cost distance	N/A	N/A	Euclidean distance
2	DIST_CROPS_2016_LOG		Log(m)	Logarithmic transformation of distance to croplands	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
3	DIST_GRASS_2016		m	Distance to grasslands	0 – 8,000	Least Cost distance	N/A	N/A	Euclidean distance
4	DIST_GRASS_2016_LOG		Log(m)	Logarithmic transformation of distance to grasslands	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
5	DIST_WETLANDS		m	Distance to water bodies	0 – 30,000	Least Cost distance	N/A	N/A	Euclidean distance
6	DIST_WETLANDS_LOG		Log(m)	Logarithmic transformation of distance to water bodies	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
7	DIST_MAIN ROADS	Peruvian Ministry of Transport and Communications	m	Distance to main roads (Interoceanic Highway)	0 – 106,057	Least Cost distance	N/A	N/A	Euclidean distance
8	DIST_MAIN_ROADS_LOG		Log(m)	Logarithmic transformation of distance to main roads	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
9	DIST_SEC_ROADS		m	Distance to secondary (departmental) roads	0 – 25,000	Least Cost distance	N/A	N/A	Euclidean distance
10	DIST_SEC_ROADS_LOG		Log(m)	Logarithmic transformation of distance to secondary roads	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
11	DIST_SETTLE_2016	Map of Land Change /Land Use, GEOBOSQUES from 2005 to 2016	m	Distance to settlements	0 – 20,000	Least Cost distance	N/A	N/A	Euclidean distance
12	DIST_SETTLE_2016_LOG		Log(m)	Logarithmic transformation of	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)

Factor Map		Source	Variable represented		Meaning of the categories or pixel value		Other maps and variables used to create the factor map		Algorithm or equation used
ID	File Name		Unit	Description	Range	Meaning	ID	File Name	
				distance to settlements					
13	DIST_FOREST_2016	Map of Land Change /Land Use, GEOBOSQUES from 2005 to 2016	m	Distance to forest cover	0 – 10,000	Least Cost distance	N/A	N/A	Euclidean distance
14	DIST_FOREST_2016_LOG		Log(m)	Logarithmic transformation of distance to forest	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
15	DEM	SRTM 90m Digital Elevation Database.	m	Altitude	0 – 500	Punctual elevation data per pixel	N/A	N/A	N/A
16	SLOPE	Derived from DEM	%	Change in elevation in percentage	0 - 120	Punctual elevation data per pixel	15	DEM	N/A

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

This is not a grouped project.

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

Not applicable. This is not a grouped project.

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

Not applicable. This is not a grouped project.

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

Not applicable. This is not a grouped project.

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

Not applicable. This is not a grouped project.

2.2.6.5 Project Zone Map (CCB, G1.13)

Not applicable. This is not a grouped project.

2.2.6.6 Changes to Management (CCB, G4.1)

Not applicable. This is not a grouped project.

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

In this period, no communities involved in risk actions that threaten the project have been reported. In the table below the potential risks that remain and the strategies that continue as part of the development of the project in this period.

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
Productive activities are not enough attractive to change the pattern of land use of agrarian neighbors	None in this period	Design feasibility study and provide continuous technical assistance including accompanying commercial activities to access improved and specialized markets with premium prices. 02 trainings in Alternative Crop Projects of High Ecological Value done in this monitoring period (Evidence 2.03. Community trainings).
New migrants that are not part of the original beneficiaries of the REDD+ project will become new	None in this period	Work jointly with authorities and institutions to a planning process of settlements of new migrants. The agreement with Instituto Tecnológico

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
deforestation drivers as they do not participate in the project activities.		Iberia (Evidence 2.02. Agreement with Iberia Institute)
Internal conflicts within local settlements	None in this period	Work jointly with local leaders and social specialists to understand the expectations, interests and power groups and networks inside local communities. Training and implementation of the conflict resolution mechanism developed in this period (Evidence 2.03. Community Trainings 2022, and Evidence 2.04. Conflicts report 2022).
Fires cannot be controlled because of dry season	None in this period	Incorporate scientific and research information in the forest fires patrolling strategy (Evidence 2.05. Forest patrolling 2022)
Productive activities are not enough attractive to change the pattern of land use of agrarian neighbors	None in this period	Design feasibility study and provide continuous technical assistance including accompanying commercial activities to access improved and specialized markets with premium prices. 02 trainings in Alternative Crop Projects of High Ecological Value done in this monitoring period (Evidence 2.03. Community trainings).
New migrants that are not part of the original beneficiaries of the REDD+ project will become new deforestation drivers as they do not participate in the project activities	None in this period	Work jointly with authorities and institutions to a planning process of settlements of new migrants. The agreement with Instituto Tecnológico Iberia (Evidence 2.02. Agreement with Institutes)
Internal conflicts within local settlements	None in this period	Work jointly with local leaders and social specialists to understand the expectations, interests and power groups and networks inside local communities. Training and implementation of the conflict resolution mechanism developed in this period (Evidence 2.03. Community Trainings 2022, and Evidence 2.07. Conflict resolution manual and Complaints and suggestions.

2.2.8 Benefit Permanence (CCB, G1.11)

The project ensured the permanence of climate, community, and biodiversity benefits through:

- The implementation of measures to mitigate emissions generated by deforestation and forest degradation (e.g., the monitoring, control) as indicated in section 3.1, which includes prevention activities promoted amongst the different groups located in areas of influence (communities, hamlets) such as training on fire prevention and control and the promotion of sustainable forest management, of forest and biodiversity preservation. In this manner, the Project seeks to provide communities with tools and skills that will allow them to live in harmony with the forest in the long term, building their capacity to sustainably manage forest resources in an appropriate manner (Evidence 2.03. Community trainings 2022).
- In this monitoring period, the project incorporates communities (Alerta) into its value proposition so that they can participate in a sustainable model over time. For example, the project includes neighboring communities in its current projects, providing opportunities for work and participation in sustainable development initiatives such as Brazil nuts collectors. The project is also designed so that the communities can participate in monitoring processes and the development of productive pilots, among other proposed activities (there is a lot of interest in planting and producing cocoa). The project seeks, through a participatory and economically productive approach, that the community finds value for the development of their families in the conservation and sustainable management of the forest.

2.3 Stakeholder Engagement & Safeguards

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

Since 2021, families from the Alerta Population Center were added as stakeholders who have been carrying out Brazilian Nuts collection activities within the concessions and have been remunerated as part of the benefits provided by the project. These families are involved in each of the training sessions and knowledge about the project. For this period (2022-2023), no modification or change has been made to the stakeholders identified and described in the project.

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

All the documentation referred to the REDD+ project, except sensitivity information (internal financial information as production costs, prices, clients, among others) is available for public review, including communities and authorities, through two ways:

Link with all the information about the REDD+ Project are created and stored (<https://aldoagain21.wixsite.com/cultura-forestal>).

The available information includes the project document and periodical monitoring reports, including biodiversity, community, and climate reports.

In the following table, a summary of engagement process is briefly described with the evidence of these meetings (Evidence 2.03. Community trainings 2022-2023).

Table 2.12. Engagement process with stakeholders

Stakeholder	Feedback received from stakeholder	How it was incorporated in the design	Evidence
Carachamayoc Community	Leaders and community families attended different meetings and workshops, where they had the opportunity to express their concerns and needs. Specifically, they requested for support in legal issues, tax framework, land titling and productive activities.	In relation to the topics discussed, the process of explaining the benefits, opportunities, and responsibilities of the REDD+ project continued and also explained how to apply the Grievance, Redress Mechanism, and conflict resolution. Also, the project proponent committed to support the community with the promotion of agroforestry initiatives in the community	January, July, and December 2022 and August and December 2023(Evidence 2.03. Community trainings 2022-2023)
San Francisco Community	Leaders and community families attended different meetings and workshops, where they had the opportunity to express their concerns and needs.	In relation to the topics discussed, the process of explaining the benefits, opportunities, and responsibilities of the REDD+ project continued and also explained the progress and results and how to apply the Grievance, Redress Mechanism, and conflict resolution.	January, July, and December 2022 and July and December 2023 (Evidence 2.03. Community trainings 2022-2023)
Alerta Community	Leaders and community families attended different meetings and workshops, where they had the opportunity to express their concerns and needs. Specifically, they requested for support in Post Zafra and Organic certification.	In relation to the topics discussed, the process of explaining the benefits, opportunities, and responsibilities of the REDD+ project continued and also explained the progress and results and how to apply the Grievance, Redress Mechanism, and conflict resolution.	January, June, August, and October Evidence 2.03. Community trainings 2022-2023)

Stakeholder	Feedback received from stakeholder	How it was incorporated in the design	Evidence
Monte Sion Community	Leaders and community families attended different meetings and workshops, where they had the opportunity to express their concerns and needs. Specifically, they requested for support in crop management, agroforestry, forest conservation, forestry law, land titling, vicinal road.	In relation to the topics discussed, the process of explaining the benefits, opportunities, and responsibilities of the REDD+ project continued and also explained the progress and results and how to apply the Grievance, Redress Mechanism, and conflict resolution.	January, July, and December Evidence 2.03. Community trainings 2022-2023)
Research entities (UNAMAD, Iberia Institute)	Potential synergies were searched and established with educative and research entities for the implementation of mitigation actions to prevent or reduce the impact on deforestation	Coordination meetings to schedule trainings about controlled fires, cocoa production, and others to local population Workshops were carried out about agroforestry and conflicts resolution and Protection of forests and their high conservation values.	Evidence 2.02 Cooperation Agreement

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

In addition to previously described in 2.3.2, the project has applied additional strategies to disseminate the information in a didactic manner: Periodical meetings with families from surrounding settlements.

Publishing materials Evidence 2.06. Publishing materials 2022-2023 for the dissemination of the REDD+ project, the control posts have played an important role in the relationship with the stakeholders, during all the monitoring periods. For example, the Portillo control post has become an important source of information dissemination within the northeast area of the project. Through this control post, it was possible to establish verbal contact with many of the neighbors, being able to register their telephone numbers and addresses and maintain a two-way open communication.

Communication channels have been currently extended with the emission of a radio program, four times a month during April, May, August, October, November, and December 2022 and all year in 2023 (Evidence 2.08 Radio Project programs) on in a local radio from Iberia (Tahuamanu Radio 104.9 FM). The objectives of the program were to disseminate and communicate about the progress of the REDD+ project and raise awareness about the importance of respecting the environment, the importance of the forest and the ecosystem services it offers.

During 2022-2023, the communities were visited, and various trainings were provided. Specifically, about the project, its operation, results 58 workshops were held in this period.

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

As described in point 2.3.2, all project information is published on the website and how the communities have been informed is presented in the table Engagement process with stakeholders.

In addition, 58 Workshops were given in the communities distributed in this way:

Table 2.13. Number of workshops for communities 2022-2023

Communities	Number of workshops
Alerta	38
Carachamayoc	3
Monte Sion	1
Portillo	3
San Francisco	3
All sectors (including more than 2 communities)	10
Total	58

Considering that rural families work in their agrarian parcels, and they only go back home in the evening; the protocol prioritizes using telephone calls and voice messages for calls to meetings. This is especially useful in rainy season when travelling to field areas is difficult because roads are closed.

These phone calls are done directly to each one of the attendants with at least 5 days before the meeting. The previous day, a new reminder call is done and, finally, the same day, a third call is done.

When needed, materials are shared during the meetings.

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

As described in section 2.2.7 In this period, no communities involved in risk actions that threaten the project have been reported. No measures have had to be executed or taken to mitigate risks or damage caused by the project.

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

A summary of risks, costs, and benefits were designed with meanings and words that are understandable to the rural communities that live around the project, which has been disseminated in each of the workshops on the project carried out in this monitoring period. (Evidence 2.12 Cost, Risk and Benefits of REDD Project, and Evidence 2.09. PPT presentation REDD Project).

The issues of costs, risks and benefits of the project have also been disseminated and explained in radio programs during this monitoring period. Specifically, in May there was a program that was broadcast every weekend. (Evidence 2.08 Radio Project Programs)

Also, as can be seen in the following table, 10 workshops were held in the communities where the costs, risks, and benefits that the project has been developing for this monitoring period were explained and presented.

Table 2.14. Training in REDD+ Project and diffusion Risk, Costs and Benefits of the projects in 2022-2023

Communities involved	Dates
San Francisco and Portillo (Joint Trainings)	12/01/2022
	27/07/2022
	30/12/2022
Alerta	15/02/2022
	17/08/2022
	3/03/2023
	10/03/2023
	28/06/2023
	22/12/2023
Cacharamayoc	30/12/2022
Monte Sion	11/07/2022

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

The strategy to inform stakeholders about the second project verification process will be done by sending letters to the authorities and leaders who were involved with the project in that period. In addition, the Project has a directory of representatives and leaders, and the coordination of the meetings will be communicated directly through calls and WhatsApp messages.

The information on the activities, results, and impacts that the project has been recording will be mentioned as part of the training that the project provides during its visits to the communities in that year.

The monitoring results of the project will always be published and updated in the following link <https://aldoagain21.wixsite.com/cultura-forestal> with all the information about the REDD+ Project are created and stored.

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

For the field visit for VCS-CCB verification of period 2022-2023, an audit plan will be designed including independent meetings with the stakeholders and other stakeholders. The project proponent will organize each one of these meetings with anticipation to ensure that audit team will have enough time to a deep dialogue with each one.

After receiving the auditor's visit final schedule, a letter from the General Project Coordinator will be sent to the community leaders in a timely manner to inform them about the auditor's forthcoming visit and the meetings that will possibly be generated between the auditor and the communities as part of the regular process.

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

Use the table below to describe the process for, and the outcomes from, ongoing communication with stakeholders conducted prior to verification. Include details on the following:

Ongoing consultation	Communities' opinions are permanent feedback for the project design and implementation. In this period, 54 trainings were done with communities to build and strong the project activities (Evidence 2.03. Community trainings 2022-2023). Also, 8 requests have been reported (in this period) through the project's complaints and suggestions mechanism (see table 2.7) and all were resolved and responded to by the social responsibility manager. Likewise, we can indicate that every year a satisfaction survey is carried out on the perception of the project among the communities, with a significant 60% seeing the project as positive and satisfactory. It is expected that each year it will continue to improve and receive suggestions from the communities involved.
Date(s) of stakeholder consultation	Dates of trainings: 12/01/2022, 15/02/2022 11/07/2022, 27/07/2022, 17/08/2022, 30/12/2022 Dates of requests
Communication of monitored results	The monitoring results of the project will always be published and updated in the following link https://aldoagain21.wixsite.com/cultura-forestal with all the information about the REDD+ Project are created and stored.
Consultation records	The monitoring results of the project will always be published and updated in the following link https://aldoagain21.wixsite.com/cultura-forestal with all the information about the REDD+ Project are created and stored.
Stakeholder input	Opinions are permanent feedback for the project design and implementation. In this period, 7 trainings were done with communities to build and strong the project activities (Evidence 2.03 Community trainings 2022). 8 requests have been reported through the project's complaints and suggestions mechanism (see table below in section 2.3.10)

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

FORESTAL OTORONGO has developed a feedback and grievance redress mechanism (see in the PD Chart 2: Process flow for feedback and grievance redress mechanism section 2.3.12) which allows attending claims and suggestions. This system has been socialized between the surrounding communities and interested parties and, additionally, it has a permanent channel of communication with the company. The system ensures that any claim or suggestion is answered timely. Below is the summary table 2.7 complaints and suggestions made within the framework of the project in 2022-2023:

Summary of comments received	Actions taken
Suggestion to buy a TV	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Complete equipment for workers	Attended and resolved
Improve the meals and cooker in the camp	Attended and resolved
Salary increases for staff	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Request for Tubewell maintenance	Attended and resolved
Request for Tubewell maintenance	Attended and resolved
Request for White helmet request	Attended and resolved
Request for Do not turn off the water valve in the workers' area	Attended and resolved

2.3.11 Stakeholder Consultation Channels (CCB, G3.5)

As mentioned before, the following channels have been used for stakeholder consultation.

- Meetings with the communities representative and families (Evidence 2.03. Community Trainings 2022-2023).
- Complaint or suggestion about the project (2.07 Evidence conflict resolution manual and complaints and suggestions).

Meetings organized with communities have been recorded through the application of an attendance list, signed by the participants, including communal authorities and members. Lists may be found in Community Trainings 2022 (Evidence 2.03. Community Trainings 2022-2023).

These communication mechanisms adapt to the rural reality of the area where the best communication is always direct and in person due to the difficulties that exist around other communication channels.

However, continuing to improve communication is part of the learning and development process of the project.

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

Meetings with and training to local communities have been done periodically during the current period and the opinions of the attendants are taken in consideration in the adaptive design of the project activities.

The meetings have an intercultural and gender-sensitive approach, which is reflected in many ways as, for instance, the days and hours of the meetings. As most of the attendants are rural families, who work every day since early hours, meetings are preferably done on Sundays. As some of the families are evangelic, meetings on Saturdays are avoided too.

The intercultural and gender equity approach is incorporated into the whole project activities. Regarding workers, there is a corporate policy of the prohibition of any type of discrimination during labor operations with positive actions for women as lactarians, health campaigns, among others (Evidence 2.09. Institutional Policy).

Regarding other stakeholders, especially surrounding communities, there are many measures to ensure equal participation and understanding of men, women, and communities. Some of them are:

- Avoidance of collision between project meeting hours with domestic tasks for men and women.
- Avoidance of collision between project meeting days with religious faith of local communities.

Preferred use of most common communication channels (radio, WhatsApp, etc.) instead of written letters because of that, the participation of men and women are close to be very similar (Evidence 2.10. Dissemination of training 2022-2023).

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

As described in the project PD section 2.3.7 The Project, through its institutional policy (Evidence 2.11 Institutional Policy), specifically in Section IV: Social Monitoring Policies, openly expresses respect for the rights of the communities, inhabitants and local third parties that could be affected by the development of Project activities or that are located in the area of influence. This instrument is socialized both to workers, providers of goods and services, and to our clients.

The company's complaints and suggestions response mechanism does not record any accusations of sexual harassment in the framework of development during this period.

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

The project proponent, as described in the PD, designed, and has operational a Grievance and Redress Mechanism.

During 2022-2023, 12 forms were sent through this mechanism (see table below). All cases were submitted by the workers of the company and were solved. In each case, the social responsibility manager submits a letter of response in the next days after the filled form was received indicating that the final response will be communicated within the next 30 days (Evidence 2.07 Suggestions and Complaints 2022-2023).

Grievances received	Resolution and outcome
Suggestion to buy a TV	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Complete equipment for workers	Attended and resolved
Improve the meals and cooker in the camp	Attended and resolved
Salary increases for staff	Attended and resolved
Suggestion to buy a TV	Attended and resolved
Request for Tubewell maintenance	Attended and resolved
Request for Tubewell maintenance	Attended and resolved
Request for White helmet request	Attended and resolved
Request for Do not turn off the water valve in the workers' area	Attended and resolved

For comparison or evaluation purposes, in the year 2021 the project registered 21 forms and for the 2022-2023 received 12, so that is an indicator that this year the activities were being better or has less complicated than 2021.

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

Permanent training for workers according to the annual training plan has been implemented.

For this monitoring report, there were 110 internal trainings registered (Evidence 2.21 Internal training 2022-2023). And the quality of their performance is evaluated through our operations quality monitoring system. Regarding training in the surrounding communities, the strengthening of their capacities is taken into consideration precisely because it prepares them for the development of the productive projects that are proposed to be carried out with them; and is constantly reinforced and strengthened.

It must be highlighted the following internal trainings:

- About their labor rights: economic benefits, permissions, paychecks, incentives, health insurance, discharges, among others.

- Psychological support: labor harassment, anxiety, depression, burnout syndrome, among others.
- Technician training related to their forest operations.

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

The Company Guideline for hiring personnel states that local families are prioritized as a form of empowerment and as a contingency measure to avoid social conflicts. This will include training in harvesting operations and organization of hired population. We recognize the importance of hiring family groups from surrounding areas for Brazil nut collecting, for instance, as this non-timber forest product is present in FORESTAL OTORONGO concession and its harvesting is allowed by the Intermediate Forestry Management Plan, approved by the forest authority.

The project proponent starts publishing job opportunities in local radio stations and community offices.

As an average, the job opportunities created by the project proponent are presented in the following table (see Evidence 2.13. Employment and families).

Table 2.15. Origin of personnel involved in the project 2022 -2023

Origin	2022		2023	
	internal Workers	Suppliers & BN collectors	internal Workers	Suppliers & BN collectors
Local/Region	25%	100%	100%	100%
Foreign	75%	0%	0%	0%

As we can see from the table, the company promotes the recruitment and training of personnel from the region. In previous years and during the pandemic period, it was difficult to recruit personnel from the region, but since 2023 100% of the company's personnel will be from the Madre de Dios region.

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

The risks of the Project are limited to the forest harvesting carried out in each consolidated. In this regard, the internal regulations on occupational safety and health are in place.

This document presents the rules of conduct and procedures established to protect the physical and mental well-being of each worker, in accordance with the Safety Policy adopted by the Consolidated. It emphasizes the shared responsibility of both the employer and the workers to defend the life, health, and physical integrity of the worker for his or her own interest and that of his or her family.

In 2017, the Occupational Safety and Health Committee (OSH) approved the internal regulations for Occupational Safety and Health. These regulations establish occupational safety and health standards for proper application and mandatory compliance by all company workers, third-party personnel, contractors, subcontractors, and visitors at any of the company's facilities.

This document is in accordance with Peruvian law as indicated in its legal framework and addresses relevant issues such as fire prevention and protection, protection of electrical machinery, equipment and engines, compressors and on security measures in the process of production, handling and transport of storage materials, security measures for the use of hoists, maintenance and repair, safety and health standards in operations, use of vehicles and the timely preparation of emergency responses.

On the latter, a contingency plan is made according to the nature of the risk, which is applied by the staff and conducted at the management level by the OSH committee and at the operational level by the brigade, such as: first aid, fire, and evacuation. Staff selection and training for these brigades is carried out by the human resources (HR) team in collaboration with other organizational units that facilitate the participation of workers from their respective areas. For example, if a fire occurs, the brigade leader collects information on injuries and damages to open an investigation and propose corrective actions.

2.4 Management Capacity

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

FORESTAL OTORONGO, and their partners, have a multidisciplinary technical team that includes profiles for required skills for the REDD+ project, including community engagement, biodiversity assessment, carbon measurement and monitoring. The project team has been updated as follows.

Figure 2.3. Project Organigram

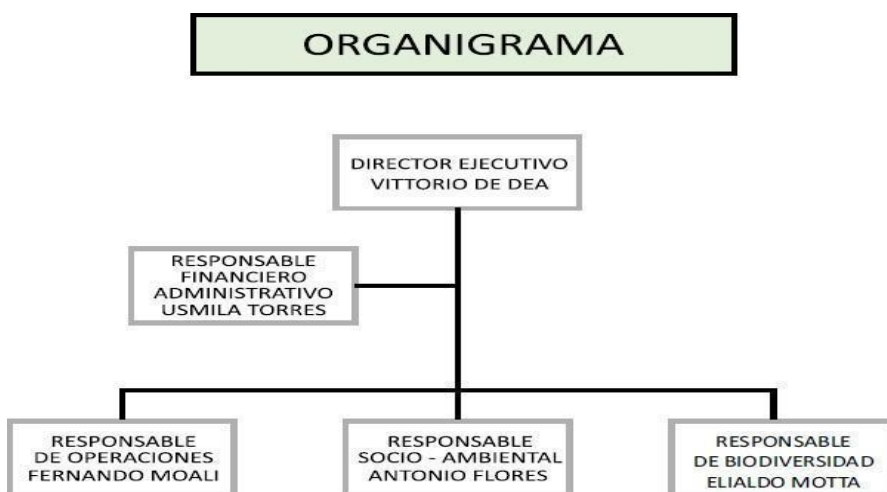


Table 2.16. Summary of technical skills

Job	Description
Chief executive officer	Conducted the initiation, planning, execution, project monitoring and completion.
Socio-environmental manager	Prepare and enforce the project's social intervention strategy. Determine and classify project interest groups in the project area. Analyze the perception of interest groups and Identification of institutions that can be considered allies for the project.
Administrative Financial Manager	Responsible for controlling the budget assigned to the project, maintaining the relevant expense levels according to the approved budget and established deadlines. Advisor in the compliance with the functions of administration of Financial Resources.
Operations manager	Responsible for the execution of field operations. Monitors and controls the work of project activities.
Socio-environment Assistant	Assists in the goals of the Socio-environment area.
Field staff	Intended to conduct tasks in the field, such as placing signs, establishing signage, conducting boundary maintenance, collecting field information

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

FORESTAL OTORONGO has a considerable experience in the timber sector as they have been producing and exporting timber products for decades. It implies the implementation of Corporate Social Relationship activities, especially with the surrounding population. As indicated in the FSC report, the high social standards are part of the permanent work of FORESTAL OTORONGO, which includes specific rules about labor conditions, training for the local population in logging operations, ethical restrictions in the relationships of workers with the local population, among others. The CVs of core personnel are described in (2.14, CVs Otorongo Company).

