

MONITORING REPORT 2022

TAHUAMANU AMAZON REDD PROJECT



Prepared by



Project title	Tahuamanu Amazon REDD Project
Project ID	2502
Crediting period	01 January 2022 – 31 December 2022
Monitoring period	01 January 2022 – 31 December 2022; for VCS and CCB
(CCB) GHG accounting period	19/04/2017 – 18/04/2047; 30-year lifetime for VCS and CCB
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Version	01
VCS Standard version	4.7

CCB Standards version	3.1
Project location	Peru
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History of CCB Status	Validation report 31 July 2023 Verification report vintage 2017-2019 31 July 2023 Verification report vintage 2020-2021 - Pending approval
Gold Level criteria	Biodiversity Gold Level The project proponent will implement activities linked to the monitoring of wild fauna and flora populations in the project area with special emphasis on species with some degree of threat, maintenance of high conservation values and services it provides, and the custody and monitoring of the biodiversity it houses.
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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) Number of beneficiaries in health of indigenous peoples as a result of project activities	130	Section 4.1.1 (Table 4.3)	110
2) Number of beneficiaries in education of indigenous peoples as a result of project activities.	29 children+32 adults = 61	Section 4.1.1 (Table 4.3)	8
3) Number of women of indigenous peoples benefiting through project activities.	72	Section 4.1.1 (Table 4.3)	54
4) Number of promotional activities for the protection of indigenous peoples in isolation, PIACI.	6	Section 4.1.1 (Table 4.7)	7

1.2 Standardized Benefit Metrics

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	<i>Net estimated emission removals in the project area, measured against the without-project scenario</i>	Not applicable		
	<i>Net estimated emission reductions in the project area, measured against the without-project scenario</i>	588,900	Section 3.2.4 (Table 3.39)	4,897,052
Forest ¹ cover	<i>For REDD² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario</i>	1,129.95	Section 3	3,135.06
	<i>For ARR³ projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario</i>	Not applicable		
Improved land management	<i>Number of hectares of existing production forest land in which IFM⁴ practices have occurred as a result of the project's activities, measured against the without-project scenario</i>	Not applicable		
	<i>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</i>	Not applicable		

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

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

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

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

Training	Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities	62 project local workers+ 98 young students = 160	Section 2.3.15 and Section 5.1.1 (Table 5.3)	109
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities	12 project local workers + 16 young students = 28	Section 2.3.15 and Section 5.1.1 (Table 5.3)	18
Employment	Total number of people employed in of project activities, ⁵ expressed as number of full-time employees ⁶	258 project workers	Section 0	142
	Number of women employed in project activities, expressed as number of full-time employees	33 project workers	Section 0	18
Livelihoods	Total number of people with improved livelihoods ⁷ or income generated as a result of project activities	258 project workers + 02 native school teachers + 01 native CEBA teacher + 01 nurse = 262	Section 0 and Section 4.1.1 (Table 4.3)	281
	Number of women with improved livelihoods or income generated as a result of project activities	33 project workers Partially defined	Section 0	72
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	130 native people + 2,391 Iñapari population = 2,521	Section 4.1.1 (Table 4.3 and Table 4.4)	2000

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.

	<i>Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario</i>	72 native people + 1,002 Iñapari population = 1,074	Section 4.1.1 (Table 4.3 and Table 4.4)	881
Education	<i>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</i>	29 native children + 32 native CEBA adults + CEBA 16 Iñapari CEBA adults + 10 higher education students = 87	Section 4.1.1 (Table 4.3 and Table 4.4)	375
	<i>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</i>	19 native CEBA adults + 06 Iñapari CEBA adults + 01 higher education students = 26 Partially defined	Section 4.1.1 (Table 4.3 and Table 4.4)	-
Water	<i>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</i>	3,256	INEI Census 2017 ¹³⁸	3,256
	<i>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</i>	1,388	INEI Census 2017 ¹³⁸	1,388
Well-being	<i>Total number of community members whose well-being⁸ was improved as a result of project activities</i>	62 local workers + 02 native school teachers + 01 native CEBA teacher + 01 nurse + 130 native population	Section 2.3.15 and Section 4.1.1 (Table 4.3 and Table 4.4)	221

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