In 2002, the Peruvian Government granted these concessions, but the company group has nearly 50 years in the forest sector:

https://issuu.com/bozovich/docs/reportaje_mundo_empresarial_-_40_a_os

Table 2.17. Summary of staff expertise

Project staff	Expertise
Vittorio De Dea	Professional with more than 25 years in project management and since 2015 he has been the general manager of Forestal Otorongo SAC.
Antonio Flores León	Psychologist specializing in public management with experience in public and private institutions. In the project from 2020.
Fernando Moali Huertas	Engineer specializing in mechanics and systems. With experience in field work and with more than 15 years in the company Forestal Otorongo SAC.
Usmila Torres	Accounting manager with more than 30 years of experience in private

Project staff	Expertise
Valdez	fund administration.
Brigitte Díaz Ayala	Forest engineering student with experience in field work and conducting surveys.

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

On the other side, FORESTAL OTORONGO is new in the carbon business and has no experience developing carbon projects, calculating GHG reductions and trading VCUs. For this reason, a partnership with GREENOXX, a Uruguayan company with more than 16 years of experience in the carbon market and has developed previously this type of projects in REDD+ in Peru with FSC certified forest concessions, has been signed. GREENOXX is the project proponent of MADRE DE DIOS AMAZON REDD+ PROJECT (<https://registry.verra.org/app/projectDetail/VCS/844>). The CVs of Greenoxx personal can also be found in Evidence 2.14.

In addition to this, FORESTAL OTORONGO is also working with the Peruvian company Paskay SAC, who give technical assistance with carbon accounting and other aspects related to an AFOLU carbon project. PASKAY SAC is a consulting company that provides advice on the implementation of comprehensive sustainable development programs and projects with a climate and territorial management approach, contributing to the sustainable development of the environment and the population through the analysis of technical, legal, social, political, and economic, design, execution and promotion of activities, projects, programs, and research with various actors (<https://paskay.pe/>). The CVs of PAKSAY personnel involved in the project are in Evidence 2.15.

Another partnership established by FORESTAL OTORONGO is with the “Instituto de Educación Superior Tecnológico Público Iberia-Tahuamanu”. Through this partnership, students can work in the forest concession and can develop research that is useful to increase the value of forests, by finding new species, new uses of known species, new technologies among others but also supporting the biodiversity monitoring plan.

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

The cash flow, included in Evidence 2.23, shows that the project is supported by logging operations. As can be seen in it, the 2022 annual gross income from wood sales is US\$ 9 million, while the expected income from carbon sales is US\$ 1 million, which represents an additional 11.11% of current income, considering the time horizon.

During the audit visit, auditors will have access to internal financial information that can demonstrate the financial health of Forestal Otorongo, including annual reports, sales history, and commercial contracts.

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

With the support of the United Nations Office on Drugs and Crime (UNODC), Forestal Otorongo developed and approved its guidelines for anti-corruption policy (Evidence 2.10), which have been in force since 2020. These guidelines started identifying potential areas of corruption risks (legal, commercial, reputational) and their potential impacts. From this diagnosis, it designs mitigation measures, including annual public reports about how the guidelines were addressed.

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

Commercial Information as prices and clients for timber and carbon components for the updated cash flow must be considered sensitive and confidential.

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)

The following is the current Peruvian legal framework applicable to the project. This legal framework comes from various levels of government and sectors, such as the central and regional government, the environmental and agricultural sectors, among others. The regulations included have been organized according to their subject matter (from general to specific) and scope (from national to regional).

Table 2.18. Relevant national legal framework

Laws	Term	Content	Compliance
The Constitution	October 31 st , 1993	According to article 66 of the Peruvian Constitution, concessions grant its holders a right in rem over the granted area. That is, domain power is granted by the Peruvian State through the enabling title and the corresponding contract (forest concession contract). The State granted concessionaires the right to use forest resources, including ecosystem services such as carbon sequestration, and the right to own benefits from ecosystem services generated from the management of their forest concessions. Accordingly, if a third party affects the concession area, the concessionaire has legal remedies to protect its rights.	Accessing goods and services from the forest through forestry concession agreements. (Evidence 2.16: Recognition of property rights Forestry concession contracts).
Law No. 28611 "General Environment Law"	October 15 th , 2005	According to article 92, the "State promotes the sustainable use of forest resources and wildlife, as well as the conservation of natural forests". Besides, "the State promotes and supports the sustainable management of wild fauna and flora, prioritizing the protection of endemic and endangered species and varieties, based on technical information, scientific, economic and traditional knowledge". In this framework and to achieve those goals, the	Implementing the General Forestry Management Plan that contemplates in charter 7 the measures to consider regarding the environment, the environmental

Laws	Term	Content	Compliance
		State recognizes in article 94 that “natural resources and other components of the environment perform functions that allow maintaining the conditions of the ecosystems and the environment, generating benefits that are used without mediate remuneration or compensation, for which the State establishes mechanisms to value, remunerate and maintain the provision of said environmental services, seeking to achieve the conservation of ecosystems, biological diversity and other natural resources”. The State recognizes that mitigation of green gas emissions is considered environmental services (article 94.2). Thus, to achieve those conservation forest goals, “the National Environmental Authority promotes the development of mechanisms for financing, payment, and supervision of environmental services”, such as those developed in this project.	impact evaluation, and the Environmental Management Plan. Said management instrument is approved by the forestry authority. (Evidence 2.17: Forestry Management Plan and General Forestry Management Resolution which approves it).
DS No. 023-2021-MINAM “National Environmental Policy to 2030”	July 25 th , 2021.	The elaboration of the National Environmental Policy is a mandate that comes mainly from the Political Constitution of Peru and the General Environmental Law, constituting a set of guidelines, objectives, strategies, and instruments of a public nature that have the purpose of defining and orienting the actions of the entities of the National, Regional and Local Government, the private sector, and the civil society, in environmental matters. The National Environmental Policy is divided into 9 priority objectives, of which the most relevant for the project is to reduce deforestation and ecosystem degradation to ensure carbon sinks, avoid greenhouse gas emissions and reduce the possibility of emergencies and disasters (such as forest fires). Environmental services are identified in the National Environmental Policy in several points, pointing out the need to promote their economic valuation through economic and financial instruments, emphasizing the importance of implementing forest conservation and protection systems in terms of degradation and deforestation.	

Laws	Term	Content	Compliance
DS No. 006-2009-MINAM “Accurate denomination and proper functioning of the National Commission for Climate Change in accordance with Legislative Decree No. 1013”	March 29th, 2009	The general function of the National Commission on Climate Change is to monitor the various public and private sectors involved in the issue, through the implementation of the United Nations Framework Convention on Climate Change, as well as the design and promotion of the National Climate Change Strategy, whose content should guide and inform national, sectoral, and regional development strategies, plans and projects.	
DS No. 014-2011-MINAM "National Plan of Environmental Action" PLANAA - PERU 2011-2021	July 2011 9th,	It is an instrument of long term national environmental planning, which is formulated from a situational environmental diagnosis and from the management of natural resources, as well as from the potentialities of the country for the use and sustainable use of such resources; in the same way, it is based on the legal and institutional framework of the National System of Environmental Management. The fulfillment of the priority goals will contribute with the conservation and the sustainable use of natural resources, the improvement in the environmental quality; and therefore, to improving the quality of life of our population. Goals are presented in the areas of water, solid waste, air, forest and climate change, biological diversity, mining and energy, and environmental governance. The goal in Forests and Climate Change is that by 2021 the rate of deforestation in 54 million hectares of primary forests under various categories of land management will be reduced to zero, contributing, together with other initiatives, to reducing 47.5% of GHG emissions in the country, generated by changes in land use; as well as reducing vulnerability to climate change.	
DS No. 0012-2024-MINAM “National Strategy on Climate Change” (ENCC 2050)	November 27th, 2024	The National Climate Change Strategy 2050 guides Peru towards resilient, low-carbon development. Its main goal is to achieve carbon neutrality by 2050, adapting to the impacts of climate change. It focuses on reducing vulnerabilities, mitigating emissions and strengthening climate governance. It prioritizes key sectors such as energy, transport, agriculture and forests. It includes gender, intercultural and human rights approaches, with the participation of all social actors.	
Law 26839 “Law on the	July 17th, 1997	It regulates the general framework for the conservation of biological diversity and the sustainable use of its components. It includes	

Laws	Term	Content	Compliance
Conservation and Sustainable Use of Biological Diversity"		provisions for planning, inventory and monitoring, conservation mechanisms, rural and indigenous communities, and scientific and technological research. The Act establishes that the principles and definitions of the Convention on Biological Diversity govern its implementation and contains a title on protected natural areas, which is consistent with the provisions of Act No. 26834.	
Law 26821 "Organic Law for the Sustainable Use of Natural Resources"	June 27th, 1997	According to article 8, "the State shall ensure that the granting of the right to the sustainable use of natural resources is carried out in harmony with the interest of the Nation, the common good, and within the limits and principles established in this Law, in special laws and regulatory norms on the matter". Within this framework, article 18 of the Law confirms that "peasant and native communities have a preference in the sustainable use of natural resources of their lands, duly titled unless expressly reserved by the State, exclusive rights or excluding rights of third parties". On the other hand, article 20 confirms that "all use of natural resources by individuals creates financial retribution that is determined by economic, social and environmental criteria. The financial retribution previously mentioned includes any concept that must be contributed to the State for the natural resource, whether as compensation, right of granting, or right of validity of the title containing the right, established by special laws. Likewise, article 23 establishes that the concession grants the concessionaire the right to the sustainable use of natural resources, including ecosystem services such as carbon sequestration, under the conditions and terms established in the concession title (i.e., in the concession contract).	Accessing goods and services from the forest through forestry concession agreements. (Evidence 2.16: Recognition of property rights Forestry concession contracts and their addenda, as applicable).
DL No. 997 "Law on the Organization and Functions of the Ministry of Agriculture"	March 13th, 2008	The Ministry of Agriculture is the governing body of the agricultural sector and establishes the National Agricultural Policy, which is mandatory at all levels. Likewise, the Agrarian Sector includes the lands of agricultural use, of shepherding, the forest lands, the deserted lands with agrarian aptitude, the forest resources and their use; the flora and fauna; the hydric resources; the agrarian infrastructure; the activities of production, transformation and commercialization of crops and of breeding; and the services and activities linked to the agrarian activity such as the health, the investigation, the training, the extension and the transference of agrarian	

Laws	Term	Content	Compliance
Organic Law on Regional Governments, Law N° 27867	November 16th 2002	technology. Law which, in its articles 9 and 10, establishes constitutional, exclusive and shared competences to the Regional Governments in environmental matters to promote and regulate activities or services of the environmental sector. It also establishes exclusive powers to promote the sustainable use of forest resources and biodiversity, and shared powers for the sustainable management of natural resources, the improvement of environmental quality and the preservation and administration of regional reserves and protected natural areas. Article 53 of the same law establishes the functions of regional governments in environmental and land-use planning matters. For the Regional Governments to be able to exercise the competences assigned by this law, a process of transfer of these competences must be followed, the objective of which is to accredit that this level of government has the institutional capacities to assume them. This regulation provides the general framework for the actions of the Regional Forestry Authority (Regional Government of Madre de Dios), the entity that manages and administers the forests in the area.	
Ministerial Resolution N° 301-2010-AG	May 1st, 2010	Through this Resolution, the process of transferring of agrarian matters established in paragraphs 'e' and 'q' of Article 51 of the Organic Law of Regional Governments to the Regional Government of the Department of Madre de Dios, which refers to the development of surveillance and control actions to guarantee the sustainable use of natural resources under its jurisdiction, is hereby declared concluded. As well as granting forestry permits, authorizations and concessions in areas within the region, as well as promoting and supervising strict compliance with the national forestry policy. The project, in response to the transfer of functions, coordinated directly with the Regional Forestry Authority (Regional Government of Madre de Dios), everything related to the use of forest resources and forest carbon.	
DL No. 1085 Establishes the Forest and Wildlife Resources Monitoring Agency"	June 28th, 2008	It created OSINFOR, which is responsible for supervising and overseeing the sustainable use and conservation of forest and wildlife resources, as well as the environmental services provided by the State through the various forms of use recognized in the Forestry and Wildlife Law and its regulations.	Participating in the inspection that OSINFOR conducts in the Management Unit according to their planification program of

Laws	Term	Content	Compliance
			surveillance. (Evidence 2.18: SIGO - OSINFOR Website ¹³).
DS No. 030-2005-AG "Approve regulations for the Implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Peru"	July 10th, 2005	This standard is intended to regulate CITES provisions and establish the conditions and requirements for trade, trafficking and possession of species included in them CITES Appendices I, II and III. Its provisions are intended to ensure compliance with all the precepts of the Convention, with the purpose and to protect the species of wild fauna and flora threatened due to their intense trade. It was modified and updated by Supreme Decree No. 001- 2008-MINAM where the Ministry of Agriculture (through SERFOR) and the Ministry of Production are designated as CITES Administrative Authorities Peru, to the Ministry of Environment as CITES Peru Scientific Authority.	Respecting the regulations established on CITES species (Evidence 2.24). (Evidence 2.17: Approved resolutions in management of CITES species).
DS No. 009-2013-MINAGRI "National Forest and Wildlife Policy"	August 14th, 2013	The National Forest and Wildlife Policy is a state policy that involves all levels of government and public and private actors, being mandatory for regional governments. The purpose is to contribute to the sustainable development of the country, through an adequate management of the National Forest and Wildlife Heritage, which ensures its sustainable use, conservation, protection and increase, for the provision of ecosystem goods and services, forestry, other ecosystems of wild vegetation and wildlife, in harmony with the social, cultural, economic and environmental interest of the Nation through five political axes: institutionalism and governance; sustainability; competitiveness; social inclusion and intercultural and knowledge, science and technology.	Accessing to the goods and services of the forest through the forestry concession contracts. Implementing the General Forestry Management Plan and the operatives' plans, both approved by the forestry authority. Participating in the inspections that OSINFOR conducts in the Management Unit according to their program for surveillance planification. Hiring a Forestry Administrator for
Law No. 29763 "Forestry and Wildlife Law" and its four Regulations	September 30th, 2015	Article 51 of Law No. 29763, establishes that, through the concession, the State ¹⁴ grants in areas of public domain the right to sustainably use natural forest resources and the right to use and enjoy such natural resources, including ecosystem services. The same article states that concessions grant rights over the fruits and products legally extracted, as well as all types of activities, including the production of timber	

¹³ <https://sigosfc.osinfor.gob.pe/>
¹⁴ In Peru forest concession titles are granted by regional governments.

Laws	Term	Content	Compliance
		and non-timber forest products, the development of ecotourism or conservation activities, as well as ownership of the economic benefits from ecosystem services arising from their concessions management. In the case of forest concessions with an enabling title, this ownership is explicitly established in article 60 of Law No. 29763, which states that the holder has the right to the economic benefits from the ecosystem services derived from its management; and in article 52 of the same Law, which establishes that the holders of forest concessions become holders of the rights for the provision of ecosystem services. It must be highlighted that article 109 of Law No. 29763 confirms that the benefits from the economic use of forest ecosystem services are part of the enabling titles (i.e., forest concessions). To do so, concessionaires shall have a concession management plan approved by the authorities, according to article 52 of Law No. 29763. This article states that holders of forest concessions become holders of rights for the provision of ecosystem services, including carbon sequestration, provided that they comply with the commitments and conditions of the management plan approved by the forest authority. In this framework, all concessions participating in the project comply with these legal requirements: they have updated forest concession contracts, and they have updated or are in the process to update the management plans.	the elaboration, subscription, and implementation of the management instruments of the UMF (Forestry Management Unit). (Evidence 2.16: Recognition of property rights Forestry concession contracts. Evidence 2.17: Resolution of approval of the General Forestry Management Plans and Operative Plans. Evidence 2.18: SIGO – OSINFOR Website).
DL No. 1085 “Law that creates the agency for the Supervision of Forest and Wildlife Resources”	June 28th, 2008	OSINFOR is attached to the Presidency of the Council of Ministers and constitutes a budgetary statement. It is the entity in charge, at the national level, of supervising and monitoring the use and conservation of forest and wildlife resources, as well as environmental services from the forest, for their sustainability, in accordance with the national policy and strategy for integrated management of natural resources and the policies on environmental services established by the Ministry of the Environment, within the scope of its competence. OSINFOR's competencies do not involve Natural Protected Areas, which are governed by their own Law.	Participating in the inspections that Osinfor carries out in the Management Unit according to their program for planification of surveillances. (Evidence 2.18: SIGO – OSINFOR website).
DS No. 007-2013-MINAGRI “Regulation of Organization and Functions of the	July 18th, 2013	It is the national forestry and wildlife authority, which exercises its powers and functions at the national, regional and local levels, is subject to the regulatory framework on the subject and acts in accordance with national policies, plans and objectives, constituting the governing body of the National	Implementing the General Forestry Management Plan and the Operative Plans, both approved by the

Laws	Term	Content	Compliance
National Forest and Wildlife Service - SERFOR		System of Forestry and Wildlife Management, hereinafter SINAFOR, and its technical-normative authority, responsible for issuing regulations and establishing procedures related to the area of its competence.	regional forestry authority. (Evidence 2.16: Recognition of property rights)
DS No. 018-2015-MINAGRI "Regulation for Forest Management"	September 30th, 2015	This regulation establishes that, through the forest concession contracts¹⁵ approved by the Peruvian State, concession holders are granted the right to use and enjoy natural resources, including ecosystem services such as carbon sequestration, and the right to receive the economic benefits from the ecosystem services generated from the forest sustainable management of their concession areas. Article 56 establishes that "The same holder may carry out the management and harvesting of forest and wildlife resources, including activities of (...) harvesting of forest ecosystem services (...), in a complementary manner, as long as the main purpose of the enabling title is not distorted, and it is included in the forest management plan". Also, article 42 confirms the following are rights of the holders of the enabling titles of forest concessions: i) sustainable use of the forest and wildlife resources covered by the granted title, without prejudice to the development of complementary activities compatible with the zoning and management of the area, directly or through third parties, by the management plan approved by the competent authority (including ecosystem services); ii) access to the benefits of the retribution mechanisms for forest ecosystem services and other wild vegetation ecosystems, by the provisions of the regulations on the matter; iii) usufruct rights to the fruits, products, and by-products legally obtained as a result of the exercise of the enabling title; iv) right to sell or deliver the fruits, products or by-products, present or future, that are in the approved management plan. Besides, to support concession holders to fulfill the legal requirements related to their concessions, the project is reviewing all forest concession contracts and their forest management plans and will keep reviews on an ongoing basis. Finally, regarding the fulfillment of legal requirements by the concessionaires, OSINFOR¹⁶ guarantees	Forestry concession contracts. Evidence 2.17: Resolutions of approval of General Plan for Forestry Management and Operative Plans).

¹⁵ Concession contracts can be timber or non-timber: ecotourism concessions, conservation, other forest products, and afforestation and reforestation contracts granted under the previous Forestry and Wildlife Law.

¹⁶ In its function of supervising forest management plans and duties included in the forest concession contracts.

Laws	Term	Content	Compliance
		compliance with the abovementioned legislation and legal requirements.	
Law No. 29263 "Law on Ecological Crimes"	October 2nd, 2008	Law that modifies the penal types of ecological and environmental crimes and typifies their aggravated figures, such as illegal trafficking of protected wild flora and fauna species, illegal trafficking of aquatic species of protected wild flora and fauna, illegal extraction of aquatic species, depredation of protected flora and fauna, illegal trafficking of genetic resources, crimes against forests and forest formations, among other related crimes.	Participating in the inspections that Osinfor carries out in the Management Unit according to their program for the planification of surveillances. (Evidence 2.18: SIGO – OSINFOR website).
Law No 29785 "Prior Consultation Law"	September 7th, 2011	The implementation of this project does not constitute an administrative or legislative measure and, consequently, it does not require a prior consultation process by Article 1 of the Prior Consultation Law.	

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

Table 2.19. Legal framework on labor issues

Norm	Effective Date	Relevant articles demonstrating compatibility with the layout / implementation of the Project
LEGISLATIVE DECREE 728 (TUO SUPREME DECREE 003-97-TR) PRODUCTIVITY AND COMPETITIVENESS LAW	March 28th, 1997	100% of the workers are on the payroll. (Evidence 2.19. Employment)
SUPREME DECREE 001-96- TR PRODUCTIVITY AND COMPETITIVENESS REGULATION	January 26th, 1996	Evidence of constant training to our workers is included (Evidence 2.21 Internal training) Evidence 2.02 agreements with the IESTPI.
LAW 29245 THIRD-PARTY SERVICES PROVIDER LAW	June 26th, 2008	Outsourcing the execution of any activity imply that the project proponent does it through specific contracts such as: Brazil nut harvesting, forest inventories, measurement of sampling plots, updating of the study of Forests of High Conservation Value, etc.
SUPREME DECREE 006-2008- TR THIRD-PARTY SERVICES PROVIDER REGULATIONS	September 12th, 2008	Evidence of contracts with third parties
TUO SUPREME DECREE 001- 97-TR SENIORITY BENEFITS LAW	March 1st, 1997	CTS provision and deposit have been paid to all workers, which complies with current regulations when making the liquidation of personnel. (Evidence 2.19 Employment).
SUPREME DECREE 004-97- TR SENIORITY	April 15th,	

Norm	Effective Date	Relevant articles demonstrating compatibility with the layout / implementation of the Project
BENEFITS REGULATION	1997	
LEGISLATIVE DECREE 713 VACATION LAW	November 8th, 1991	It is fulfilled to provision and grant vacations of 30 days per year worked.
SUPREME DECREE 012-92- TR VACATION REGULATION	December 3rd, 1992	
LAW 27735 HALF/END-OF- YEAR HOLIDAY BONUSES LAW	May 8th, 2002	It is fulfilled to provision and grant two gratuities per year to our workers (Evidence 2.19 Employment).
SUPREME DECREE 005-2002- TR HALF/END-OF-YEAR HOLIDAY BONUSES REGULATION	July 4th, 2002	
LEGISLATIVE DECREE 892 PROFIT SHARING LAW	November 8th, 1996	The law regulates the right of participation of workers subject to the private labor regime in case the company generates profits.
SUPREME DECREE 009-98- TR PROFIT SHARING REGULATION	November 6th, 1998	
LEGISLATIVE DECREE 688 SOCIAL BENEFITS CONSOLIDATION LAW	5th, 1991	It complies with current regulations by granting the Life Insurance Law, the SCTR when the position merits it (Evidence 2.19 Employment).
SUPREME DECREE 024-2001- TR SOCIAL BENEFITS CONSOLIDATION REGULATION	July 22nd, 2001	
SUPREME DECREE 007-2002- TR LAW ON DAYS OF WORK, HOURS AND OVERTIME	July 4th, 2002	A work schedule of 48 hours per week is met. Overtime is voluntary and if it occurs, it is remunerated according to law (Evidence 2.19 Employment)
SUPREME DECREE 008-2002- TR REGULATION ON DAYS OF WORK HOURS AND OVERTIME	July 4th, 2002	A work schedule of 48 hours per week is met. Workers are free to form trade unions.
LEGISLATIVE DECREE 25593 (TUO SUPREME DECREE 010-2003-TR) LAW ON COLLECTIVE LABOR RELATIONS	October 5th, 2003	
SUPREME DECREE 011-92- TR REGULATION ON COLLECTIVE LABOR RELATIONS	October 14th, 1992	Workers are free to form unions.
LAW 28806 LABOR INSPECTION LAW	July 22nd, 2006	
SUPREME DECREE 019-2006- TR REGULATION OF LABOR INSPECTION SYSTEM	September 1st, 2007	There are occupied positions for workers with disabilities. The regulations are complied with in the event of occupational accidents (Evidence 2.19

Norm	Effective Date	Relevant articles demonstrating compatibility with the layout / implementation of the Project
		Employment)
LAW 26636 PROCEDURAL LABOR LAW	June 21st, 1996	This law regulates all the judicial procedures that workers and employers need to do to access justice.
SUPREME DECREE 039-91- TR INTERNAL REGULATION	December 30th, 1991	The regulations are accomplished through the elaboration, structure and publication and personal induction of the Internal Labor Regulations to each worker.

Table 2.20. Legal framework on health and safety issues

Norm	Effective Date	Relevant articles demonstrating compatibility with the layout/ implementation of the Project
LAW 29783 HEALTH AND SAFETY LAW	August 20th, 2011	Compliance with the regulations through the election of safety committees, constant training, and risk assessments.
SUPREME DECREE 009-2005-TR HEALTH AND SAFETY REGULATION	September 28th, 2005	It has all the records indicated by the DS. There is a committee on safety at work, constituted in accordance with the DS. There is a regulation of Safety and Health at Work. Third-party service personnel and company personnel have the same treatment once they enter the company's facilities All workers have social health insurance and are regular ESSALUD insured including their family members (Evidence 2.19 Employment).
MINISTERIAL DECREE 148- 2007-TR REGULATION OF COMMITTEE FOR SUPERVISION OF SECURITY AND HEALTH AT WORK	May 25th, 2005	
LAW 26842 GENERAL HEALTH LAW	July 20th, 1997	
LAW 26790 SOCIAL SECURITY MODERNIZATION LAW	May 17th, 1997	The affiliation to health insurance of all workers is met. The payments of the Complementary Insurance of risk work and life insurance are fulfilled from the first day of income of the worker (Evidence 2.19 Employment).
SUPREME DECREE 009-97- SA SOCIAL SECURITY MODERNIZATION REGULATION	September 8th, 1997	
SUPREME DECREE 003-98- SA INSURANCE RISK WORK	April 14th, 1998	

2.5.3 Human Rights (VCS, 3.19)

As described in the project design, there are no native communities affected by the design and implementation of the project. During the execution of all activities, the project respects human rights in accordance with the International Bill of Human Rights and universal instruments related to its activities. The compliance and protection of its workers is evidenced in the company's institutional policy (Evidence 2.10. Institutional policy).

The work with communities in the project area is also carried out and respected under the protection of territorial rights and any dispute or controversy is resolved with communication and the mechanism for handling complaints and suggestions (Evidence 2.07 Conflict resolution manual and complaints and suggestions manual).

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

As explained in 2.5.3, there are no native communities affected by the design and implementation of the project and third parties are not affected or involved. Concession management contracts are found in Evidence 2.16.

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

The Forestry and Wildlife Law No. 27308 and its regulations indicate that the management and use of forest resources in permanent production forests are carried out under public tender (40,000 ha) or public auction (10,000 ha) and that this award is for a period of 40 years, renewable.

Likewise, it specifies that the Concessionaire is directly responsible for the area but not for the subsoil. The timber forest concessions that make up each concession, Otorongo A (ex Consolidado Otorongo) and Otorongo B (ex Consolidado Chullachaqui) were awarded under this regulation through a public bidding process and the General Forest Management Plans (PGMF), and the Annual Operating Plans (POA) were presented to sustainable management; as well as the payment for the right to use that is made to the State. It should be noted that each concession works as a large Concession, that is, it has only one PGMF and additionally can carry out the harvesting of other forest products, in this case Brazil nuts (*Bertholletia excelsa*) through a Complementary Plan (PC) presented to the competent authority.

In this context, in the case of forest concessions with an enabling title, this ownership right to use, to sustainable manage and to enjoy the economic benefits derived from the use environmental services is based on the articles 44, 52, 60 and 109 of the Forest and Wildlife Law, Law N° 29763, which establishes that forest concessions titleholders hold rights for the provision of ecosystem services, such as carbon sequestration.

Furthermore, article 56 of the Regulations for Forestry Management, approved by Supreme Decree 018-2015-MINAGRI, establishes that the same titleholder may carry out the management and use of forest resources, including the use of forest ecosystem services, such as carbon sequestration and storage, in a complementary manner, as long as the main purpose of the enabling title is not distorted, and it is included in the forest management plan. The contracts of each Consolidated with the State are detailed below and can be viewed in Evidence 2.16.

Otorongo A (ex Consolidated Otorongo):

- 17-TAH/C-J-042-02
- 17-TAH/C-J-043-02
- 17-TAH/C-J-044-02

- 17-TAH/C-J-017-02
- 17-TAH/C-J-009-03
- 17-TAH/C-J-003-03

Otorongo B (ex Consolidated Chullachaqui):

- 17-TAH/C-J-040-02
- 17-TAH/C-J-041-02
- 17-TAH/C-J-045-02
- 17-TAH/C-J-028-02

Based on that, no third-party traditional property rights are affected by the implementation of the REDD project.

Disputes over rights to territories and resources	N/A
Respect for property rights	The description is at the beginning of the statement of this section (2.5.5)

2.5.6 Benefit Sharing Mechanism (VCS, 3.18, 3.19)

Summary of the benefit sharing plan	Not applicable.
Benefit sharing during the monitoring period	Not applicable.

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

As explained in 2.5.4, there are no native communities affected by the design and implementation of the project and third parties are not affected or involved. Furthermore, as already documented during FSC certification and other independent audits, there are no indigenous groups or traditional uses of forest resources that have been limited with the assignment of the forest concession. For this reason, no FPIC is needed.

Consent	Not applicable.
Outcome of FPIC	<i>Not applicable.</i>

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

Timber concessions in permanent production forests are contracts between the concessionaire and the State. This contract clearly defines the area of the concessions, with UTM coordinates (see Section 2.1.8) which belong to Otorongo A and Otorongo B, thus protecting the right to use the surface within the area. This implies that any type of relocation was not required for the implementation of the current REDD project. The forest concessions contest guarantees that these have been delivered over freehold areas and Letter 036-2017 from the DGFFS (Evidence 2.20) reaffirms that it is free of native communities.

As explained in 2.5.5, the Forest and Wildlife Law, Law N° 29763 and its Regulation (approved by Supreme Decree 018-2015-MINAGRI) establish as the right of a titleholder the use, sustainable use or management, commercial use (that is, right to sell the environmental services provided by forests, such a carbon sequestration) and the enjoyment of the economic benefits derived from the use of the environmental services from its area.

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

Illegal activities not implemented by the project proponent but for third parties and invaders, could affect project objectives. They are described in the following table.

Table 2.21. Illegal activities to be monitored and mitigation measures considered

Illegal Activities	Mitigation Measures Taken
Illegal logging	An enhanced surveillance plan, including periodical patrolling and new control sites in rivers and access roads
Illegal hunting	An enhanced surveillance plan, including periodical patrolling
Illegal harvesting of non-timber forest products (NTFP)	Agreements with local families so they can provide an organized and sustainable harvesting of Brazil nuts
Invasion	An enhanced surveillance plan, including periodical patrolling and denouncements to the authorities
Forest fires / clearance of areas	Control sites, monitoring and patrolling actions

Therefore, the number of events of illegal activities has reduced since the start of the project (see table below) and the project proponent implements intensive actions to reduce these risks even more such as operational monitoring, environmental performance monitoring, silvicultural monitoring, social monitoring, flow monitoring, land use conflict reporting, among others. (Evidence 2.05 Forest patrolling 2022). Project incomes do not originate in any case from illegal sources as may be seen in the Project cash Flow, where is clear that the whole income comes from legal logging and now, carbon sales.

Table 2.22. Illegal activities reported by project proponent within the REDD project area

Illegal activities reported within the Project Area						
Variable	2017	2018	2019	2020	2021	2022
Invasions	0	0	0	0	0	0
Illegal hunting	1	0	0	0	0	0
Forest fires	0	0	1	0	0	0
Illegal harvesting of NTFP	1	0	0	0	0	0
Illegal logging	1	0	0	1	0	0
TOTAL	3	0	1	1	0	0

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

In 2000, the (then) new forestry law (Law No. 27308) completely modified the forest management regime. For example, the duration of the contract was extended to 40 years, the minimum concession area became 5,000 ha and the holder acquired the right over all the resources existing in the granted territory. Previously, the right was granted over a single resource (in this case, timber, while other people could have rights over other resources such as Brazil nuts, for example), the period was shorter and the area smaller. The changes were key to ensuring the sustainability of forest management.

As a result, FORESTAL OTORONGO was legally assigned concessions in 2002 in forest areas that were being exploited by the same group under previous forestry laws. Its long-standing presence in these areas has prevented disputes over land or resources, despite changes in the legal framework.

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

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

Data / parameter (EA1)	CF
Data unit	Mg C (Mg DM) ⁻¹
Description	Carbon fraction of dry matter in wood
Source of data	REPORT OF THE NATIONAL FOREST AND WILDLIFE INVENTORY OF PERU (https://www.serfor.gob.pe/portal/wp-content/uploads/2020/03/INFORME-DEL-INFFS-PANEL-1.pdf)
Value applied	0.47
Justification of choice of data or description of measurement methods and procedures applied	To convert biomass units to carbon, the conversion factor proposed by the REPORT OF THE NATIONAL FOREST AND WILDLIFE INVENTORY OF PERU was used, which indicates that for any plant structure 0.47 of the dry weight (biomass or necromass) is carbon.
Purpose of data	Calculation of baseline emissions.
Comments	1 Mg C (Mg DM) ⁻¹ <> 1 t C (t DM) ⁻¹
Data / parameter (EA6)	sc1

Data unit	[-]
Description	First shape factor for the forest scarcity equation; steepness of the decrease in deforestation rate (greater is steeper).
Source of data	Statistical fitting procedure. Using remotely sensed forest cover data in heavily deforested areas close to the project area such as neighboring provinces, states, or countries
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of data	N/A
Comments	N/A

Data / parameter (EA7)	sc2
Data unit	[-]
Description	Second shape factor for the forest scarcity equation; relative deforested area at which the deforestation rate will be 50% of the initial deforestation rate.
Source of data	Statistical fitting procedure. Using remotely sensed forest cover data in heavily deforested areas close to the project area such as neighboring provinces, states, or countries
Value applied	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of data	N/A
Comments	N/A

Data / parameter (EA8)	wwf(ty)
-------------------------------	---------

Data unit	[-]
Description	Fraction of carbon in harvested wood products that are emitted immediately because of mill inefficiency for wood class <i>ssee</i> . This can be estimated by multiplying the applicable fraction to the total amount of carbon in different harvested wood product category.
Source of data	The default applicable fraction is 24% and 19% respectively for developing and developed countries (Winjum et al. 1998).
Value applied	24% for being a developing country.
Justification of choice of data or description of measurement methods and procedures applied	Winjum et al. 1998 states that the default fraction is 24% for developing countries.
Purpose of data	Calculation of project emissions
Comments	Any new updates from locally generated results can be used instead of the default values.

Data / parameter (EA9)	slp(ty)
Data unit	[-]
Description	Proportion of short-lived products
Source of data	Default values are 0.2, 0.1, 0.4 and 0.3 respectively for wood class <i>ssee</i> , i.e., sawn wood, wood-based panel, paper and paper boards and other industrial round woods as described in Winjum et al. (1998).
Value applied	0.2 for being sawn wood
Justification of choice of data or description of measurement methods and procedures applied	Winjum et al. (1998) provides the above values for sawn wood, wood-based panel, paper/paper boards and industrial roundwood
Purpose of data	Calculation of project emissions
Comments	Any new updates from locally generated results can be used instead of the default values. The methodology assumes that all other classes of wood products are emitted within 5 years.

Data / parameter (EA10)	fo(ty)
Data unit	[-]
Description	Fraction of carbon that will be emitted to the atmosphere between 5 and 100 years of harvest for wood class <i>ssee</i> .
Source of data	See Table 19 (Winjum et al. 1998)
Value applied	
Justification of choice of data or description of measurement methods and procedures applied	0.85 for being Sawn wood from a tropical forest region
Purpose of data	Winjum et al. (1998) provides these values for the fraction of carbon that will be emitted into the atmosphere between 5 and 100 years after harvest for tropical wood classes.
Comments	Calculation of project emissions

Data / parameter (EA11)	pwood,j								
Data unit	[Mg DM m-3]								
Description	Average basic wood density of species or species group <i>RR</i>								
Source of data	GPG-LULUCF Table 3A.1.9 and Woods of Peru from the Research Institute of the Peruvian Amazon (IIAP) http://www.iiap.org.pe/Upload/Publicacion/CDinvestigacion/inia/inia-p4/inia-p4-02.htm https://www.ipcc-nggip.iges.or.jp/public/2006gl/spanish/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf								
Value applied	Value per specie: <table border="1"> <tr> <td>Apuleia leiocarpa (Vogel) J.F. Macbr.</td><td>0.7</td></tr> <tr> <td>Hymenaea oblongifolia Huber</td><td>0.8</td></tr> <tr> <td>Swietenia macrophylla</td><td>0.43</td></tr> <tr> <td>Cedrela odorata</td><td>0.42</td></tr> </table>	Apuleia leiocarpa (Vogel) J.F. Macbr.	0.7	Hymenaea oblongifolia Huber	0.8	Swietenia macrophylla	0.43	Cedrela odorata	0.42
Apuleia leiocarpa (Vogel) J.F. Macbr.	0.7								
Hymenaea oblongifolia Huber	0.8								
Swietenia macrophylla	0.43								
Cedrela odorata	0.42								

	Copaifera reticulata Ducke	0.61
	Myroxylon balsamum (L.) Harms	0.78
	Amburana cearensis (Allemão) A.C. Sm.	0.43
	Clarisia racemosa Ruiz & Pav.	0.59
	Couratari guianensis Aubl.	0.54
	Aspidosperma macrocarpon Mart.	0.67
	Manilkara bidentata (A. DC.) A. Chev.	0.87
	Dipteryx odorata (Aubl.) Willd.	0.91
	Handroanthus serratifolius (Vahl) S.O. Grose	0.92
	Cedrelinga catenaeformis	0.45
Justification of choice of data or description of measurement methods and procedures applied	IPCC table 3A. 1.9-2 provides average basic wood densities for multiple species in Tropical America. In the same way that Research Institute of the Peruvian Amazon	
Purpose of data	Calculation of project emissions	
Comments	When no species-specific or species-group specific densities are available, an average representative density may be used for all species or species groups.	

3.1.2 Data and Parameters Monitored (VCS, 3.1.6)

Data / parameter	SizeprojectArea, sizeleakageArea, sizeReferenceRegion, sizeReferenceForest.
Data unit	[ha]
Description	Size of project area, leakage area, reference region.
Source of data	Geobosques platform
Description of measurement methods and procedures to be applied	Coverage and demarcations will be monitored and created using satellite imagery.
Frequency of monitoring/recording	sizeprojectArea and sizeleakageArea may be adjusted during crediting period per the rules for grouped projects and updated at verification, but only for the additional instances that were added

	after the project start date Permanent verification of the area of the project surfaces.								
Value applied	<table><tr><td>Size_{projectArea}</td><td>Size_{leakageArea}</td><td>Size_{ReferenceRegion}</td><td>size_{ReferenceForest}.</td></tr><tr><td>181,579.77</td><td>232,099.83</td><td>516,738.69</td><td>407,907.81</td></tr></table>	Size _{projectArea}	Size _{leakageArea}	Size _{ReferenceRegion}	size _{ReferenceForest} .	181,579.77	232,099.83	516,738.69	407,907.81
Size _{projectArea}	Size _{leakageArea}	Size _{ReferenceRegion}	size _{ReferenceForest} .						
181,579.77	232,099.83	516,738.69	407,907.81						
Monitoring equipment	Satellite imagery								
QA/QC procedures to be applied	Raster files were converted to vectors. Area was calculated for each vector and compared to calculations based on raster file.								
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario, Calculation of leakage emissions								
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.								
Comments	-								

Data / parameter (MN2)	$\Delta \text{area}_{\text{projectAreaEAH}, \text{projectScenario}(t, i)}$
Data unit	[ha yr ⁻¹]
Description	Hectares undergoing transition <i>ii</i> within the project area, excluding ANR and harvest areas, under the project scenario during year <i>ss</i> . [ha yr ⁻¹]. Section 8.2.3
Source of data	
Description of measurement methods and procedures to be applied	Remote sensing analysis
Frequency of monitoring/recording	Follow the procedures described in Section 3.2.2
Value applied	At least once before verification
Monitoring equipment	61.92 ha for the year 2022 and 62.64 for 2023
QA/QC procedures to be applied	Software GIS, images Landsat,

Purpose of data	Calculation of project emissions
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.
Comments	Data on the area of the felling plots can be found in the general forest management plan.

Data / parameter (MN3)	$\Delta \text{areaprojectAreaEAH, baselineScenario}(t, i)$						
Data unit	[ha yr-1]						
Description	Hectares undergoing transition <i>ii</i> within the project area, excluding ANR and harvest areas, under the baseline scenario during year <i>ss</i> . [ha yr-1]. Section 8.2.3						
Source of data	Ex-ante project estimates						
Description of measurement methods and procedures to be applied	Follow the procedures described in Section 3.2.1						
Frequency of monitoring/recording	At least once before every baseline. For added instances, may be recalculated at verification.						
Value applied	$(D\text{projectAreabaselineScenario.DF}(t) - \text{areaprojectArea,Withharvest,baselineScenario}(t,i))$ <table border="1"> <tr> <td>Year</td><td>$\Delta \text{areaprojectAreaEAH, BaselineScenario}(t, i)$</td></tr> <tr> <td>2022</td><td>715.03 ha</td></tr> <tr> <td>2023</td><td>905.29 ha</td></tr> </table>	Year	$\Delta \text{areaprojectAreaEAH, BaselineScenario}(t, i)$	2022	715.03 ha	2023	905.29 ha
Year	$\Delta \text{areaprojectAreaEAH, BaselineScenario}(t, i)$						
2022	715.03 ha						
2023	905.29 ha						
Monitoring equipment	Software GIS, Landsat images						
QA/QC procedures to be applied	Baseline scenario is defined once at validation. As this is not a grouped project, no new instances may be added.						
Purpose of data	Calculation of baseline emissions; Determination of baseline scenario						
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.						

Comments	Data on the area of the felling plots can be found in the general forest management plan.
----------	---

Data / parameter (MN4)	$\Delta \text{areaprojectAreaWithANR, baselineScenario}(t, i)$
Data unit	[ha yr-1]
Description	Hectares undergoing transition i within the leakage area under the project scenario for year t
Source of data	Land-use change modeling
Description of measurement methods and procedures to be applied	Follow the procedures described in Section 8.1.5.4
Frequency of monitoring/recording	At least once before every baseline. For added instances, may be recalculated at verification.
Value applied	There is no value to report
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Purpose of data	Not applicable because ANR not included in project activity
Calculation method	[ha yr-1]
Comments	Not applicable because ANR not included in project activity

Data / parameter (MN5)	$\Delta \text{arealeakageArea, projectScenario}(t, i)$
Data unit	[ha yr-1]
Description	Hectares undergoing transition ii within the leakage area under the project scenario for year ss
Source of data	Remote sensing analysis
Description of measurement methods	Coverage and demarcations will be monitored and created using satellite imagery.

and procedures to be applied										
Frequency of monitoring/recording	At least once before verification									
Value applied	<table><tr><td>Year</td><td>$D_{leakageArea,projectScenario}(t,i)$</td><td>$\Delta area_{leakageArea,projectScenario}(t,i)$</td></tr><tr><td>2022</td><td>5,852.47</td><td>3,961.17</td></tr><tr><td>2023</td><td>6,502.24</td><td>2,597.67</td></tr></table>	Year	$D_{leakageArea,projectScenario}(t,i)$	$\Delta area_{leakageArea,projectScenario}(t,i)$	2022	5,852.47	3,961.17	2023	6,502.24	2,597.67
Year	$D_{leakageArea,projectScenario}(t,i)$	$\Delta area_{leakageArea,projectScenario}(t,i)$								
2022	5,852.47	3,961.17								
2023	6,502.24	2,597.67								
Monitoring equipment	Software GIS, images Landsat									
QA/QC procedures to be applied	Field work or high-resolution images will be used to assess accuracy of results initially obtained. The application will be based on statistically robust parameters.									
Purpose of data	Calculation of project emissions									
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.									
Comments	No comment.									

Data / parameter (MN6)	$\Delta area_{leakageArea,baselineScenario}(t,i)$
Data unit	[ha yr ⁻¹]
Description	Hectares undergoing transition ii within the leakage area under the baseline scenario during year ss
Source of data	Land use change for GEOBOSQUES (MINAM)
Description of measurement methods and procedures to be applied	Coverage and demarcations will be monitored and created using satellite imagery.
Frequency of monitoring/recording	Once every baseline update. May also be updated at the time of instance inclusion that requires new leakage area.
Value applied	$D_{leakageArea,baselineScenario}(t,i)$

	Year	$\Delta \text{leakageArea, baselineScenario}(t,i)$	$\Delta \text{area}_{\text{leakageArea, baselineScenario}}(t, i)$
	2022	5,838.57	5,838.57
	2023	6,484.50	6,484.50
Monitoring equipment	Software GIS, Landsat images		
QA/QC procedures to be applied	Baseline scenario is defined once at validation. As this is not a grouped project, no new instances may be added		
Purpose of data	Calculation of project emissions		
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.		
Comments	No comment.		

Data / parameter (MN7)	$\Delta \text{areahistorical}(\text{CS1} \rightarrow \text{CS2}, t_1 \rightarrow t_2)$
Data unit	[ha yr-1]
Description	Area of transition from LULC class or forest stratum 1 to 2 from time 1 to 2 during the historical reference period
Source of data	Remote sensing analysis for Geobosques (MINAM)
Description of measurement methods and procedures to be applied	Calculate based on the remote sensing-based classification and stratification procedures detailed in Section 3.2.2
Frequency of monitoring/recording	At least once before every baseline update
Value applied	N/A
Monitoring equipment	Software GIS, Landsat images
QA/QC procedures to be applied	75 pixels in forest stratum and 75 pixels in non-forest stratum will be analyzed with high resolution images
Purpose of data	Calculation of project emissions
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.

Comments	N/A
Data / parameter (MN9)	areahistorical (CS1, t1)
Data unit	[ha]
Description	Total area of LULC class or forest stratum 1 at time 1
Source of data	Remote sensing analysis for Geobosques (MINAM)
Description of measurement methods and procedures to be applied	Calculate based on the remote sensing-based classification and stratification procedures detailed in Section 3.2.2
Frequency of monitoring/recording	At least once before every baseline update
Value applied	N/A
Monitoring equipment	Software GIS, Landsat images
QA/QC procedures to be applied	75 pixels in forest stratum and 75 pixels in non-forest stratum will be analyzed with high resolution images
Purpose of data	Calculation of project emissions
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel ⁻¹ for area in hectares.
Comments	N/A

Data / parameter (MN10)	Areabiomassloss(i)
Data unit	[ha yr ⁻¹]
Description	Total annual area of LULC class that was cleared for creating firebreaks
Source of data	Records of implemented activities or management plan
Description of measurement methods and procedures to be applied	No firebreaks created.

Frequency of monitoring/recording	At least once before verification
Value applied	N/A
Monitoring equipment	N/A
Comments	Not applicable because biomass loss for creating firebreaks not included in project activity

Data / parameter (MN11)	Areafirebiomassloss(i)
Data unit	[ha yr ⁻¹]
Description	Annual area of forest stratum that was cleared by using prescribed burning
Source of data	Records of implemented activities or management plan
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	At least once before verification
Value applied	N/A
Monitoring equipment	N/A
Comments	Not applicable because biomass loss for creating firebreaks not included in project activity

Data / parameter (MN12)	<i>areafireBiomassLoss, ANR(t, i)</i>
Data unit	[ha]
Description	Area of biomass removed by prescribed burning within ANR stratum <i>i</i> during year <i>t</i>
Source of data	Records of implemented activities or management plan
Description of measurement methods	N/A

and procedures to be applied	
Frequency of monitoring/recording	At least once before verification
Value applied	There is no value to report
QA/QC procedures to be applied	N/A
Comments	Not applicability because ANR not included in project activity

Data / parameter (MN13)	<i>areaProjectAreaWithANR,projectScenario(t, i)</i>
Data unit	[ha]
Description	Amount of land on which ANR activities are planned under the project scenario for year <i>t</i> and in stratum <i>i</i>
Source of data	Records of implemented activities or management plan
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	At least once before verification
Value applied	There is no value to report
Monitoring equipment	N/A
QA/QC procedures to be applied	N/A
Comments	Not applicability because ANR not included in project activity

Data / parameter (MN14)	Area harvest(<i>t, i</i>)
Data unit	[ha]
Description	Area of forest in harvest stratum <i>ii</i> that is harvested at time <i>ss</i> .

Source of data	Project Description or Forest/Harvest Management Plan
Description of measurement methods and procedures to be applied	Forest analysis described in FMP
Frequency of monitoring/recording	At least once before verification
Value applied	4,984.76 (2022) and 4,886.76 (2023)
Monitoring equipment	GPS
QA/QC procedures to be applied	Direct Spectral Unmixing Method (DSU), in the MINAM PDF document "Protocolo_Metodologico_Detection_Perdida_de_Bosque.
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.
Comments	No comment.

Data / parameter (MN15)	AreaprojectAreawithHarvest,ProjectScenario(t, i)
Data unit	[ha yr-1]
Description	Size of strata <i>ii</i> within the project area with harvest activities during year <i>ss</i> under the project scenario.
Source of data	Forest/Harvest Management Plan
Description of measurement methods and procedures to be applied	Forest analysis described in FMP
Frequency of monitoring/recording	At least once before verification
Value applied	4,984.76 (2022) and 4,886.76 (2023)
Monitoring equipment	GPS

QA/QC procedures to be applied	Direct Spectral Unmixing Method (DSU), in the MINAM PDF document "Protocolo_Metodologico_Detecion_Perdida_de_Bosque. And the general forest management plan (PGMF)
Purpose of data	Calculation of project emissions
Calculation method	Multiplication of number of pixels (30m by 30m) in each region by 0.09 hectares pixel-1 for area in hectares.
Comments	No comment.

Data / parameter (MN16)	AreaprojectAreawithHarvest,BaselineScenario(t, i)
Data unit	[ha yr-1]
Description	Hectares undergoing transition <i>ii</i> within the harvest areas under the baseline scenario during year <i>ss</i> .
Source of data	Own Forest Management Plan
Description of measurement methods and procedures to be applied	Through an exploratory inventory
Frequency of monitoring/recording	At least once before every baseline update
Value applied	$\frac{(\text{Area}_{\text{projectAreawithHarvest,projectScenario}}(t, i) / \text{Project area}) * D_{\text{projectArea,baselineScenario,DF}}(t,i)}{\text{Area}_{\text{projectAreawithHarvest,BaselineScenario}}(t, i): 20.18 \text{ ha (2022) and } 25.04 \text{ ha (2023)}}$
Monitoring equipment	GPS, software & hardware, laptop, compass
QA/QC procedures to be applied	Direct Spectral Unmixing Method (DSU), in the MINAM PDF document "Protocolo_Metodologico_Detecion_Perdida_de_Bosque. And the general forest management plan (PGMF)
Purpose of data	Calculation of baseline emissions; Determination of baseline scenario
Calculation method	N/A
Comments	No comment

Data / parameter (MN17)	BetaRegDF (t) and BetaRegDG (t)																				
Data unit	[ha yr-1]																				
Description	Beta regression model describing the relationship between time and deforestation/degradation rate in the reference region during the historical reference period.																				
Source of data	Historic forest degradation and deforestation modeling																				
Description of measurement methods and procedures to be applied	Procedure described in Section 8.1.5.1 or similar approach from peer-reviewed scientific literature.																				
Frequency of monitoring/recording	At least once every baseline update																				
Value applied	<table border="1"> <tbody> <tr><td>2018</td><td>5,525.41</td></tr> <tr><td>2019</td><td>6,284.70</td></tr> <tr><td>2020</td><td>7,107.27</td></tr> <tr><td>2021</td><td>7,992.27</td></tr> <tr><td>2022</td><td>8,935.12</td></tr> <tr><td>2023</td><td>9,926.95</td></tr> <tr><td>2024</td><td>10,953.69</td></tr> <tr><td>2025</td><td>11,995.16</td></tr> <tr><td>2026</td><td>13,023.94</td></tr> <tr><td>2027</td><td>14,004.31</td></tr> </tbody> </table>	2018	5,525.41	2019	6,284.70	2020	7,107.27	2021	7,992.27	2022	8,935.12	2023	9,926.95	2024	10,953.69	2025	11,995.16	2026	13,023.94	2027	14,004.31
2018	5,525.41																				
2019	6,284.70																				
2020	7,107.27																				
2021	7,992.27																				
2022	8,935.12																				
2023	9,926.95																				
2024	10,953.69																				
2025	11,995.16																				
2026	13,023.94																				
2027	14,004.31																				
Monitoring equipment	Statistical Software R-STUDIO																				
QA/QC procedures to be applied	Development of the beta regression with its different types of links with the consecutive selection of the best model.																				
Purpose of data	Calculation of baseline emissions, Determination of baseline scenario																				
Calculation method	Applying a Beta Regression to historical values																				
Comments	No comment.																				

Locations, Descriptions, Qualitative and Social Data

Data / parameter (MN18)	Area under agricultural intensification
Data unit	[ha]

Description	Size of the area of agricultural intensification separated for each agricultural intensification measure
Source of data	Participatory rural appraisals
Description of measurement methods and procedures to be applied	Calculate based on areas of cropland in the leakage and project areas
Frequency of monitoring/recording	At least once before verification
Value applied	There is no value to report
QA/QC procedures to be applied	N/A
Comments	Not applicability because agricultural intensification activities not included in project activity

Data on Drivers and Actions

Data / parameter (MN27)	CTbaseline (h, j, ty, t)
Data unit	[m ³ yr ⁻¹]
Description	Annually extracted volume of harvested timber round-wood for commercial on-sale under the baseline scenario during harvest by species j and wood product class ty during year t
Source of data	1. Participatory rural appraisals conducted by the project proponent. 2. Recent (<10 yr) literature in the reference region 3. Recent (<10 yr) literature in an area like the reference region 4. Recent (<10 yr) non-peer-reviewed reports by local organizations
Description of measurement methods and procedures to be applied	Cabinet work based on census results and legal minimum allowed DBH
Frequency of monitoring/recording	At least once before every baseline update
Value applied	See Workbook "RM CCB VCS 2022" sheet 7
Monitoring equipment	Computers, software, diametric ribbon, hypsometer, others

QA/QC procedures to be applied	A field brigade re-measures a percentage of measured trees
Purpose of data	Calculation of baseline emissions, Determination of baseline scenario
Calculation method	$\Sigma ((\pi * DBH^2)/4) * h$ for commercial species with DBH > minimum allowed
Comments	N/A.

Data / parameter (MN29)	CTproject(h, j, ty, t)
Data unit	[m ³ yr ⁻¹]
Description	Annually extracted volume of harvested timber round-wood for commercial on-sale inside the project area under the project scenario during harvest <i>h</i> by species <i>j</i> and wood product class <i>ty</i> during year <i>t</i> .
Source of data	Project design, surveys, statistical records.
Description of measurement methods and procedures to be applied	Cabinet work based on census results and legal minimum allowed DBH
Frequency of monitoring/recording	At least once before verification
Value applied	See Workbook “RM CCB VCS 2022” sheet 7
Monitoring equipment	Computers, software, diametric ribbon, hypsometer, others
QA/QC procedures to be applied	A field brigade re-measures a percentage of measured trees
Purpose of data	Calculation of project emissions
Calculation method	$\Sigma ((\pi * DBH^2)/4) * h$ for commercial species with DBH > minimum allowed
Comments	N.A.

Data / parameter (MN33)	ContributionDF (d) and ContributionDG (d)
Data unit	[-]

Description	Relative contribution of driver <i>i</i> respectively to total deforestation and forest degradation.
Source of data	LULC maps and statistics from GEOBOSQUES combined with Beta Regression. Methodology
Description of measurement methods and procedures to be applied	Application of the methodology based on GEOBOSQUES Data
Frequency of monitoring/recording	At least once before baseline update.
Value applied	See Workbook “RM CCB VCS 2022” sheet Contribution.
Monitoring equipment	Computer.
QA/QC procedures to be applied	Constant and complete revisions in each update of the spreadsheets.
Purpose of data	Calculation of baseline emissions, Determination of baseline scenario
Calculation method	$contribution_{DF}(i) = \frac{proportion_{DF}(d) \cdot L(d)}{\Delta C_{DF}}$
Comments	No comment.

Data / parameter (MN34)	RelativeDriverImpactDF (t,d) and RelativeDriverImpactDG (t,d)
Data unit	[-]
Description	Relative impact of the geographically unconstrained driver <i>cc</i> at time <i>ss</i> of the crediting period respectively on deforestation and forest degradation.
Source of data	Not applicable as no geographically unconstrained driver has been identified in the baseline scenario
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	At least once before baseline update.

Value applied	There is no value to report
QA/QC procedures to be applied	N/A
Comments	Not applicable.

Data / parameter (MN35)	leakageunconstrained (d)
Data unit	[-]
Description	Leakage cancellation rate for avoiding deforestation/degradation from geographically unconstrained drivers.
Source of data	Valid sources to substantiate a smaller leakage rate include social assessments, scientific literature, and reports from civil society or governments. Sources have to be reliable and based on scientific methods and a good statistical design.
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	At least once before baseline update.
Value applied	A default rate of 100% was used as recommended by the methodology.
QA/QC procedures to be applied	N/A
Comments	N/A.

Data / parameter (MN36)	effectiveness (a , d)
Data unit	[-]
Description	Effectiveness of every project activity a in decreasing any driver of deforestation d relative to that driver's contribution to deforestation and forest degradation,
Source of data	Relevant academic literature or documented expert opinion.

Description of measurement methods and procedures to be applied	- In the table 10 of the methodology for the effectiveness of the legal recognition of the land tenure status, Effectiveness < 5 % [EQ43] - In the table 12 of the methodology for the effectiveness of the demarcation and forest protection, Effectiveness = 100 % [EQ54]. - In the table 17 of the methodology for the effectiveness of the alternative livelihoods, Effectiveness = 0.75 * $\left(\frac{\sum \text{income through alternative livelihood}}{\sum \text{Total value of forest products}} \right)$ [EQ63].
Frequency of monitoring/recording	At least once before baseline update.
Value applied	- Legal recognition of the land tenure status: 0.040 - Demarcation and forest protection: 1.000 - Alternative livelihoods: 0.31
Monitoring equipment	The effectiveness(a,d) factor represents the maximal effectiveness during the crediting period.
QA/QC procedures to be applied	Within the annual social evaluations, this effectiveness will be evaluated.
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	[-]
Comments	No comment.

Data / parameter (MN48)	Efforest
Data unit	[t CO2 e]
Description	Emission factor related to leakage.
Source of data	If comprehensive national-level statistics on biomass densities are available, Efforest must be calculated based on the average biomass of the country. If local data is not available. Sources of the data allowed are academic research papers and (2) studies and reports published by the forestry administration or other organizations, including the FAO's Forest Resource Assessment reports, (3) the upper range of biomass in the GPG-LULUCF (2003) Table 3A.1.2.
Description of measurement methods	N/A

and procedures to be applied	
Frequency of monitoring/recording	At least once before verification
Value applied	There is no value to report
Monitoring equipment	
QA/QC procedures to be applied	N/A
Calculation method	[-]
Comments	No comment.

Data on Organic Matter and Carbon Densities

Data / parameter (MN49)	$OMo(i)$
Data unit	[Mg DM ha ⁻¹]
Description	Plant-derived organic matter of LULC class or forest stratum i in pool o . [Mg DM ha ⁻¹]
Source of data	Field measurements using sampling plots in forest strata or LULC classes.
Description of measurement methods and procedures to be applied	The average biomass stock density in applicable organic matter pools: aboveground tree – $OMAGT(i)$, aboveground non-tree – $OMAGNT(i)$, lying dead wood – $OMLDW(i)$, standing dead wood $OMSDW(i)$, belowground $OMBG(i)$, and soil organic matter $OMSOM(i)$
Frequency of monitoring/recording	At least once before every baseline update
Value applied	Follow uncertainty deduction procedures described in methodology.
Monitoring equipment	Re-measure plots by independent teams.
QA/QC procedures to be applied	Summed across multiple pools and divided into $OM_{plant}(i)$ and $OM_{soil}(i)$
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	[-]

Comments	No comment.						
Data / parameter (MN50)	ProportionDF (d) and ProportionDG (d)						
Data unit	[-]						
Description	Proportion of the gradual carbon loss that leads to deforestation or forest degradation, respectively, due to driver d						
Source of data	Estimate using the procedure detailed in Table 9.						
Description of measurement methods and procedures to be applied	[-]						
Frequency of monitoring/recording	At least once before every baseline update						
Value applied	<table><tr><th>Driver</th><th>$proportion_{DF}(i)$</th><th>$proportion_{DG}(i)$</th></tr><tr><td>1. Conversion of forest land to cropland</td><td>100%</td><td>0%</td></tr></table>	Driver	$proportion_{DF}(i)$	$proportion_{DG}(i)$	1. Conversion of forest land to cropland	100%	0%
Driver	$proportion_{DF}(i)$	$proportion_{DG}(i)$					
1. Conversion of forest land to cropland	100%	0%					
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario						
Comments	N/A						

Data / parameter (MN51)	$C(t, i)$																				
Data unit	[Mg C ha-1 yr-1]																				
Description	Carbon stock density at time in stratum (AGL + BG)																				
Source of data	Estimate within the biomass inventory plots.																				
Description of measurement methods and procedures to be applied	For the forest class:																				
	<table><tr><th>Equation or Factor</th><th>Application in Peru</th><th>IPCC climatic zone</th><th>Reference</th></tr><tr><td colspan="4">Above-ground biomass in trees (AGB.t)</td></tr><tr><td>$p^{*} \text{Exp}[-1.499+2.148*\ln(\text{dbh})+0.207*\ln(\text{dbh})^2-0.0281*\ln(\text{dbh})^3]$</td><td>Selva Baja</td><td>Moist forest</td><td>Chave <i>et al.</i>, 2005</td></tr><tr><td colspan="4">Below-ground biomass in trees (BGB.t)</td></tr><tr><td>$BGB.t=0.489*AGB.t^{0.890}$</td><td>All</td><td></td><td>Mokany <i>et al.</i>,2006</td></tr></table>	Equation or Factor	Application in Peru	IPCC climatic zone	Reference	Above-ground biomass in trees (AGB.t)				$p^{*} \text{Exp}[-1.499+2.148*\ln(\text{dbh})+0.207*\ln(\text{dbh})^2-0.0281*\ln(\text{dbh})^3]$	Selva Baja	Moist forest	Chave <i>et al.</i> , 2005	Below-ground biomass in trees (BGB.t)				$BGB.t=0.489*AGB.t^{0.890}$	All		Mokany <i>et al.</i> ,2006
	Equation or Factor	Application in Peru	IPCC climatic zone	Reference																	
	Above-ground biomass in trees (AGB.t)																				
	$p^{*} \text{Exp}[-1.499+2.148*\ln(\text{dbh})+0.207*\ln(\text{dbh})^2-0.0281*\ln(\text{dbh})^3]$	Selva Baja	Moist forest	Chave <i>et al.</i> , 2005																	
Below-ground biomass in trees (BGB.t)																					
$BGB.t=0.489*AGB.t^{0.890}$	All		Mokany <i>et al.</i> ,2006																		

	For the Pasture class: Ignition method at an average temperature of 550 °C for 3 hours. https://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S0034-77442020000200440
Frequency of monitoring/recording	At least once before verification
Value applied	Forest: 169.78
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Comments	No comment.

Data / parameter (MN52)	$f_{allometric}(y)$
Data unit	Equation
Description	Allometric relationship to convert a tree metric such as DBH or tree height into biomass
Source of data	Forest National Inventory (2019)
Frequency of monitoring/recording	At least once before every baseline update
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	Allometric equations were used to calculate aboveground biomass by ecozone:
Comments	No comment.

Data / parameter (MN53)	$f_{belowground}(y)$
Data unit	Equation
Description	Relationship between aboveground and belowground biomass, such as a root-to-shoot ratio
Source of data	National Forest and Wildlife Inventory (2019)

Description of measurement methods and procedures to be applied	BGB.t = 0.489*AGB.t0.890
Frequency of monitoring/recording	At least once before every baseline update
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Comments	No comment.

Data / parameter (MN54)	Charvest (t,i)
Data unit	Mg C ha-1
Description	Biomass carbon stock density at time i in stratum i in harvested areas.
Source of data	Field inventory
Description of measurement methods and procedures to be applied	Generic procedure is described in Section 8.1.4.4. Estimate must be made from plots located areas where harvesting takes place.
Frequency of monitoring/recording	At least once before verification
Value applied	See Excel Monitoring report, sheet 10.
Monitoring equipment	Carbon stocks in harvested strata must come from sampling. It may be necessary to include additional plots in harvested strata for a precise estimation of carbon stocks. The exact measurement of aboveground and below tree carbon must follow international standards and follow IPCC GPG LULUCF 2003. These measurements are explained in detail in CDM approved methodology AR-AM0002 Restoration of degraded lands through afforestation/reforestation.
QA/QC procedures to be applied	Every year when updating, the spreadsheets will be completely revised
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	Carbon Stock – (carbon content in timber harvested / harvested area)

Comments	No comment.
Data / parameter (MN55)	CEinventory, harvest(t,i)
Data unit	[-]
Description	Combined error in estimate of average biomass stock density in harvest areas in stratum i at time t.
Source of data	Field inventory
Description of measurement methods and procedures to be applied	Generic procedure is described in Section 8.1.4.4. Estimate must be made from plot located in areas where harvesting takes place.
Frequency of monitoring/recording	At least once before verification
Value applied	0.03
Monitoring equipment	Uncertainty estimate in carbon stocks in harvested strata must come from sampling of plots in harvested areas.
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	$CE_{inventory}(i) = \frac{\sqrt{\sum_o HWCI(OM_o(i))^2}}{\sum_o OM_o(i)}$
Comments	No comment.
Data/parameter [MN56]:	CEinventory,ANR(t,i)
Data unit	[-]
Description	Combined error in estimate of average biomass stock density in ANR areas in stratum I at time t
Source of data	N/A

Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	N/A
Value monitored	There is no value to report
QA/QC procedures to be applied	N/A
Comments	N/A.

Data/parameter [MN57]:	Uclassification
Data unit	[-]
Description	Discounting factor for NERs from avoided deforestation, based on the accuracy of classification, i.e. dividing land into broad land use types.
Source of data	GEOBOSQUES images
Measurement procedures:	Section 8.1.2.7
Frequency of monitoring/recording	At least once before verification
Value monitored	0.94667 for year 2022 and 0.924444 for year 2023
QA/QC procedures to be applied	Review “Accuracy assessment” in section of Project emissions.
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Comments	No comment.

Data/parameter [MN58]:	Ustratification
Data unit	[-]

Description	Discounting factor for NERs from avoided degradation, based on the accuracy of stratification, i.e. dividing forest into individual forest biomass classes. Section 8.1.2.7
Source of data	VM0006-REDD- Methodology for Carbon Accounting for Mosaic and Landscape-scale REDD Projects.
Description of measurement methods and procedures to be applied	N/A
Frequency of monitoring/recording	N/A
Value monitored	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Comments	Not Applicable (only one stratum)

Data/parameter [MN59]:	$u_{\text{transition}} (i)$
Data unit	[-]
Description	Discounting factor for the emission factor for the transition from LULC class or forest stratum 1 to class 2 according to the uncertainty of the biomass inventory.
Source of data	Eder Ramos-Hernández & José Luis Martínez-Sánchez in “Almacenes de biomasa y carbono aéreo y radicular en pastizales de Urochloa decumbens y Paspalum notatum (Poaceae) en el sureste de México ¹⁷
Description of measurement methods and procedures to be applied	Section 8.1.2.4.3
Frequency of monitoring/recording	At least once before verification
Value monitored	1

¹⁷ <https://www.scielo.sa.cr/pdf/rbt/v68n2/0034-7744-rbt-68-02-440.pdf>

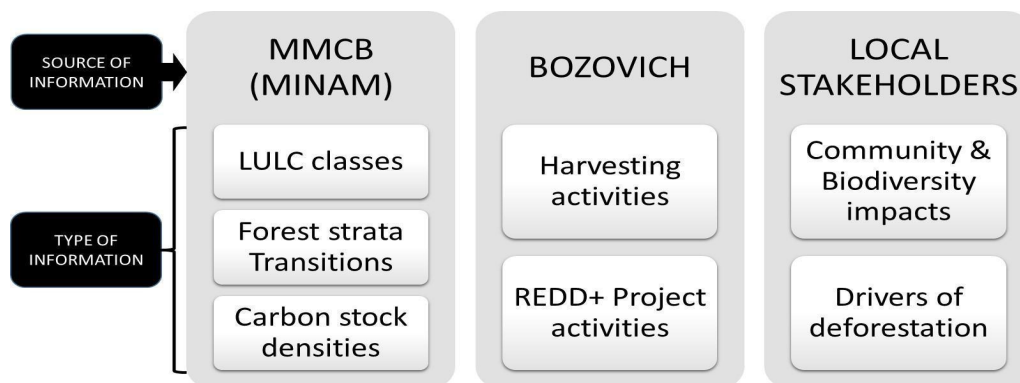
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	$M_{transition}(CS1 \rightarrow CS2) = \begin{cases} 1 & \text{if } CE_{transition}(CS1 \rightarrow CS2) \leq 0.15, \\ 1 - CE_{transition}(CS1 \rightarrow CS2) & \text{if } 0.15 < CE_{transition}(CS1 \rightarrow CS2) < 1, \\ 0 & \text{if } CE_{transition}(CS1 \rightarrow CS2) \geq 1 \end{cases} \quad [EQ34]$
Comments	No comment.

3.1.3 Monitoring Plan (VCS, 3.16, 3.20)

The monitoring plan considers the following issues:

- Drivers of deforestation, project activities and emissions sources related to REDD+ project activities inside and outside of the project area.
- LULC class and forest strata transitions in the project area, leakage area, and reference region using remote-sensing technologies, and validated with ground-truthing data.
- Carbon stock densities in LULC classes and forest strata.
- Carbon stock in long-lived wood products.
- Natural disturbances.
- Monitoring of harvesting activities.

Figure 3.1. Sources of Information by Type



A. Organizational Structure

- Executive Director

Responsible for the project initiation, planning, execution, monitoring and closure processes to successfully achieve the project objectives.

- **Socio-environmental Responsible**

Responsible for developing and enforcing the project's social intervention strategy, identifies and engages with stakeholders, is concerned with solving problems through practical strategies, and engages with potentially allied institutions.

- **Assistant to the Socio-environmental Responsible**

Assists in the tasks of the Socio-environmental Responsible.

- **Financial and Administrative Manager**

Oversees budget management and is also responsible for the administrative area of the project. Prepares annual budgets, supplies financial information for decision making, and keeps expenditure levels in accordance with the approved budget and established deadlines.

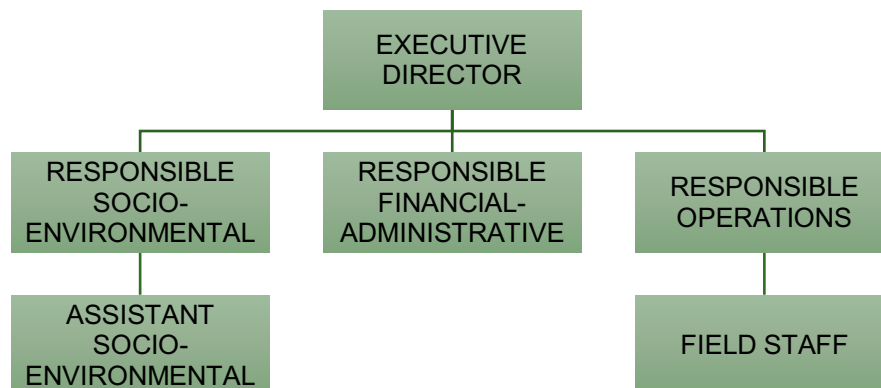
- **Operations Manager**

Responsible for the execution of field operations, monitors their progress. Establishes strategic criteria for the administration of human resources at the operator level. Follows up on processes agreed and established by the project.

- **Field personnel:**

It is the personnel destined to execute field work, such as placing signs, establishing signage, executing boundary maintenance, collecting field information, etc.

Figure 3.2. Project Governance



B. Data Management

The information was recorded during and after the implementation of activities and presented in field reports, which are stored in the Company's office in Iñapari. The Operations Responsible ensured that the data is collected, stored, and reported properly in the "Summary of Monitoring Results of the General Forest Management Plan" of each consolidate (see Evidence 3.01) and other annual reports. Similarly, the person responsible guaranteed that all manuals were fulfilled by the chiefs of each team.

As a safety measure, a backup copy was saved in physical storage (CD-USB) and a cloud copy.

C. Quality guarantee and control

The Operations Responsible Team is responsible for the creation and adoption of quality assurance and control protocols, as necessary, and any technical direction of experts or equipment in the sector. He also assured that the QA/QC protocols were applied.

In addition, the project staff are subject to periodic training. The dates of the training sessions and the formed people were recorded and conserved (see Evidence 3.02. Training).

D. Deforestation Monitoring

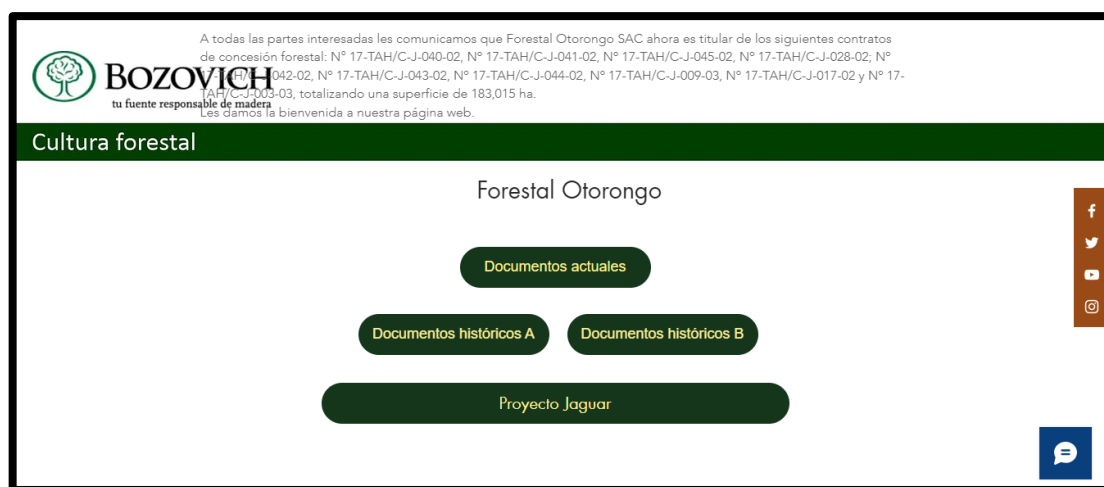
The GEOBOSQUES 2022 and 2023 forest loss maps were used to analyze deforestation that occurred within the Project Area and Leakage Belt. This is the same data source from validation and past monitoring reports.

As these maps are not validated by MINAM, a validation was performed in a larger area comprised by the Project Area, Leakage Belt and Reference Region, through the visual classification of high-resolution images of randomly selected points. More details are presented in the Accuracy Assessment information of Section 3.2.2.

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

The dissemination of monitoring results is available to the public on the Internet through the following website: <https://aldoagain21.wixsite.com/cultura-forestal>.

Figure 3.3. Dissemination website



The website presents the executive summary of the REDD+ Project and management instruments such as:

- Forest adhesion statement
- Forest Bava Report
- Conflict Resolution Manual

- Institutional policies
- BAVC monitoring procedure
- Summary of BAVC monitoring results

The project results were also shared with the district municipalities of Tahuamanu, Iberia and San Lorenzo, San Francisco Sector, Carachamayoc sector, Colonel Portillo; the Regional Government of Madre de Dios, regional office of the Ministry of Health, the Forest Supervision Agency (OSINFOR), education institutions like the National University of San Antonio de Abad, the National University of Madre de Dios, the Iberia Higher Technical Institute, and local NGOs and civil groups like FENAMAD, ACCA, AIDER, among others. (See Evidence 3.03. Charges of accession cards)

Complementing these channels, the project issues a local radio program every weekend on Radio Tahuamanu (109.4 FM) (before on Radio Solar, 99.3 FM) to communicate the activities, developments, and results of the project.

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions (VCS, 3.15)

The baseline emissions are derived from section 3.2 of the PD and the methodological deviations described in section 2.2.4 of this monitoring report.

Equation 105 of VM0006 contains ten parameters to estimate the Net Emissions Reductions, which combine baseline, project, and leakage emissions. Hence, by taking only the elements related to the baseline, we have estimated the respective emissions. These are presented next:

a) Baseline emissions from deforestation in Project Area excluding ANR and Harvest areas

Equation 107 from VM0006 is used to estimate the emissions reductions from avoided deforestation in the project area excluding the ANR and Harvest areas. Because only the baseline emissions in this area need to be estimated, we used a modified version of the equation where the projectScenario variable is removed.

Eq 107:

$$\begin{aligned}
 \bullet = & \sum_{i=1}^{nrFNFtransitions} \sum_{tt=1}^t u_{classification} \cdot u_{transition}(i) \\
 & \cdot \left(\begin{array}{l} +\Delta area_{projectAreaEAH,projectScenario}(t,i) \\ -\Delta area_{projectAreaEAH,baselineScenario}(t,i) \end{array} \right) \\
 & \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt))
 \end{aligned}
 \quad [EQ107]$$

Modified Eq 107 for estimating baseline emissions due to expected deforestation:

$$(1): u_{classification}(i) * u_{transition}(i) * \Delta area_{projectAreaEAH,baselineScenario(i)} * (EF_{AGL}(i) + EF_{BG}(i, t - tt))$$

Where:

$u_{classification}(i)$: Discounting factor for NERs from avoided deforestation, based on the accuracy of classification, i.e., dividing land into broad land use types.

$u_{transition}(i)$: Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition i .

$\Delta area_{projectAreaEAH,baselineScenario(i)}$: Hectares undergoing transition i within the project area, excluding the ANR area and harvest areas, under the baseline scenario during year t . [ha yr-1].

$EF_{AGL}(i) + EF_{BG}(i, t - tt)$: Aboveground live, and belowground emission factor for transition i , and time after transition $t-tt$.

The resulting emissions are shown in the next table.

Table 3.1. Baseline emissions from deforestation in Project Area excluding ANR and harvest areas

Year	$u_{classification}(i)$ Discounting factor for NERs from avoided deforestation, based on the accuracy of classification	$u_{transition}(i)$ Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition ii .	$\Delta area_{projectAreaEAH,baselineScenario(i)}$ Hectares in transition ii within the project area, excluding ANR and harvest areas, in the baseline scenario during year t (ha).	$EF_{AGL}(i) + EF_{BG}(i, t - tt)$ Emission Factor (tCO ₂ /ha)	Baseline emissions from deforestation in Project Area excluding ANR and harvest areas (tCO ₂)
2022	0.94667	1.00	715.03	-462.77	-313,248.7
2023	0.924444	1.00	905.29	-471.81	-394,853.6

b) Baseline removals from harvesting activities

To estimate this parameter, we use a modified version of Equation 113 from VM0006 to only account the baseline removals from Harvest activities.

Eq 113:

ΔGHG from changes in long-lived wood products:

$$\Delta = \frac{44}{12} \cdot (C_{LWP,project}(t) - C_{LWP,baseline}(t)) \quad [EQ113]$$

Modified Eq 113 for estimating Baseline removals from long-lived products:

$$(7) : \frac{44}{12} * (C_{LWP,baseline}(t))$$

Where:

$C_{LWP,project}(t)$: GHG sink in long-lived wood product in project scenario at year t [Mg C]

$C_{LWP,baseline}(t)$: GHG sink in long-lived wood product in baseline scenario at year t [Mg C]

For the monitoring period 2022 – 2023:

Table 3.2. Baseline emissions from changes in long-lived wood products

Year	$C_{LWP,baseline}(t)$	Baseline removals from changes in long-lived wood products (tCO ₂)
	Carbon in long-lived wood products within the reference scenario. [tC]	
2022	549.17	725.5
2023	506.76	1,858.1

c) Baseline emissions from deforestation from areas under harvest

Equations 116 and 117 were reviewed and the latter was used, along with a modified version of Equation 80 from VM0006 to only account the baseline emissions from deforestation from areas under harvest.

Eq 116 & 117:

ΔGHG from avoided deforestation and degradation from areas under harvest [EQ116]

In case:

$$\sum_i^t \Delta C_{areaWithHarvest}(i) \geq \sum_{i=1}^{nrStrata} area_{projectAreaWithHarvest,projectScenario}(t,i) \cdot LTAC_{Harvest}$$

⑩ = 0

In case the inequality above does not hold, (10) must be:

$$\textcircled{10} = \Delta C_{areaWithHarvest}(t)$$

[EQ117]

In this case, since the inequality is not met, Eq 117 is used.

EQ 80:

$$\Delta C_{areaWithHarvest}(t) = \sum_{i=1}^{nrStrata} area_{projectAreaWithHarvest,projectScenario}(t,i) \cdot \left(\frac{C_{harvest}(t_2,i) - C_{harvest}(t_1,i)}{t_2 - t_1} \right) \cdot u_{inventory,harvest}(i) - \sum_{i=1}^{nrFNFTtransitions} \sum_{tt=1}^t \left(\frac{u_{classification} \cdot u_{transition}(i)}{\cdot \Delta area_{projectAreaWithHarvest,baselineScenario}(t,i)} \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \right) - \sum_{i=1}^{nrStrataTransitions} \sum_{tt=1}^t \left(\frac{u_{stratification} \cdot u_{transition}(i)}{\cdot \Delta area_{projectAreaWithHarvest,baselineScenario}(t,i)} \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \right), \quad [EQ80]$$

Modified Eq 80 for Baseline emissions:

$$(10): u_{classification}(i) \cdot u_{transition}(i) \cdot area_{projectAreaWithharvest,baselineScenario}(t,i) \cdot (EF_{AGL}(i) + EF_{BG}(i, t - tt))$$

The third part of the equation was set to zero as there is only one forest stratum. The resulting emissions are presented at the next table.

Table 3.3. Baseline emissions from deforestation from areas under harvest

Year	$u_{classification}(i)$ Discounting factor for NERs from avoided deforestation, based on the accuracy of classification	$u_{transition}(i)$ Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition ii	$\Delta area_{projectAreaWithharvest,baseline}$ Hectares in transition ii within the project area, in areas under harvest, in the baseline scenario during year t (ha)	$\frac{EF_{AGL}(i) + EF_{BG}(i, t - tt)}{}$ Emission Factor (tCO ₂ /ha)	Baseline emissions from deforestation from areas under harvest (tCO ₂)
2022	0.94667	1.00	20.18	-462.77	-8,842.1
2023	0.924444	1.00	25.04	-471.81	-10,920.4

d) Total baseline emissions for the monitored period

The total baseline emissions for 2022-2023 period are 725,281.1 tCO₂.

Table 3.4. Total baseline emissions in 2022-2023 period

Year	Baseline emissions from deforestation excluding ANR and harvest areas (tCO ₂)	Baseline emissions from changes in long-lived wood products (tCO ₂)	Baseline emissions from deforestation from areas under harvest (tCO ₂)	Total (tCO ₂)
2022	-313,248.7	725.5	-8,842.1	-321,365.2
2023	-394,853.6	1,858.1	-10,920.4	-403,915.8
Total	-708,102.2	2,583.6	-19,762.5	-725,281.1

3.2.2 Project Emissions (VCS, 3.15)

Project deforestation emissions were calculated following the guidelines in section 9.3.2 of the VM0006 methodology. These guidelines require that an annual area of change, $\Delta area_{projectAreaEAH}(t, i)$, be calculated for each transition. This information is then used in the calculations of the final NERs.

For the calculation of the real emissions of 2022 and 2023, the most recent data on carbon stocks, together with the country's official tool GEOBOSQUES to spatially determine deforestation, were used.

GEOBOSQUES presents two products: annual forest loss maps and land use change maps. The first was used to determine the deforestation that occurred in 2022 -2023 within the project boundaries, which amounts to 278.10 ha in the project area. The remaining forest area is 180,434.61 ha.

Project emissions or removals are derived from Equation 105 of the Section 8.4.4 of the methodology, from which three equations containing the actual project emissions and removals are derived: EQ107 (1) + EQ113 (7) + EQ117 (10).

Where:

- EQ107: ΔGHG from avoided deforestation excluding ANR and harvest areas (1)
- EQ113: ΔGHG from changes in long-lived wood products (7)
- EQ117: ΔGHG from avoided deforestation from areas under harvest (10)

Figure 3.4. Forest and non-forest cover in 2023 within the Project Zone

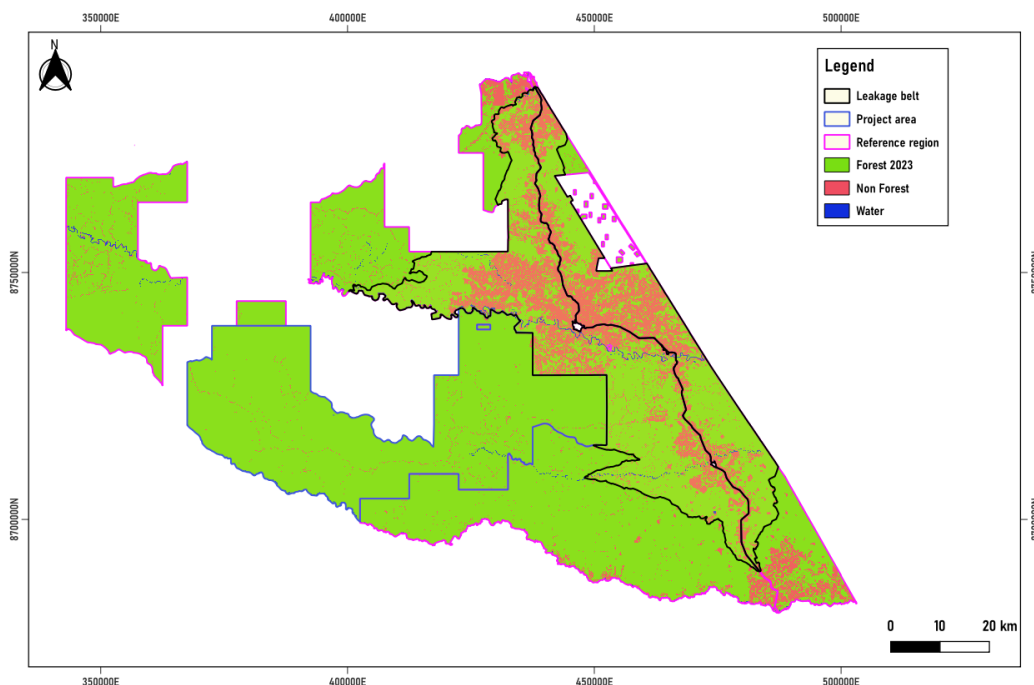


Figure 3.4 shows the classification of forest cover and forest loss within the reference region, the project area, and the leakage belt up to 2023.

Table 3.5. Land use change matrix for the Project area in 2022 and 2023

Land Use change (2021-2022)	Forest	Water	Non-Forest*	Total (ha)
Forest	180,531.91		180.99	180,712.90
Water		437.59		437.59
Non-Forest*			1,864.89	1,864.89
Total (ha)	180,531.91	437.59	2,045.88	183,015.38

Land Use change (2022-2023)	Forest	Water	Non-Forest*	Total (ha)
Forest	180,434.61	0.19	97.11	180,531.91
Water		437.59		437.59
Non-Forest*		3.6	2,042.28	2,045.88
Total (ha)	180,434.61	441.38	2,139.39	183,015.38

* Includes non-forested areas in the base year (2000) and the annual forest loss monitored from 2001 to 2023.

Table 3.6. Land use change matrix for the Leakage

Land Use	Forest	Water	Non-Forest*	Total (ha)
Forest	149,567.31		3,961.17	153,528.48
Water		2,718.69		2,718.69
Non-Forest*			75,821.82	75,821.82
Total (ha)	149,567.31	2,718.69	79,782.99	232,068.99

Land Use	Forest	Water	Non-Forest*	Total (ha)
Forest	146,969.64		2,597.67	149,567.31
Water		2,718.69		2,718.69
Non-Forest*		0.87	79,782.12	79,782.99
Total (ha)	146,969.64	2,719.26	82,379.79	232,068.99

* Includes non-forested areas in the base year (2000) and the annual forest loss monitored from 2001 to 2023.

Table 3.7. Land use change matrix for the Reference Region

Land Use	Forest	Water	Non-Forest*	Total (ha)
Forest	411,260.96		4,805.93	416,066.89
Water		5,310.42		5,310.42

Non Forest*			95,082.75	95,082.75
Total (ha)	411,260.96	5,310.42	99,888.68	516,460.06

Land Use	Forest	Water	Non-Forest*	Total (ha)
Forest	407,907.81		3,353.15	411,260.96
Water		5,140.54	169.88	5,310.42
Non Forest*			99,888.68	99,888.68
Total (ha)	407,907.81	5,140.54	103,411.71	516,460.06

* Includes non-forested areas in the base year (2000) and the annual forest loss monitored from 2001 to 2023.

Accuracy assessment

We used the Peruvian government's national deforestation data, the GEOBOSQUES Platform, which performs an annual assessment of forest loss. The current monitoring period evaluated the deforestation in the Project area for the year 2022. This product is derived from Landsat images of medium spatial resolution (30 m), being the same source of information used to make the calculations in the baseline.

To meet the requirements of the methodology, the image had to be validated for the section comprising the extended reference region (including leakage and project area). The GEOBOSQUES maps comprises four classes (Forest loss, Non-Forest, Forest, and Water), each of which was analyzed as a stratum. A stratified sampling was performed taking 150 reference points per class. These points were randomly distributed for each of the four strata, generating a total of 600 evaluation points. The distribution of strata and points are shown in the following figures.

Figure 3.5. Map of distribution of validation points for year 2022

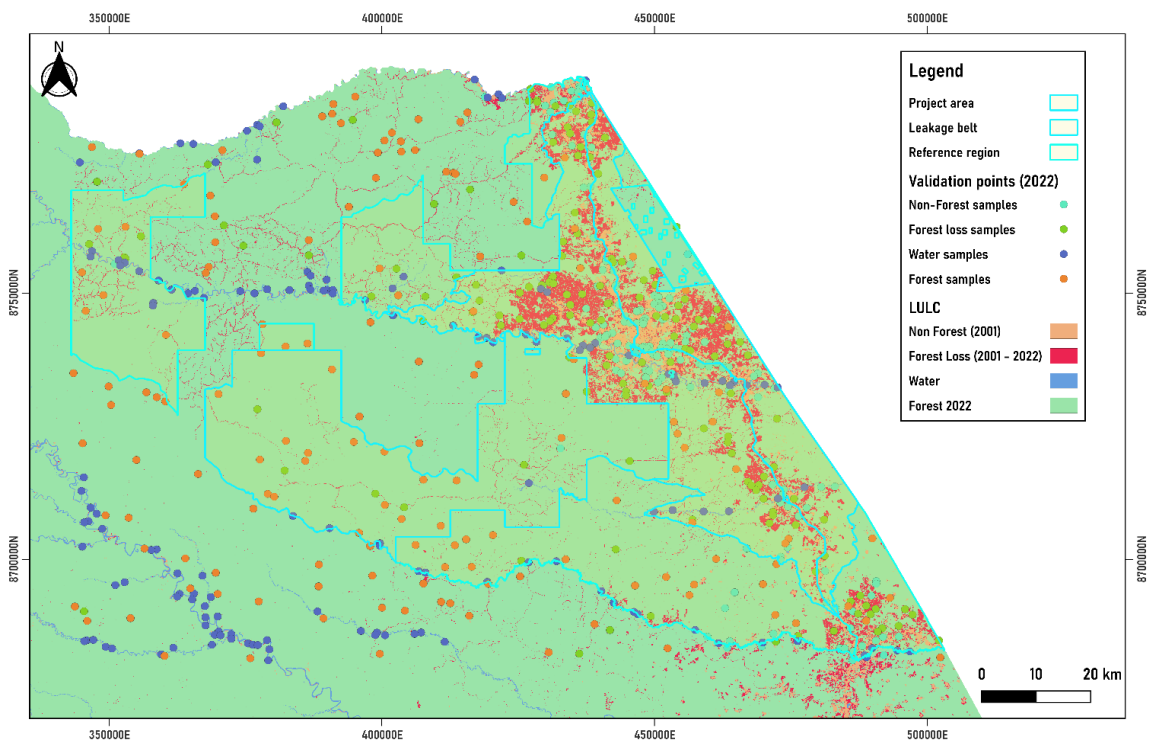


Figure 3.6. Map of distribution of validation points for year 2023

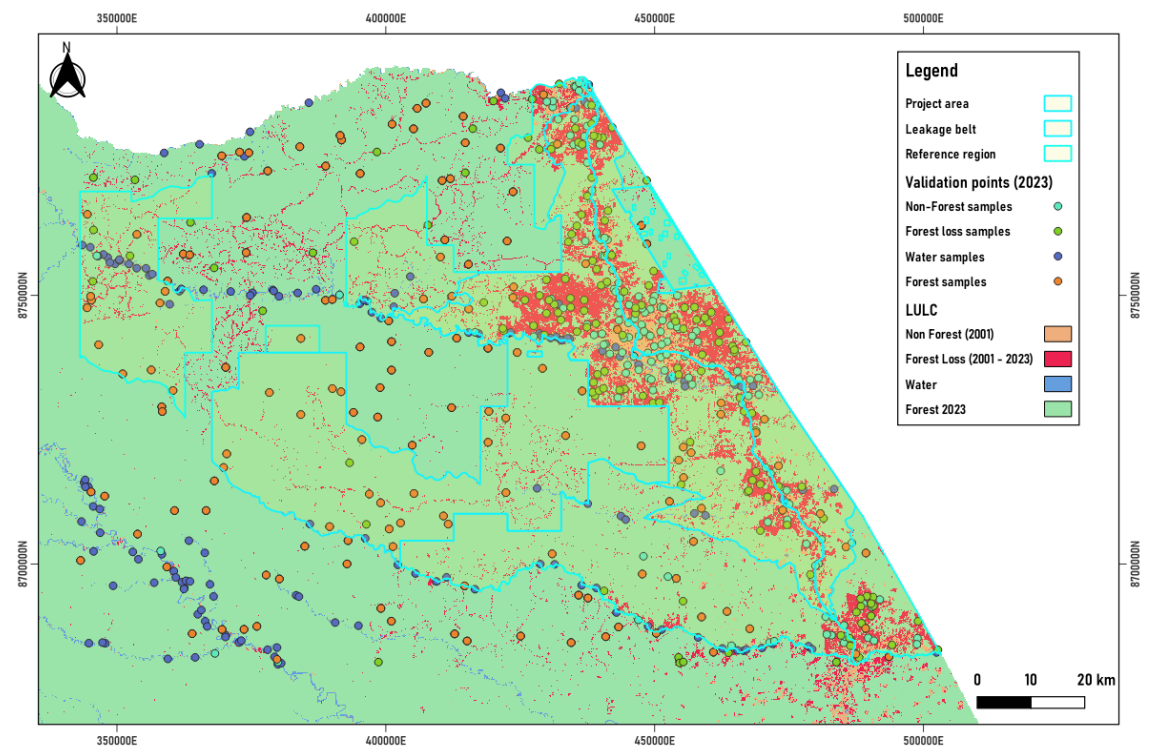


Table 3.8. Confusion matrix for year 2022

Land	Non-Forest (2000)	Forest Loss (2001 – 2022)	Water	Forest 2022	Total	Commission error
Non-Forest (2000)	143	0	0	5	144	0.033
Forest Loss (2001 – 2022)	0	141	0	9	142	0.060
Water	5	1	144	4	146	0.067
Forest 2022	5	9	6	148	168	0
Total	150	150	150	150	600	
Omission error	0.0333	0.00704	0	0.1071		0.04

Table 3.9. Confusion matrix for year 2023

Land	Non-Forest (2000)	Forest Loss (2001 – 2023)	Water	Forest 2023	Total	Commission error
Non-Forest (2000)	140	0	0	10	150	0.067
Forest Loss (2001 – 2023)	0	144	0	6	150	0.04
Water	0	0	134	16	150	0.1067
Forest 2023	2	0	0	148	150	0.013
Total	142	144	134	180	600	
Omission error	0.014085	0.00	0.00	0.1778		0.05667

The points were contrasted with the Planet-NICFI mosaics (monthly mosaic - December 2022), which have a spatial resolution of 4.77 m, and with Sentinel-2 images for the year 2023 (spatial resolution of 10 m). The results of the contrast can be observed in the following tables

Table 3.10. Kappa index year 2022 and 2023

Category	KIA
Non-Forest (2000)	0.938596
Forest Loss (2001 – 2022)	0.921397
Water	0.947137
Forest 2022	0.981481
Overall	0.94667

Category	KIA
Non-Forest (2000)	0.912664
Forest Loss (2001 – 2023)	0.947368
Water	0.862661
Forest 2023	0.980952
Overall	0.924444

As the Kappa index value exceeded the threshold of 0.9, the maps of the 2022-2023 monitoring period became validated.

a) Project emissions derived from deforestation in Project Area excluding ANR and Harvest Areas

To estimate this parameter, we use a modified version of Equation 107 from VM0006 to only account the project emissions from deforestation in Project Area excluding ANR and Harvest areas.

Eq 107:

$$\begin{aligned}
 \mathbf{0} = & \sum_{i=1}^{nrFNFtransitions} \sum_{tt=1}^t u_{classification} \cdot u_{transition}(i) \\
 & \cdot \left(\begin{array}{l} +\Delta area_{projectAreaEAH,projectScenario}(t,i) \\ -\Delta area_{projectAreaEAH,baselineScenario}(t,i) \end{array} \right) \\
 & \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt))
 \end{aligned}
 \quad [EQ107]$$

Eq 107 project scenario:

$$(1): u_{classification}(i) \cdot u_{transition}(i) \cdot \Delta area_{projectAreaEAH,projectScenario}(i) \cdot (EF_{AGL}(i) + EF_{BG}(i, t - tt))$$

Where:

$u_{classification}(i)$: Discounting factor for NERs from avoided deforestation, based on the accuracy of classification, i.e., dividing land into broad land use types.

$u_{transition}(i)$: Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition i .

$\Delta area_{projectAreaEAH,projectScenario}(i)$: Hectares undergoing transition i within the project area, excluding the ANR area and harvest areas, under the baseline scenario during year t . [ha yr⁻¹].

$EF_{AGL}(i) + EF_{BG}(i, t - tt)$: Aboveground live, and belowground emission factor for transition i , and time after transition $t-tt$.

For the monitored period 2022-2023:

Table 3.11. Project emissions from deforestation excluding ANR and harvest areas

Year	$u_{classification}(i)$ Discounting factor for NERs from avoided deforestation, based on the accuracy of classification	$u_{transition}(i)$ Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition ii .	$\Delta area_{projectAreaEAH,projectScenario}$ Hectares in transition ii within the project area, excluding ANR and harvest areas, in the project scenario during year t (ha).	$\frac{EF_{AGL}(i)+EF_{BG}(i, t - tt)}{EF_{BG}(i, t - tt)}$ Emission Factor (tCO ₂ /ha)	Project emissions from deforestation excluding ANR and harvest areas (tCO ₂)
2022	0.94667	1.00	61.92	-462.77	-27,126.8
2023	0.924444	1.00	62.64	-471.81	-27,321.1

b) Project emissions/removals long-lived wood products

To estimate this parameter, we use a modified version of Equation 113 from VM0006 to only account the project emissions/removals.

Eq 113:

ΔGHG from changes in long-lived wood products:

$$\Delta GHG = \frac{44}{12} \cdot (C_{LWP,project}(t) - C_{LWP,baseline}(t)) \quad [EQ113]$$

Eq 113 Project Scenario:

$$\frac{44}{12} \cdot (C_{LWP,project}(t))$$

Where:

$C_{LWP,project}(t)$: GHG sink in long-lived wood product in project scenario at year t [Mg C]

Table 3.12. Project emissions derived from changes in long-lived wood products (7)

Year	$C_{LWP,baseline}(t)$	(7)
	carbon in long-lived wood products within the reference scenario. [tC]	ΔGHG from changes in long-lived wood products (tCO ₂)
2022	549.17	725.5
2023	506.76	1,858.1

c) Project emissions from deforestation in areas under harvest

Following Equation 117:

$$\sum_i^t \Delta C_{\text{areaWithHarvest}}(i) \geq \sum_{i=1}^{nrStrata} \text{area}_{\text{projectAreaWithHarvest.projectScenario}}(t, i) \cdot LTAC_{\text{Harvest}}$$

$$\Phi = 0$$

In case the inequality above does not hold, (10) must be:

$$\Phi = \Delta C_{\text{areaWithHarvest}}(t) \quad [\text{EQ117}]$$

Determining Long-Term Average Carbon Stock:

$$LTAC_{\text{harvest}} = \frac{\sum_{t=0}^T \sum_{i=1}^{nrStrata} C_{\text{harvest}}(t, i) \cdot u_{\text{inventory,harvest}}(i)}{T} \quad [\text{EQ79}]$$

where:

$LTAC_{\text{harvest}}$	= Long-term average Carbon stock density contained in harvested areas. [tCO _{2e} ha ⁻¹]
$nrStrata$	= Number of forest strata. [-]
$C_{\text{harvest}}(t, i)$	= Biomass carbon stock density at time t in stratum i in harvested areas. [tCO ₂ ha ⁻¹]
$u_{\text{inventory,harvest}}(i)$	= Discounting factor for the uncertainty in biomass estimation in harvested areas in stratum i in harvest areas. The most recent $u_{\text{inventory,harvest}}(t, i)$ value must be used for discounting the estimate for future years. [-]
T	= Minimal time period for estimating long term average. [yr].

T: 40 yr

To estimate the $u_{\text{inventory,harvest}}(i)$, Equations (17 – 22) were used.

$$OM_o(i) = \text{average}(OM_{o, \text{plot-wise}}(i, p)) \quad [\text{EQ17}]$$

$$\text{stdev}(OM_o(i)) = \text{stdev}(OM_{o, \text{plot-wise}}(i, p)) \quad [\text{EQ18}]$$

$$\text{stderr}(OM_o(i)) = \frac{\text{stdev}(OM_o(i))}{\sqrt{n_i}} \quad [\text{EQ19}]$$

$$HCWI(OM_o(i)) = t_{0.95, n-1} \cdot stderr(OM_o(i)) \quad [EQ20]$$

$$CE_{inventory}(i) = \frac{\sqrt{\sum_o HCWI(OM_o(i))^2}}{\sum_o OM_o(i)} \quad [EQ21]$$

$$u_{inventory}(i) = \begin{cases} 1 & \text{if } CE(i) \leq 0.15, \\ 1 - CE(i) & \text{if } 0.15 < CE_{inventory}(i) < 1, \\ 0 & \text{if } CE(i) \geq 1 \end{cases} \quad [EQ22]$$

Table 3.13. Discounting factors

CE transition	U transition	CE inventory	U inventory,harvest
0.024	1	0.03	1

According to EQ21 $CE_{inventory}(i)$ is equal to 0.03, and according to EQ22, $u_{inventory,harvest}(i)$ is equal to 1.00.

The procedure to estimate $C_{harvest}(i)$ and $u_{inventory,harvest}(i)$, is as described in Section 8.1.4.4 of VM0006 but the estimates are based only in the plots located in harvest areas.

According to IPCC (2006), the net growth of aboveground biomass in tropical rainforest in South America for forests ≥ 20 years old is 3.1 t/ha/year, respectively. This growth in tCO₂ is 5.68.

Table 3.14. Long-term average carbon stock density contained in harvested areas

Year	$LTAC_{harvest}$: Long term average density in harvest zones [tCO ₂ e/ha]	$C_{harvest}(t,i)$: Carbon density in harvest zone by time and harvest area [tCO ₂ e/ha]
2022	638.47	622.51
2023	622.51	622.51

To calculate emissions or sinks on land on which harvesting activities are implemented:

$$\Delta C_{areaWithHarvest}(t) = \quad [EQ80]$$

$$\sum_{i=1}^{nrStrata} area_{projectAreaWithHarvest,projectScenario}(t,i) \cdot \left(\frac{C_{harvest}(t_2,i) - C_{harvest}(t_1,i)}{t_2 - t_1} \right) \cdot u_{inventory,harvest}(i)$$

$$- \sum_{i=1}^{nrFNFTtransitions} \sum_{tt=1}^t \left(\frac{u_{classification} \cdot u_{transition}(i)}{\cdot \Delta area_{projectAreaWithHarvest,baselineScenario}(t,i)} \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \right)$$

$$- \sum_{i=1}^{nrStrataTransitions} \sum_{tt=1}^t \left(\frac{u_{stratification} \cdot u_{transition}(i)}{\cdot \Delta area_{projectAreaWithHarvest,baselineScenario}(t,i)} \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \right),$$

Table 3.15. Emissions/Removals in areas under harvest in the project scenario

Year	Emissions/Removals in areas under harvest in the project scenario (tCO ₂ /ha)
2022	0.00
2023	0.00

d) Total project emissions for the monitored period

Table 3.16. Project emissions or removals

Year	(1) ΔGHG from avoided deforestation excluding ANR and harvest areas (tCO ₂)	(7) ΔGHG from changes in long-lived wood products (tCO ₂)	(10) ΔGHG from avoided deforestation excluding ANR and harvest areas (tCO ₂)	Total
2022	-27,126.8	725.5	0.0	-26,401.2
2023	-27,321.1	1,858.1	0.0	-25,463.0
Total	-54,447.9	2,583.6	0.0	-51,864.3

For more details on the calculations of project emissions or removals, see Calculation excel sheet.

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

Ex-Post emissions outside the project area (leakage) by deforestation were calculated following the guidelines of section 9.3.3 of the VM0006 methodology. The transition map from forest to pastures (following the PD 3.1.6 methodological deviation) for this monitoring period has been used to generate the results of this type of change for the transition during the monitoring period.

As mentioned in the document Climate Section Update of the PD “The deforestation drivers are in all the cases rural families, local communities (this is the case for geographically constrained drivers)”. Therefore, the calculations do not apply to leakage from geographically unconstrained drivers, only leakage from geographically constrained drivers was calculated for this monitoring report.

The monitoring of loss in the project area for the current period was carried out through the country's official loss monitoring platform GEOBOSQUES, by overlapping the leakage area with the class that represents the deforested pixels and quantifying its total area in hectares.

The monitoring verified the following deforestation in the leakage area by 2022-2023: 6,558.84 ha.

Leakage emissions or removals are derived from equation 105 of the section 8.4.4 of the methodology, from which an equation is derived containing the actual leakage emissions: EQ108 (2).

To estimate this parameter, we use a modified version of Equation 108 from VM0006 to only account the leakage emissions from deforestation in Leakage Area.

Eq 108:

$$\Delta \text{GHG from deforestation due to leakage:}$$

$$e = \sum_{i=1}^{nrFNFtransitions} \sum_{tt=1}^t u_{classification} \cdot u_{transition}(i) \cdot \left(\begin{array}{l} +\Delta area_{leakageArea,projectScenario}(t,i) \\ -\Delta area_{leakageArea,baselineScenario}(t,i) \end{array} \right) \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \quad [\text{EQ108}]$$

Where:

$u_{classification}(i)$: Discounting factor for NERs from avoided deforestation, based on the accuracy of classification, i.e., dividing land into broad land use types.

$u_{transition}(i)$: Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition i .

$\Delta area_{projectAreaEAH,projectScenario}(i)$: Hectares undergoing transition i within the leakage area under the project scenario during year t . [ha yr⁻¹].

$\Delta area_{projectAreaEAH,projectScenario}(i)$: Hectares undergoing transition i within the leakage area under the baseline scenario during year t . [ha yr⁻¹].

$EF_{AGL}(i) + EF_{BG}(i, t - tt)$: Aboveground live, and belowground emission factor for transition i , and time after transition $t-tt$.

The results for the monitoring period 2022-2023 are:

Table 3.17. Discounting factors and Emission Factor

Year	$u_{classification}(i)$	$u_{transition}(i)$	$EF_{AGL}(i) + EF_{BG}(i, t - tt)$
	Discounting factor for NERs from avoided deforestation, based on the accuracy of classification	Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition ii .	Emission Factor (tCO ₂ /ha)
2022	0.94667	1.00	-462.77
2023	0.92444	1.00	-471.81

Table 3.18. Emissions from deforestation due to leakage (tCO₂)

Year	$\Delta area_{leakageArea,baselineScenario}^{(i)}$	$\Delta area_{leakageArea,projectScenario}^{(i)}$	(2)
	Hectares in transition ii within the leakage area in the project scenario [ha yr ⁻¹]	Hectares in transition ii within the leakage area in the baseline scenario [ha yr ⁻¹]	ΔGHG from deforestation due to leakage (tCO ₂)
2022	5,838.57	3,961.17	0.00
2023	6,484.50	2,597.67	0.00

Table 3.19. Leakage emissions or removals (tCO_{2e})

Year	(2) ΔGHG from deforestation due to leakage
2022	0.00
2023	0.00

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

Net GHG emission reductions and removals are calculated using Equation 105 of the methodology.

Table 3.20. Sources of emissions

[EQ105]: Net Emission Reductions (NERs)	=	EQ	Used in
ΔGHG from avoided deforestation excluding ANR and harvest areas	1 +	107	Section 3.2.1 and 3.2.2
+ ΔGHG from deforestation due to leakage	2 +	108	Section 3.2.3
+ ΔGHG from avoided degradation	3 +	109	N/A
+ ΔGHG from degradation due to leakage	4 +	110	N/A
+ΔGHG from leakage by unconstrained geographic drivers	5 +	111	N/A
+ ΔGHG from assisted natural regeneration	6 +	112	N/A
+ ΔGHG from changes in long-lived wood products	7 +	113	Section 3.2.1 and 3.2.2
+ ΔGHG from improved cook stoves	8 +	114	N/A
+ ΔGHG from other and secondary sources	9 +	115	N/A
+ΔGHG from avoided deforestation from areas under harvest	10	116 & 117	Section 3.2.1 and 3.2.2

*N/A: Not applicable

EQ105 (NERs) is divided into ten equations, of which those labeled as “Not Applicable” are from activities or assessments not developed in this project. Hence, the four equations highlighted in bold in the table above, that were described in Sections 3.2.1, 3.2.2, and 3.2.3 are relevant for estimating NERs. The following tables show the Net GHG emission reductions or removals.

Table 3.21. Net GHG emission reductions or removals (tCO₂e)

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2022	-321,365.2	-26,401.2	0.0	294,964
2023	-403,915.8	-25,463.0	0.0	378,452
Total	-725,281.1	-51,864.3	0.0	673,416

Estimated net reductions in the project area are the result of 1,495.76 hectares of reduced forest loss in the project area compared to the baseline scenario.

Finally, after calculating NERs, VCUs are calculated by removing the buffer credits by equation 106 of the methodology:

$$VCUs = NERs - buffer * (\Delta GHG \text{ from avoided deforestation excluding ANR and harvest areas} + \Delta GHG \text{ from changes in long-lived wood products} + \Delta GHG \text{ from avoided deforestation from areas under harvest})$$

The non-permanence risk score (as determined in the AFOLU non-permanence risk report) is 12% and the calculation of the total number of buffer credits to be deposited into the AFOLU pooled buffer account is 80,811.

The following tables summarize the project’s results for the 2022 -2023 period.

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 tCO ₂ e, the Long-term Average (LTA).	Not applicable.
Has the LTA been updated based on monitored data, if applicable?	☐ Yes ☒ No Not applicable.

State, in tCO ₂ e, the expected total GHG benefit to date.	3,996,288.91
If a loss occurred (including a loss event or reversal), state the amount of tCO ₂ e lost:	-

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Buffer pool allocation (tCO ₂ e)	Reductions VCUs (tCO ₂ e)	Removals VCUs (tCO ₂ e)
01-Jan-2022 to 31-Dec-2022	-321,365.2	-26,401.2	0.0	35,396	259,568	-
01-Jan-2023 to 31-Dec-2023	-403,915.8	-25,463.0	0.0	45,415	333,037	-
Total	-725,281.1	-51,864.3	0.0	80,811	592,605	-

3.3 Optional Criterion: Climate Change Adaptation Benefits

Not applicable.

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

Not applicable.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CCB, CM2.1)

There have been different contexts for each community, however the interest in continuing to learn and having opportunities to develop sustainable economic activities and take care of the forest continue to be the goals of the project with the communities.

Below is the table of impacts, costs, risks, benefits, and well-being generated in this period.

Community group	Surrounding communities (San Francisco, Carachamayoc, Portillo, Monte Sion and Alerta)
-----------------	--

Impact	11 Trainings in REDD+ Project (objectives, benefits, and opportunities) and 14 trainings in value and development of the forest (Evidence 2.05 Community trainings 2022-2023).
Type of benefit/cost/risk	Job opportunities (Evidence 4.01 List of Brazilian Nuts Collector/Payment Brazil Nuts Collectors 2022-2023).
Change in well-being	Economic benefits (Evidence 4.01 List of Brazilian Nuts Collector/Payment Brazil Nuts Collectors 2022-2023).

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

During 2022 and 2023, the project has monitored and dialogued with communities about conflicts associated with land use and access to natural resources, resulting in no conflicts identified or reported (Evidence 4.02 Summary of monitoring results of the General Forest Management Plan).

The HCV identified within the project area is the Brazil nut forests, because of its importance in being one of the few and the main source of sustainable incomes to local families, as explained above, but because of its unique conditions, it grows only in this region of the Peruvian Amazon being emblematic and key for the ecosystem and the biodiversity.

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

The project has maintained the work, activities, and awareness about the project with the communities near the forestry concessions that make up the project area. The communities are allies but also potential drivers of deforestation (they are located outside the project area and in some cases, they do not have property titles to work their lands but have been positioned for years in the area).

With the communities, this period has been one of dialogue and an opportunity to work and train on what the REDD+ Project means and the opportunities it provides. Additionally, with the families of Alerta, the links of labor support for the Brazilian nuts harvesting within the Project area have been maintained and strengthened.

Based on raw data collected during the monitored period 2022-2023, we can obtain the following results for each community:

Table 4.1. Communities

Wellbeing indicators	Communities involved
Incomes	Alerta
Skills and Trainings	San Francisco Carachamayoc

Wellbeing indicators	Communities involved
	Monte Sion
	Alerta
	Portillo
Access to Natural resources	Alerta

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

The HCV identified within the project area is the Brazil nut forests, because of its importance of being one of the few and the main source of sustainable incomes to local families, but because of its unique conditions, it grows only in this region of the Peruvian Amazon being emblematic and key for the ecosystem and the biodiversity. For this reason, it is an HCV that may be classified in both sections (community and biodiversity). The area covered by this type of ecosystem (Brazil nut forests) is 33,191 hectares, representing 18.1% of the total project area and this area has not only been protected and sustainable managed but assisted natural regeneration has been helped with the activities of the project proponent. Therefore, the HCV has been improved during the current monitoring period. (Evidence 4.02 Summary of monitoring results of the General Forest Management Plan and see section 5.1.4 HCVP).

To sustain and care for The Brazil nut forest, harvesting service that is conducted through individual contracts in the company's concession is a strategic of the project to contribute to the sustainable use of forest resources and improve the living conditions of local families involved. In this period 27 families from Alerta were supported and worked with the project (See in Section 4.3.1 Income Families).

4.2 Other Stakeholder Impacts

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

Research entities (Iberia Technologic Institute) Potential synergies were searched and established with educative and research entities for the implementation of mitigation actions to prevent or reduce the impact on deforestation. Coordination meetings to schedule trainings about controlled fires and others to local population were carried out in the 2022-2023. Workshops were carried out about agroforestry and conflicts resolution and environmental crimes.

One of the main mitigation measures has been the agreement reached with the Iberia Technological Institute. The partnership with IST Iberia will help by means of the strengthen applied and professional capacities in students to promote a sustainable use of forest resources. (The cooperation agreement is in the Evidence 2.04 Cooperation agreements - ISTI).

In 2023, a framework cooperation agreement was reached with the National Amazonian University of Madre de Dios (UNAMAD) that seeks to strengthen scientific research aimed at providing greater added value to products and services by developing joint activities. This five-year agreement will have specific medium-term objectives. (The cooperation agreement is in Evidence 2.04 Cooperation agreements - UNAMAD).

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

The Other Stakeholders identified in the project description are Institutions related to environmental development and research (UNAMAD - National Amazonian University of Madre de Dios and IST - Instituto Tecnológico de Iberia) and regional authorities that aim to safeguard the forest and the communities in the region, therefore they are completely aligned with the project objectives and purpose, meaning no negative impacts or risks for them. (Evidence 2.04 Cooperation agreements).

4.3 Community Impact Monitoring

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

For this monitoring report 2022 - 2023, the project goals have some good resulted in some indicators such as Family incomes from Alerta (Evidence 4.01 List of Brazilian Nuts Collector/ Payment Brazil Nuts Collectors 2022 and 2023) and trainings about the project and development productive activities (more information about de indicator in the table below).

According to PD (see section P.D 2.1.11), the project has 03 components:

- Productive
- Protection
- Governance

For this period in the productive component was able to strengthen capacities through training and talks with surrounding communities and all company personnel on issues of the environment, access and care of natural resources and better procedures in Brazilian nuts harvesting (Evidence 2.03 Community trainings). In terms of protection, surveillance, and care of the project area through patrolling and other procedures has been very positive and no conflicts or social problems have been recorded in this regard (Evidence 2.04 conflicts report). And finally in governance component, the objectives and benefits of the project have been periodically disseminated, and emphasis has also been placed on issues of territorial rights and compliance with forestry regulations (Evidence 2.05 conflicts report).

The monitoring plan (for the community section) 2022 - 2023 is presented below, and the progress in each of the variables evaluated is detailed below.

Table 4.2. Community monitoring plan

Variable	Communities	Method	Results for community	Total
Family incomes	Portillo Carachamayoc San Francisco Monte Sion Alerta	Report of the project (Evidence 2.03 Community trainings)	- Portillo No reported. - Carachamayoc: Not reported. - San Francisco: Not reported. - Monte Sion: Not Reported. - Alerta: Recollect families benefited in the period 2022-2023 27 families, 1 family more than 2021 year (last monitor reported).	Increase the family's income of Alerta (Evidence 4.01 Brazilian Nuts Collectors)
Trainings received	Portillo Carachamayoc San Francisco Monte Sion Alerta	List of trainings (Evidence 2.05. Community trainings 2022-2023)	- Portillo: 03 Training (48 part.) - Carachamayoc: 03 (53 part.) - San Francisco: 03 (30 part.) - Monte Sion: 01 (17 part.) - Alerta: 38 (452 part.) - Communities from Iberia and Tahuamanu 09 (149 part)	58 Trainings in 2022-2023 (Evidence 2.03 Community trainings)
Basket of forest goods harvested	Portillo Carachamayoc San Francisco Monte Sion Alerta	Report of the project	The study could not be reported in this period.	Not reported.
HCV – Brazilian Nuts Forest	Portillo Carachamayoc San Francisco Monte Sion Alerta	Report of the project	It Keeps and protects (see Section 4.1.4)	It keeps and protects

Details by variables of the monitoring plan

1) Income per family by community

For the analysis of this variable of improvement in family income, due to the context of the global pandemic, the studies will be resumed in the following monitoring periods. In the case of Alerta and the 27 Brazilian nuts harvesting families, it was possible to analyze the improvement in income, which is presented in tables below (4.4 Total incomes, by gender 4.5 and by age group in 4.6):

Table 4.3. Indicators of forestry incomes

Indicators of forestry incomes		2019	2020	2021	2022	2023
Brazil Nut Production	Kg (in shell)	322,598	60,322	197,692	232,000	363,538
	Bags	4,609	862	2824	2705	3971
Unit price (soles per bag)		200	142	570	320	200
Total incomes		921,709	122,367	1,609,680	1,122,037	794,200

Indicators of forestry incomes		2019	2020	2021	2022	2023
% for collectors	70%	645,196	85,657	1,126,776	785,426	555,940
Beneficiaries (collectors)		33	7	26	27	27
Income per beneficiary (soles per capita)		19,551	12,237	43,338	29,090	20,590

Table 4.4. Forestry Incomes by gender 2022-2023

Gender	N°	%
Female	10	37%
Male	17	63%
Total	27	100%

2) Trainings by subject and gender

Table 4.5. Trainings by subject and gender 2022-2023

Subject Trainings	Total trainings	Total number (participation) of community members	Females (participation)
Training in the REDD+ project	11	211	99
Trainings on productive economic activities	14	185	70
Protect our forest	18	258	99
Training Brazilian nuts contracts and others	9	119	51
Support and transportation products	6	50	9
Total	58	823	328

As can be seen in Table 4.5, in this monitoring report 2022 - 2023, 58 training sessions were carried out (that contributed to strengthening the learning process and involvement with the communities around the project area. With the Brazil nut collectors (Alerta) greater consistency has been achieved due to the direct benefit represented by the economic opportunity that the project offers them. In the following years, this path will be followed and with other groups continue to strengthen and improve social ties and contribute to improvements in community well-being as indicated by the project objectives.

On average, we can also indicate that there was a 40% female participation (in the report of 2021 was around 30%, so there was an increases more than 9% of female participation in this report) in the training and in the coming years their participation will continue to be promoted and opportunities will be developed based on the needs of the families involved.

3) Access to forest resources

The protection of project boundaries has maintained stable, so the impact of this variable is neutral (zero).

4.3.2 Monitoring Plan Dissemination (CCB, CM4.3)

The monitoring plan and the annual monitoring reports is accessible in the webpage of the company Group so any interested may access not only to processed results but also to raw data that was the basis to establish the results, only protecting the confidentiality of the families that have participated in the focus groups.

All the monitoring results may be found in the following links:

- Otorongo A (ex Consolidado Otorongo)

<https://aldoagain21.wixsite.com/cultura-forestal/otorongo-hist%C3%B3ricos>

<https://aldoagain21.wixsite.com/cultura-forestal/otorongo-actuales>

- Otorongo B (ex Consolidado Chullachaqui)

<https://aldoagain21.wixsite.com/cultura-forestal/chullachaqui-hist%C3%B3ricos>

<https://aldoagain21.wixsite.com/cultura-forestal/chullachaqui-actuales>

4.4 Optional Criterion: Exceptional Community Benefits

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

4.4.4 Benefit Sharing Mechanisms (CCB, GL2.6)

Not applicable.

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

Not applicable.

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

Not applicable.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

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

Change in Biodiversity	Jaguar, Otorongo (<i>Panthera onca</i>)
Monitored Change	Maintenance and growth of the jaguar population
Justification of Change	The sustainable forest management of the joint concessions, along with the control and surveillance actions implemented by the project (which also benefit the maintenance of forest cover in adjacent areas), are the main factors influencing this change. The forest management implemented aims to regulate the ecological processes and functionality of the forest by applying a polycyclic silvicultural system. This involves harvesting trees in cutting cycles with selective logging, using low-impact techniques, and applying silvicultural treatments to produce timber. Additionally, it takes advantage of other forest products (such as Brazil nuts) and conserves biodiversity, which helps maintain and enhance habitats suitable for preserving numerous associated species of flora and fauna, including the jaguar, an umbrella species at the top of the food chain. Moreover, according to the Operational Plans (Evidence 5.7) formulated for timber harvesting (2020–2023), the planned cutting intensity does not exceed one tree per hectare (0.6 trees/ha and 4.8 m³/ha for Otorongo A; 0.8 trees/ha and 7.6 m³/ha for Otorongo B). This ensures the preservation of the remaining vegetation and forest structure, with minimal impact on the forest cover, which in turn helps maintain the habitats of mammal populations in these areas. Thus, the forest continues to follow its natural processes. Species that indicate the health of ecosystems, such as top predators like the jaguar, the harpy eagle, and the giant otter, show healthy and growing populations. Other species that are highly sensitive to human presence, such as tapirs, deer, peccaries, curassows, and turkeys, also maintain healthy populations. In the concession area, wildlife monitoring is being conducted as a complementary activity to the sustainable management of the forest through the "Jaguar Project," implemented by Dr. Mathias Tobler of the San Diego Zoo Wildlife Alliance, and M.Sc. José Luis Mena Álvarez of San Diego Zoo Global Peru. The area was evaluated over four periods, with a total of 247 camera stations (installed between 2009 and 2021) and an effort of 22,148 camera-days. Each station was spaced 3 km apart, and two camera traps (Bushnell ©, TrophyCam and Agresor models) were installed at each station. The camera stations were located along the available road network within the joint concessions. This arrangement

allowed for photographs of both sides of the jaguars (and other spotted cats) to be taken for individual identification (Evidence 5.01).

The Jaguar Project also develops Spatial Capture-Recapture Models (SCR) to estimate jaguar densities. In previous research (Evidence 5.02), 89 camera trap stations were installed over an area of 645 km², identifying approximately 43 different jaguar specimens, with a density of 4.54 ± 0.83 individuals per 100 km². This density is only surpassed by that recorded in the Pantanal biome of Brazil, demonstrating that well-managed forests can provide important habitat for biodiversity and connectivity between protected areas.

Given the efficiency of the camera traps and SCR models in evaluating mammal populations, especially jaguars, the project's biodiversity technical team has been successfully using them during field evaluations in the joint concessions area. The data generated from these evaluations are being analyzed using artificial intelligence algorithms for species identification and individual jaguar recognition from the 247 camera trap stations installed. This data will be used to estimate jaguar density and study population dynamics over the long term. Four published scientific articles confirm that FSC-certified forest concessions protect wildlife species, including jaguars (Evidence 5.01).

One of the factors contributing to the high jaguar population density is likely the abundance of prey species (such as deer, capybaras, tapirs, and wild boars) in forest areas that remain undisturbed by human activity. FSC-certified forest management practices, closely monitored by the Forestry and Wildlife Authority, ensure adherence to cutting cycles, the application of low-impact harvesting techniques, the prohibition of hunting within the joint concessions, and the implementation of control and surveillance measures to prevent illegal hunters from accessing the area (including forest roads and trails). These practices are supported by various documents, including the evaluation of operational quality for 2022-2023 (Evidence 5.03), covering activities such as felling, hauling, road infrastructure, log transport, and fire prevention.

An important reference that demonstrates that the project area has complied with the adequate implementation of the respective management plans and their obligations is the Enabling Title Holder Behavior Report published in the OSINFOR's SIGO¹⁸, in which the consolidated Otorongo SAC obtained ratings of "Very Good" and "Good" (Evidence 5.04).

As part of the partial results from the analysis of data collected from the camera trap stations, a study on mammal evaluations was conducted (Evidence 5.05) using data generated between 2019 and 2021. This

¹⁸ The SIGO is the Management Information System of OSINFOR (Forestry and Wildlife Resources Oversight Agency) that provides historical information on the supervision, inspection, and training processes, and provides a report on the performance of the enabling titles, based on the implementation of their management plans and/or compliance with their obligations considering the administrative procedures and supervision and/or inspection processes completed: <https://sigosfc.osinfor.gob.pe/>

study covered the areas of the Otorongo A and MADERACRE concessions, utilizing data from 209 installed camera trap stations (see table below). A multi-species occupancy model (MSOM) was applied to estimate jaguar density and the occupancy of various fauna species. The results recorded 6 bird species, 2 reptile species, and 35 mammal species in 2019, and 6 bird species, 2 reptile species, and 34 mammal species in 2021.

Survey Name	Start	End	Lat	Long	Camera Days	Stations
Tahuamanu 2019	2019-06-14	2019-10-30	-11.46	-69.7	10,716	116
Tahuamanu 2021	2021-06-18	2021-11-11	-11.46	-69.7	7,966	93

Change in Biodiversity 240 species in the Otorongo A concession and 223 species in the Otorongo B concession, inventoried for timber potential.

Monitored Change Sustainable forest management with FSC certification maintains the timber production potential in the Otorongo A and Otorongo B concessions. (Evidence 5.08)

Justification of Change The project is based on selective, low impact logging management, dividing the area under sustainable forest management into 20 logging plots. Each plot is harvested annually (one part each year) at a specific logging intensity. The design includes a felling cycle every 20 years, resulting in less than one tree per hectare being harvested every 20 years. This approach allows for natural regeneration and the growth and reproduction of unharvested individuals. A great diversity of species with timber potential has been recorded in the exploratory inventory of each concession (Evidence 5.09).

The methodology includes the approval of a General Forest Management Plan and the preparation of the Operational Plan (Evidence 5.07 and Evidence 5.09). The process starts with a forest inventory, which records the variety and number of potential species for exploitation. This inventory determines the number of individuals of each species suitable for harvest and estimates the approximate volume of wood they will produce. This information is used to calculate and control, among other things, the total volume of wood to be harvested.

This approach identifies seed trees (approximately 20% of the total number of individuals to be harvested) that remain in the forest, ensuring seed production and the survival of the species while promoting natural regeneration. Felling is conducted with careful direction to minimize damage to surrounding vegetation, making the clearings created similar in size to those resulting from natural tree falls. This facilitates regeneration, as the light entering the gaps encourages the growth of seedlings that were dormant under the parent tree's shade. All forest extraction activities during the operations and harvesting period must respect the recovery cycle and the designated harvesting areas (Evidence 5.10). At the end of the harvesting period, a report (Evidence 5.07) on the implementation of activities under the Forest Management Plan must be submitted to the Forestry and Wildlife Authority and OSINFOR.

As a result of the impact of forestry operations in 2022 and 2023 (only in Otorongo B, as there was no harvest in Otorongo A during these years) (Evidence 5.06), the average vegetation cover loss did not exceed baseline values for road construction (66.0 m²/ha) and logging (126.1 m²/ha). The average number of trees of interest affected for the same parameters did not exceed 0.03 trees/ha. Additionally, the percentage of remaining vegetation aimed to maintain a 50/50 ratio between future harvest trees and trees felled during the harvest, while ensuring that seed trees comprised more than 20% of the total.

See tables below.

OTORONGO B		
Parameters	2022	2023
<i>Area Discovered</i>		
Road construction	65.7 m ² /ha	66.3 m ² /ha
Felling	130.2 m ² /ha	121.9 m ² /ha
<i>Affected Individuals</i>		
Road construction	0.01 ind./ha	0.01 ind./ha
Felling	0.02 ind./ha	0.01 ind./ha

This result preserves the forest cover almost intact while ensuring the conservation of numerous associated flora and fauna species.

To achieve this, the project has trained staff, established the necessary infrastructure, and adapted processes to obtain the Sustainable Forest Management Certification - FSC 100% (Evidence 5.08) - ensuring an environmentally sustainable, socially inclusive, and economically viable model. This approach allows the forest to maintain its ecological processes and supporting healthy, growing populations of species that indicate ecosystem health.

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

There are no negative impacts on biodiversity resulting from the implementation of the project activities. The company has implemented several measures to maintain natural patterns and processes and prevent fragmentation, in accordance with the guidelines established in the General Forest Management Plan (GFMP) (Evidence 5.09) and the Silvicultural Plan (Evidence 5.10) to meet production objectives. These measures include:

- Voluntarily limiting mahogany (*Swietenia macrophylla*) logging due to its endangered status.
- Regularly conducting timber and wildlife inventories to better understand the forest ecosystem.

- Implementing low-impact measures to limit potential environmental impacts.
- Logging based on scientifically sound reconstitution rates for the main timber species.
- Increasing the minimum logging diameter beyond the legally required threshold.
- Protecting seedlings and trees that are considered important for wildlife.
- Using reduced impact logging techniques to minimize damage to the soil and remaining vegetation, avoiding large forest clearings or the fragmentation of forest resources.

Management activities in forests with high conservation value (HCVF) aim to maintain and/or enhance the attributes that define these forests. Decisions regarding HCVF are always made within a precautionary framework. This approach guides the development of forest management evaluations, the analysis of consultative processes, and the creation of management plans, all of which are based on the specific characteristics of an HCVF. Additionally, it mandates the development of annual monitoring to assess the application of measures by certified entities. This monitoring must be tailored to the scale and intensity of the forest exploitation areas. The indicators for maintaining this precautionary approach include:

- There is a written evaluation (Evidence 5.11) of the identification of HCVs, based on the Guide for the Identification and Management of High Conservation Value Forests.
- The management plan includes specific management measures tailored to the HCVs identified in the evaluation.
- A monitoring plan is in place, aligned with the HCVs (Evidence 5.11) identified during the evaluation.
- A control system (Evidence 5.06; section 4) is implemented to ensure compliance with management guidelines, as reflected in the results of GFMP Monitoring.

5.1.3 Net Positive Biodiversity Impacts (VCS, 3.19; CCB, B2.2, GL1.4)

In the land-use scenario without the project, the area would be significantly impacted by the increasing rate of deforestation, as demonstrated by the beta regression modeling in the Excel spreadsheet 'Deforestation rate' of this report. Monitoring indicates that during this period, 14,535.74 hectares would have been lost, severely affecting the jaguar population. As an umbrella species, the decline of jaguars would trigger adverse effects on many surrounding fauna populations, not only in the deforested area but throughout the entire project area. In this scenario, the two High Conservation Values (HCVs) identified in the project area—namely, significant concentrations of biodiversity at the global, regional, and national levels, and large-scale forests and/or landscapes of global, regional, or national significance—would also be at risk.

The expansion of the agricultural frontier would likely increase, accompanied by traditional practices such as slash-and-burn, which deforest forest-covered areas for agriculture or intensive grazing. Additionally, the authorization and maintenance of the Interoceanic Highway would lead to indirect impacts on the surrounding forests. According to Dourojeanni (2006) (Evidence 5.12), these impacts would include:

- **Deforestation:** Resulting from both legal and illegal agriculture on unsuitable soils.
- **Forest degradation:** Due to unmanaged and un-replanted extraction of forest resources. Exploited species like cedar (*Cedrela* sp.) and mahogany account for 90% of the harvested volume, much of which is illegal.
- **Increased risk of forest fires:** Due to natural causes or slash-and-burn practices.
- **Illegal hunting:** For the trade of meat, skins, and trafficking of live animals.
- **Reduction in forest environmental services:** Such as water cycle regulation and CO₂ fixation.
- **Loss of biodiversity and species extinction:** Along with the invasion of protected areas, leading to a reduction in the landscape and tourist value of these ecological niches.

On the other hand, artisanal and small-scale gold mining in Madre de Dios involves heavy machinery and dredging in rivers, leading to several negative impacts, including:

- **Alteration of surface water quality:** Due to land removal and sedimentation.
- **Pollution:** Resulting from the dumping of mercury and other chemical products, as well as oils, lubricants, and fuels, which endangers both aquatic fauna and local populations.
- **Damage of flora and fauna:** due to hunting, habitat destruction, and pollution.
- **Alteration of biodiversity:** Caused by habitat destruction and changes in species composition.
- **Habitat destruction:** Resulting from the movement of vehicles and heavy machinery.

However, thanks to the measures adopted by the project — such as the prohibition of hunting, the use of reduced-impact harvesting techniques, surveillance, and control actions, monitoring of processes, and continuous staff training — the fauna remains in good condition. Although hunting pressure is very low or nearly nonexistent due to the control mechanisms implemented in the joint concessions, roads and trails used for timber extraction within the joint concessions area and proximity to the Interoceanic Highway could facilitate access for illegal hunters. Therefore, continuous and regular patrolling is conducted throughout the area to prevent illegal hunting activities, a task supported by carbon financing.

Instead, the fauna monitoring conducted through 'The Jaguar Amazon REDD+ Project' aims to assess and evaluate jaguar populations in the area. According to Tobler *et al.* (2018) (Evidence 5.02), 43 different jaguars (19 males, 22 females, and 2 unidentified) were identified, which is unusually high and among the largest numbers recorded globally.

Data from 209 camera trap stations were used, applying a multi-species occupancy model (MSOM) to estimate jaguar density and fauna species occupancy. In 2019, the monitoring recorded 6 bird species, 2 reptiles, and 35 mammal species, while in 2021, 6 bird species, 2 reptiles, and 34 mammal species were observed.

In the 2023 GFMP monitoring report (Evidence 5.06; section 4), a total of 16 wildlife species were recorded: 8 mammals, 6 birds, and 2 reptiles. A total of 153 observations were made, with 62% concentrated in just four species: Macaws (40 records), Pihuicho parrots (19 records), the Añuje (*Dasyprocta variegata*) also with 19, and the Maquisapa (*Ateles chamek*) with 17. Reptiles accounted for 1.3% of the observations, represented by a single sighting of each lizard and the Motelo (*Chelonoidis denticulata*).

The presence of primates, such as the Maquisapa (*Ateles chamek*), is noteworthy, as they are indicators of healthy forest ecosystems. Additionally, the Añuje (*Dasyprocta variegata*) stands out for its crucial role as a primary disperser of Brazil nut (*Bertholletia excelsa*) seeds, a characteristic feature of this type of forest. These results reflect the effectiveness of the control, surveillance actions, and management measures in the joint concessions, contributing to the conservation of the mammal and bird communities.

It should also be noted that the project includes other complementary activities for the sustainable use of the forest, such as:

- The sustainable use of Brazil nuts (Evidence 5.13): This initiative is promoted through a participatory association scheme involving a group of organized residents (around 40 families from nearby towns). This low impact harvesting activity is conducted under guidelines that emphasize forest stewardship, environmental protection, and the preservation of water flows. By consolidating the collection process and managing the marketing, the project has achieved better financial returns for the collectors. The inventories carried out in the two consolidations of the total number of Brazil nut trees amounted to 12,069 individuals, including productive, non-productive, and seed trees. In the period 2022-2023, a total of 21,022 kg and 249,591 kg of Brazil nuts in shell were mobilized in Otorongo A and Otorongo B concessions, respectively (Evidence 5.07).
- Production of charcoal: Utilizing residues from sawmill activities, this process allows for the proper disposal of waste in the field and reduces the pressure to cut standing trees for charcoal production in other areas.

- Ecotourism development: The acquisition of private land has enabled the development of an ecotourism project aimed at bird watchers, naturalists, and wildlife enthusiasts. This initiative balances environmental conservation with income generation for sustainable management and use. The OBC Lodge, located in the Otorongo A concession, offers visitors a variety of activities and experiences. Special emphasis was placed on the Otorongo Route, a botanical and fauna circuit that provides opportunities for morning and night tours to observe the diverse flora and fauna. The lodge aims to offer guests a unique connection with the rich biodiversity within the concession. A total of 53 tourists visited the project area, 24 of them in 2022 and 29 in 2023. (Evidence 5.14).

Species and habitat	Demonstrate that the project will not adversely impact habitats for rare, threatened, or endangered species.
Within the project area, the following IUCN-listed species have been recorded, sharing habitats such as bodies of water, wetlands, <i>aguajales</i> , seasonally flooded and non-flooded forests, and riparian forests.	
In the project area: <u>Endangered (EN):</u> Maquisapa (<i>Ateles chamek</i>) <u>Vulnerable (VU):</u> Sachavaca (<i>Tapirus terrestris</i>); Sajino (<i>Tayassu pecari</i>); Motelo (<i>Chelonoidis denticulatus</i>);	
Outside of the project area: The following species have been identified within the area and reported in the Tahuamanu Amazon REDD+ project area: <u>Endangered:</u> Ishpingo (<i>Amburana cearensis</i>); Tahuari (<i>Handroanthus serratifolius</i>). Águila (<i>Spizaetus isidori</i>). <u>Vulnerable:</u> Bertholletia excelsa; Cedrela odorata; Cedrela fissilis; Swietenia macrophylla Leucopternis occidentalis; Pionites leucogaster	The project area is under sustainable forest management with FSC forestry certification, which requires adherence to standards that minimize the impact of timber harvesting activities and protect critical habitats for wild flora and fauna species. During this monitoring period, project activities have focused on reducing environmental threats, controlling subsistence and commercial hunting, preventing agricultural expansion, and conducting boundary patrollings to prevent unauthorized entry by groups that could contaminate water sources through illegal small-scale mining, migratory agriculture, land-use changes, illegal logging leading to forest degradation, uncontrolled fires, and deforestation. Additionally, Reduced Impact Logging (RIL) practices have been implemented within the sustainable forest management framework for logging activities.

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

Targeted and low-impact logging does not adversely affect any High Conservation Value (HCV) areas; instead, sustainable harvesting promotes the conservation of nearly intact forest cover while ensuring the conservation of countless associated species of flora and fauna, including jaguars and other endangered species (as mentioned in Section 5.1.1 on jaguar population maintenance).

The study by Tobler and colleagues (2018) on jaguar populations within FSC-certified concessions in Guatemala and Peru found a population density of 4.5 jaguars per 100 km² in the Otorongo A area. This density is comparable only with that found in protected natural areas. The study concluded that the intensity of forest harvesting in the Otorongo A concession, using the same system as in the Otorongo B concession, effectively protects jaguars and other species, and that extraction has a positive impact on the diversity and abundance of certain species. Additionally, the study highlights those certified concessions facilitate connectivity between protected areas and natural forests, partly due to the absence of hunters in these concessions, which is a measure to safeguard the biodiversity they support.

In this context, the HCVs identified for the project, including the extensive area of 183,015 hectares, which corresponds to the area of both consolidated, and the presence of jaguars, are not adversely affected by harvesting activities. The project also includes monitoring to assess the quality of forest harvesting operations, specifically for Reduced Impact Logging (RIL), which during this period was conducted only in Otorongo B, based on the procedures outlined in the respective manual. These evaluations resulted in an average rating of 83.4% for 2022 and 88.03% for 2023 (Evidence 5.03), reflecting the proper execution of operational tasks in line with the procedures specified in the operating manuals as detailed in the following table:

Table 5.1. Quality Assessment of RIL Monitoring (2022-2023)

Quality Assessment Monitoring	2022		2023	
	Note	Percentage (%)	Note	Percentage (%)
Felling quality	17.82	74.6	18.83	94.15
Skidding quality	16.56	89.1	16.66	83.30
Road construction and maintenance quality	14.92	82.8	16.83	84.15
Log storage, loading, unloading and transportation quality	17.44	87.2	18.10	90.50
Average	16.69	83.4	17.605	88.03

Also refer to Section 5.3.1 for the results of the monitoring of HCVs, which demonstrate that the measures implemented successfully meet the goals set for maintaining these HCVs.

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

Not applicable.

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

The forest management approach used in both consolidations is polycyclic thinning, which exclusively manages the standing stock, promoting the growth of commercial species while retaining undesirable species. This system supports the continuity of forest dynamics by providing multiple rest periods in previously exploited areas. As a result, no invasive species have been introduced into the project area, and there has been no increase in populations of invasive species due to the project.

5.1.7 GMO Exclusion (CCB, B2.7)

Not applicable.

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

Not applicable.

5.2 Offsite Biodiversity Impacts

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

Negative Offsite Impact	Mitigation Measure(s)
Increased deforestation pressure due to the expansion of the agricultural and livestock frontier in the areas adjacent to the joint of concessions.	Workshops on the management of crops of interest, controlled burns, agroforestry systems, environmental crimes, and more for adjacent communities (See Table 4.5; Section 4.3.1).
Increasing illegal logging of high-value commercial forest species in areas adjacent to the joint of concessions.	Enhanced control over the entry and exit of third parties using the concession transport routes as a transit zone to other areas (Evidence 5.15).
Loss of biodiversity due to increased illegal hunting of wildlife in areas adjacent to the joint of concessions.	Enhanced control over the entry and exit of third parties using the concession transport routes as a transit zone to other areas.

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

No negative impacts on biodiversity have been identified because of the project's activities. The measures implemented outside the project area primarily focus on the continuous training of the local population regarding the benefits and proper use of forest resources through informational and educational sessions. In Table 4.5 (Section 4.3.1) presents a list of training sessions conducted during the 2022-2023 period, targeting residents and authorities of the towns near the concession.

Surveillance and patrolling were also conducted along the various transportation routes within the joint concessions to improve the control of third-party entry and exit to areas outside the project zone.

These activities outside the project area, combined with the benefits of activities within the project—such as jaguar conservation, Brazil nut conservation, the ecotourism initiative, increased local employment, and biodiversity conservation, while avoiding the emission of over 1 MtCO₂—together demonstrate that the project's net effect on biodiversity is positive.

5.3 Biodiversity Impact Monitoring

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

Flora

Forest cover loss

Forest cover loss is directly caused by activities such as road construction, skid trail creation, storage yard development, and logging. To mitigate this impact, the company implements a low-impact layout, both during planning and on-site, with the objective of minimizing the area to be cleared and reducing the length of roads and trails. Additionally, the area and number of storage yards are minimized through better distribution and planning. Regarding logging, low-impact techniques, such as directional felling, are employed to ensure the best possible direction for tree felling. The monitoring of forest cover loss aims to assess the effectiveness of these measures by comparing affected areas over consecutive years post-harvest, with the goal of maintaining or reducing current values.

The methodology used involved field measurements to determine the actual total cleared area. This was done by calculating partial areas for road construction, 20% of the constructed stockpile yards, the area of the roads within 10% of the constructed stockpile yards containing 10% of the extracted individuals, and the clearings left by 1% of the felled individuals of each species. These results were then extrapolated to the total area of the annual cutting plot (Evidence 5.06). The results for the 2022 and 2023 period are presented below for Otorongo B only, as harvesting activities were conducted in Otorongo A during this time.

Table 5.2. Logging operations impacts (2022-2023) in Otorongo B

Activity	Equation for forest cover loss	2022	2023
Road construction	Road area (m ²) / Area POA (ha)	65.7	66.3
Felling	Total area clears (m ²) / Area POA (ha)	130.2	121.99
Storage yards	Total area yards (m ²) / Area POA (ha)	7.2	7.1
Skid trails	Trail areas (m ²) / Area POA (ha)	124.8	127.6
Total deforested area (m ² /ha)		327.9	322.99

As shown in the table above, the total loss of vegetation cover during the 2023 harvest, resulting from the combined deforestation caused by operations, slightly decreased from 327.93 m²/ha in 2022 to 322.99 m²/ha in 2023. This reduction is attributed to the enhanced training provided to staff for implementing reduced-impact practices in our activities

According to our monitoring system, our goal for each activity is to achieve results that are lower than the baseline values proposed. The results for the 2022-2023 period indicate that this goal is being achieved, as the values obtained for each activity are consistently lower than the baseline.

Below is the average comparison of clearings left by the logging of the main commercial species extracted in 2022 and 2023, compared to previous years when harvesting also took place.

Table 5.3. Average clearing area by species in Otorongo B

Species	Average deforested area per species (m ² /individual)			
	2019	2021	2022	2023
Ana Caspi	298.3	281.4	290.8	309.8
Azúcar Huayo	280.4	241.8	234.9	316.6
Cedar	--	192.4	203.6	220.6
Mahogany	--	--	--	-
Copaiba	--	--	274.3	-
Estoraque	163.25	179.2	173.5	187.8
Ishpingo	201.52	--	213.2	231.1
Mashonaste	312.26	308.4	319.8	327.7
Misa Colorada	272.71	268.7	291.4	-
Pumaquiro	260.3	247.7	--	306.3
Shihuahuaco	550.47	497.2	518.4	509.5
Tahuarí	155.6	--	--	236.6
Tornillo	--	--	319.2	331.8
Average per tree	277.2	277.1	283.9	297.8

It is worth mentioning that in 2020 there were no operations, except for the transportation of logs from the log yard to their destination.

Trees of Interest Affected

The impact on forest cover is partially measured by the trees of interest that are affected during harvesting operations. This includes trees directly extracted for use, management, or infrastructure construction, as well as those indirectly affected during the operations. The trees of interest include the following:

- Usable trees: Trees from commercial species identified during the census as usable because they meet or exceed the minimum diameter for logging established by the project.
- Felled trees: Trees from commercial species that are regularly felled as part of the extraction activities.
- Trees important for fauna: Trees that provide food for wildlife and are not widely distributed within the forest due to their abundance and frequency.
- Seedling trees: Trees selected as seed providers during the census.
- Future harvest trees: Trees from commercial species that either meet or exceed the minimum diameter for logging established by the project or are up to 10 cm below that minimum diameter. These trees are marked for future harvesting to ensure sustainable management of the species.
- Non-Timber product trees: Trees that provide non-timber products, such as Brazil nuts and Shiringa.
- Natural regeneration: Individuals from commercial species with a DBH (Diameter at Breast Height) of 10 cm or more that do not qualify as future harvest trees

As part of the preventive measures taken by the project, particularly in the field, a low-impact layout for roads, trails, and storage yards is designed using satellite images. This approach aims to avoid areas where trees of interest are located, thereby minimizing the impact of their extraction or disturbance on the forest. Low-impact directional felling techniques are employed to direct the fall of trees away from areas with a high concentration of these trees, reducing their impact.

The monitoring of the impact on trees of interest aims to maximize the effectiveness of these measures by comparing data from consecutive years. This includes assessing the types and number of affected individuals post-harvest, with the goal of maintaining or reducing impact values. Statistics are provided for the 2022 and 2023 period, when harvesting occurred.

The methodology involves field measurements of the types and number of individuals affected by road construction, storage yard construction, skid trails, and logging operations. This procedure is conducted on 3% of the felled individuals by species, and the results are then extrapolated to estimate the total number of affected individuals. The results for the 2022 and 2023 period are presented below, when harvesting occurred.

Table 5.4. Area affected by logging operations in Otorongo B

Activity		Individuals/ha			
		2019	2021	2022	2023
Road construction	N° Total Affected trees / Area POA	0.01	0.01	0.01	0.01

Felling		0.01	0.01	0.02	0.01
Storage yards		0.01	0.02	0.02	0.02
Skid trails		0.02	0.02	0.01	0.02
Total of affected individuals		0.05	0.06	0.06	0.06

As shown in the table above, the impact on trees of interest during the 2022 and 2023 harvests was assessed exclusively in Otorongo B, as no harvesting took place in Otorongo A during this period. The results indicate that the number of affected individuals from the four activities combined remained at 0.06 individuals per hectare, consistent with the 2021 result.

In our monitoring system, the goal for road construction is to limit the impact to less than or equal to 0.02 individuals per hectare. The result for 2022 and 2023 was 0.01 individuals/ha, which is below this target. Similarly, for felling, storage yard construction, and skid trails, all results were below the set goals in the monitoring system, demonstrating that the targets have been met.

Remnant Vegetation

Remnant vegetation is a critical indicator for assessing the impact on the forest. It reflects the amount of vegetation left standing to ensure sustainability through regeneration and the viability of future management of commercial species. To address this, the project not only meets legal requirements but also implements additional measures. The goal of monitoring remnant vegetation is to ensure compliance with these measures through annual comparisons of post-harvest values.

The various interventions in the forest, which adhere to the commitments outlined in the PGME, the Non-Detriment Finding (mahogany), and the FSC certification for both concessions, ensure that the remaining vegetation retains the forest's structure, functionality, and floristic composition. This includes the continued conservation of species listed as threatened on the IUCN Red List, as identified in the exploratory inventory for the two concessions. These species include:

- Endangered: *Amburana cearensis*, *Handroanthus serratifolius*
- Vulnerable: *Bertholletia excelsa*, *Cedrela odorata*, *Cedrela fissilis*, *Swietenia macrophylla*

The methodology involved calculating the percentage of remnant trees in each category based on post-harvest information and the number of individuals affected by harvesting operations. The results for the 2022 and 2023 period are presented below and refer exclusively to Otorongo B, as no harvesting took place in Otorongo A during these years.

Table 5.5. Remnant vegetation in Otorongo B

Aspect	Relationship	Category	2020	2021	2022	2023
Future Harvest Trees	N° Trees. F.C. / (N° Felled trees. + N° Trees F.C.)	Ana Caspi	100%	38%	54%	59%
		Azúcar Huayo	100%	73%	86%	
		Mahogany	--	--	65%	

Aspect	Relationship	Category	2020	2021	2022	2023
		Cedar	100%	68%	91%	
		Copaiba	--	--	28%	
		Estoraque	100%	53%	59%	
		Ishpingo	100%	34%	44%	
		Mashonaste	100%	53%	74%	
		Misa Colorada	100%	54%	93%	
		Pumaquiro	--	--	80%	
		Quinilla	100%	62%	84%	
		Shihuahuaco	100%	17%	14%	
		Tahuarí	100%	45%	81%	
		Tornillo	100%	16%	43%	
Seedling trees	N° Seed trees /(N° Felled trees + N° Seed trees)	Ana Caspi	100%	28%	43%	50%
		Azúcar Huayo	100%	44%	64%	
		Mahogany	--	--	27%	
		Cedar	100%	17%	50%	
		Copaiba	--	--	34%	
		Estoraque	100%	32%	38%	
		Ishpingo	100%	22%	31%	
		Mashonaste	100%	33%	56%	
		Misa Colorada	100%	35%	85%	
		Pumaquiro	--	--	60%	
		Quinilla	100%	38%	66%	
		Shihuahuaco	100%	22%	18%	
		Tahuarí	100%	27%	66%	
		Tornillo	100%	21%	54%	
Trees of importance for fauna	N° Total trees. imp. for fauna not affected / N° Total trees imp. Fauna	-	100%	99%	100%	100%
Non-timber trees	N° Total non-timber trees not affected / N° Total non-timber trees	-	100%	100%	100%	100%
Trees of key species or in critical state	N° Total trees of key species not affected/ N° Total trees of key species or in critical state	-	100%	100%	100%	100%

As shown in the table above, the project aims to maintain a 50%/50% ratio between individuals designated for future harvest and those felled during the current harvest. This approach ensures the viability of future commercial species use. Additionally, the project seeks to retain at least 20% of seed trees to support forest regeneration.

Fauna

The conservation of species and their proper management depend on the availability of accurate information about their populations, making it essential to study aspects such as abundance and activity patterns. Data collection on wildlife in the Otorongo A concession began in 2011, while similar efforts started in the Otorongo B concession in 2013.

Based on the Wildlife Monitoring Manual and the Wildlife Assessment Guide (Evidence 5.16), an inventory of diurnal and nocturnal animals was conducted using various methods. These included photo trap recordings (Figures 5.1, 5.2); transects (Figure 5.3); accidental encounters such as footprints, bite marks, holes, urine, and feces (Figures 5.4, 5.5); and audible registries. Data were collected by walking along transects and paths between 6:30 am and 5:30 pm over three days. Observations made outside these census days were not included in the calculations.

Photo trap registries

The sampling was conducted along paths, sidewalks, and gorges, encompassing all vegetation types in the area. Camera traps were placed at various sample stations to enhance the probability of recording different species. These camera traps are automatic photographic detection systems that operate using a passive infrared sensor. The devices were programmed to remain active 24 hours a day, with a minimum delay of 0.3 minutes between shots. Each camera's location was georeferenced using GPS. The cameras remained active throughout the entire sampling period, and the total sampling effort was calculated as the sum of trap-days for each camera. The photographed species were identified by comparison with specialized literature (Hall 1981, Emmons & Feer 1990, Reid 1997, Ceballos & Oliva 2005).

Figure 5.1. Puma (*Felis concolor*)



Figure 5.2. Monitoring with trap cameras helped for the registry of species in the area



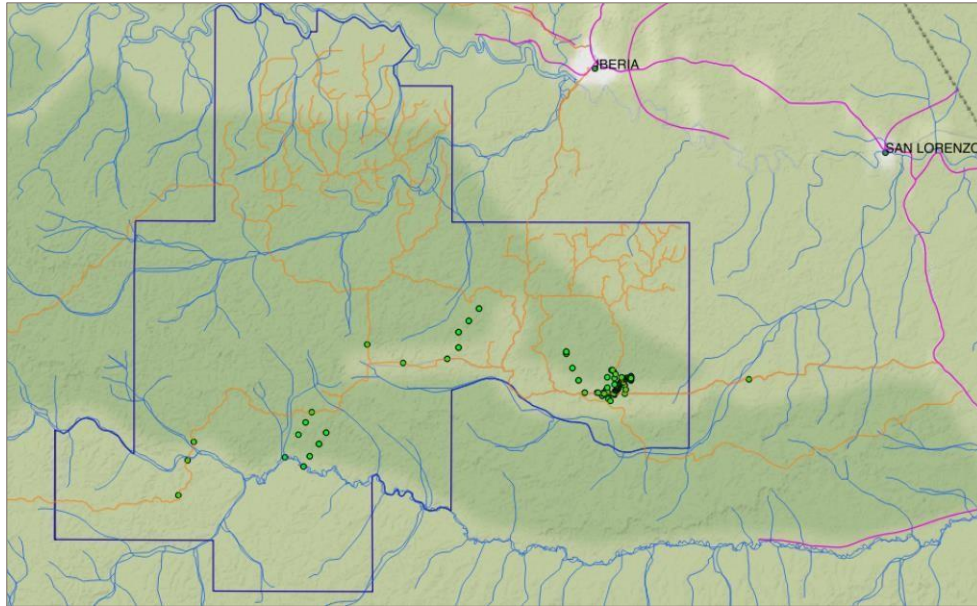
Transects

Sampling begins at dawn and sunset, depending on the season. Sampling is suspended if it rains continuously for more than 30 minutes or if wind conditions become so strong that mammal detection is significantly affected. During these interruptions, observers remain at their stations. Data are collected using the transect methodology (Buckland et al., 1993), which involves walking along established transects ("trochas") in the study areas, covering distances of no less than 4 linear kilometers both during the day and night. The goal is to achieve direct animal sightings (both seen and heard) or detect evidence of their presence (such as footprints, tracks, or smells).

Observers record encounters with mammals as they slowly and silently walk the transect at a pace of 1.5 km/h, periodically stopping to listen and search for mammals. Upon encountering an individual or a group of individuals of the same species, observers remain in place for up to ten minutes to collect data. The data recorded during each visual or audible encounter include the location, date, transect, start and end time, distance along the transect, and the observer-animal distance. Additionally, observed behaviors are noted, including calls between groups or individuals, alarm cries, curiosity (when a group approaches the observer), rapid movement (encounters lasting less than one minute), and resting.

These data are entered daily into a computerized database, with backup copies made to ensure the continuity of the research in case of database loss.

Figure 5.3. Location of the sample points in study



Accidental encounters

Accidental encounters with mammals along the transect, either before or after the controlled sampling, were important, and most data was collected whenever such opportunities arose.

Regarding footprints, only one record per site —such as around a roll place, stream shore, or mud hole along a path— is considered. If an animal or a group of animals left footprints in the area, this counts as a single record, as it is impossible to distinguish between the footprints of different animals or determine when they were made. For these reasons, these records are likely underestimated.

Figure 5.4. Deer feces are a clear indicator of the presence of the species



Footprints were found in collpas, on beaches, along the edges of ravines, and on penetration roads; these were measured and identified. When mammal footprints are found in transects, only the direction of the footprints is recorded (whether they cross or run along the transect). Additionally, the morphological measurements of sentinel species, such as felines and tapirs, were documented.

Figure 5.5. Mammal footprints. It indicates the presence of jaguars



Finally, audible recordings were made throughout all sampling days, incorporating the observations of the entire team.

Statistical Analysis

Using the DISTANCE software, indices of species richness, population density, and species abundance were calculated.

Wildlife monitoring during forest harvesting phases

Monitoring is conducted every two years, covering the periods before, during, and after the harvesting season. In 2023, surveys were carried out in March (before), September (during), and November (after) the harvesting season in both Otorongo A and B. The data presented includes only records of individual wildlife sightings (Evidence 5.16).

Table 5.6. Wildlife sightings recorded in each concession

N°	Species	Otorongo A				Otorongo B			
		Before (March)	During (Sept.)	After (Nov.)	Total	Before (March)	During (Sept.)	After (Nov.)	Total
1	Añuje		2	4	6	3	9	7	19
2	Ardilla	9			9		4		4
3	Armadillo grande	2			2				

4	Macaw	6	5	7	18	18	9	13	40
5	Huangana							10	10
6	Lizard					1			1
7	Pihuicho Parrot	6	7	7	20	14		5	19
8	Maquisapa	2	3	2	7	8	4	5	17
9	Fraile Monkey					4	8		12
10	Huasita Monkey	7		6	13				
11	Motelo		1		1		1		1
12	Oso perezoso	1			1				
13	Woodpecker	1			1	2	1		3
14	Paujil	3	5	5	13	2	5	3	10
15	Pava					2	1	2	5
16	Pava negra		2		2				
17	Picuro		1	1	2			3	3
18	Sachavaca		1	1	2		2	1	3
19	Sajino	1	1	4	5			3	3
20	Snake	1			1				
21	Shansho	3			3				
22	Trompetero		2	1	3				
23	Toucan	1			1	3			3
24	Deer	1	1		1				
Total records		44	31	38	113	57	44	52	153

Table 5.7. Diversity Index for both Concessions

Wildlife records from both concessions have been analyzed, considering Otorongo A as the reference area, with no harvesting activities in 2022 or 2023, and Otorongo B as the area under active forest harvesting. It's important to note that this initial analysis provides an overview of the accumulated diversity at each site, without delving into how harvesting activity has influenced changes over time.

Upon observing the combined sighting data, we noted interesting differences in the fauna community structure between both areas:

- **Total Abundance:** Contrary to expectations, Otorongo B recorded a higher total number of individual sightings (153) compared to Otorongo A (113), meaning more animals were registered in the harvested area than in the unharvested one.
- **Most Abundant Species:** In Otorongo A, the most frequently sighted species were the Pihuicho Parrot (20 individuals), the Macaw (18 individuals), and the Huasita Monkey (13 individuals). In Otorongo B, the Macaw stood out as the most abundant species (40 individuals), followed by the Añuje (19 individuals) and the Pihuicho Parrot (19 individuals). The high abundance of Macaws in Otorongo B is notable.

- **Species Present in Both Sites:** We identified 11 species common to both areas: Añuje, Macaw, Pihuicho Parrot, Maquisapa, Motelo, Woodpecker, Paujil, Picuro, Sachavaca, Sajino, and Toucan. The presence of these shared species generates similarity between the two communities, although their relative abundances can vary significantly from one site to another.
- **Shannon Diversity Index (H')**: This index gives us an idea of species richness and how evenly their populations are distributed. A higher value indicates greater diversity. The results show that Otorongo A (2.5411) has a higher Shannon value than Otorongo B (2.3275). This suggests that, despite having fewer total individuals, Otorongo A possesses a greater variety of species and/or its populations are more balanced, making it a more diverse community in this regard.
- **Simpson Diversity Index (1-D)**: This index indicates the probability that two randomly chosen individuals will belong to different species; a higher value means greater diversity and less dominance by a few species. Like the Shannon index, Otorongo A (0.8976) presents a higher Simpson value than Otorongo B (0.8700). This reinforces the idea that Otorongo A is more diverse, with less dominance by a few species and a greater variety of encounters when observing animals.

Therefore, although Otorongo B had more total sightings and species, Otorongo A generally exhibits higher species diversity and a more equitable distribution of its fauna.

When diversity indices were analyzed over time in each Concession, the following results were found:

Table 5.7. Temporal dynamics of wildlife diversity by Concessions

Period	Species Richness	Shannon Index	Simpson Index (1-D)
Otorongo A (Control)			
Before	14	2.3237	0.8791
During	12	2.2349	0.8699
After	10	2.0977	0.8629
Otorongo B (Harvested)			
Before	10	1.9044	0.8058
During	10	2.0408	0.8502
After	10	2.0789	0.8521

- Otorongo A (Reference or Control Area)

This area, where no forest harvesting occurred in recent years, shows a gradual decrease in its diversity. Its species richness drops from 14 ("Before") to 12 ("During") and finally to 10 ("After"). Similarly, the Shannon Index declines from 2.3237 to 2.2349 and then to 2.0977, and the Simpson Index falls from 0.8791 to 0.8699 and finally to 0.8629. This tells us that, even without forest activity, the wildlife community in Otorongo A experienced significant natural changes. These changes could be due to factors like seasonality, population movements, or ecological fluctuations inherent to the forest.

➤ Otorongo B (Area Under Forest Harvesting)

This area starts with lower diversity than Otorongo A in the "Before" period, recording 10 species, a Shannon Index of 1.9044, and a Simpson Index of 0.8058. However, during and after harvesting, its diversity indices show a slight increase. Species richness remains constant at 10. The Shannon Index rises to 2.0408 ("During") and then to 2.0789 ("After"), while the Simpson Index climbs to 0.8502 ("During") and 0.8521 ("After"). This behavior is quite interesting and might seem counterintuitive if we expected a direct decrease due to the impact. This could suggest that, although the total number of species didn't change, forest activity may have altered the distribution of abundances among the remaining species, perhaps by reducing the dominance of some and allowing others to become more evenly distributed, or by favoring disturbance-tolerant species.

In summary, the alpha diversity data reveals that both areas are dynamic and experience changes over time. While Otorongo A shows a diversity decrease that could be attributed to natural fluctuations, Otorongo B presents a slight recovery in its diversity indices during and after harvesting, despite the interventions. This highlights the complexity of the ecosystem's response and suggests that harvesting activity could generate varied effects on the wildlife community structure.

Overall, monitoring in Otorongo A (reference area) and Otorongo B (under timber harvesting) reveals that both concessions feature complex and dynamic ecosystems. The areas started with distinct faunal baselines, meaning their wildlife communities already differed significantly before any intervention. This report, though temporally limited, has offered a preliminary glimpse into the intricate nature of the forest.

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

The results of the monitoring are publicly available online at the following website: <https://aldoagain21.wixsite.com/cultura-forestal>

In addition to these channels, the Project broadcasts a local radio program every weekend on Radio Tahuamanu (109.4 FM) (previously on Radio Solar, 99.3 FM) to communicate the activities, developments, and results of the project. (Evidence 2.08 Radio Project Programs).

5.4 Optional Criterion: Exceptional Biodiversity Benefits

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

Trigger Species	Jaguar (<i>Panthera onca</i>)
With-project Scenario	The measures adopted to maintain or improve the status of the jaguar population and reduce threats to them are: • The management plan includes specific measures based on the High Conservation Values (HCV) identified in the evaluation. • Monitoring of HCV attributes in the management unit using indicator species of flora and fauna. • A control system to ensure compliance with management guidelines. • A patrol system throughout the project area. • Low impact harvesting practices. • Maintenance of concession certification. • Development, implementation, monitoring, and improvement of forest management through general forest management plans. • Collaboration with neighboring communities to raise awareness of the forest's value and improve livelihoods, among other activities.

LIST OF EVIDENCE

- Evidence 2.01. Flow monitoring report 2022
- Evidence 2.02. Cooperation Agreement IEB
- Evidence 2.03. Community trainings 2022
- Evidence 2.04. Conflicts reports 2022
- Evidence 2.05. Forest Patrolling 2022
- Evidence 2.06 Publishing materials 2022
- Evidence 2.07. Conflict resolution manual and complaints and suggestions 2022
- Evidence 2.08. Radio Project programs
- Evidence 2.09. PPT presentation 2022 in REDD
- Evidence 2.10. Institutional Policy
- Evidence 2.11. Dissemination of training 2022
- Evidence 2.12. Community Costs, Risks, and Benefits
- Evidence 2.13. Employments and families 2022
- Evidence 2.14. CV´s Forestal Otorongo
- Evidence 2.15. CV´s del personal de Paskay
- Evidence 2.16. Recognition of property rights Forestry concession contracts).
- Evidence 2.17. General Forestry Management Resolution of approval
- Evidence 2.18. Behavior Osinfor
- Evidence 2.19. Employment
- Evidence 2.20. Letter from MDD Government
- Evidence 2.21 Internal Training 2022
- Evidence 2.22. Coordinates of forest concessions
- Evidence 2.23. Cash Flow
- Evidence 2.24. Summary of results of the general forest management plan
- Evidence 3.01. Summary of Monitoring Results of the General Forest Management Plan
- Evidence 3.02. Training
- Evidence 3.03. Charges of accession cards
- Evidence 4.01. Alerta Family results 2022
- Evidence 4.02. PMFI Forest Management Plan Brazilian Nuts Otorongo
- Evidence 5.01 Tobler & Mena (2022)
- Evidence 5.02. Tobler, M. et al. (2018).pdf.
- Evidence 5.03 Operational quality assessment

- Evidence 5.04 Behavior Otorongo (SIGO platform)
- Evidence 5.05. Tobler, M. y Mena, J. (2023)
- Evidence 5.06. Monitoring report GFMP
- Evidence 5.07. Operation Plans (POA)
- Evidence 5.08. FSC Certificates
- Evidence 5.09. GFMP
- Evidence 5.10. Silvicultural plan
- Evidence 5.11 Guidelines for assessing HCVF
- Evidence 5.12 Dourojeanni, M.J. (2006)
- Evidence 5.13 Brazil nuts IFMP
- Evidence 5.14 Eco-tourism
- Evidence 5.15 Patrollings
- Evidence 5.16 Wildlife monitoring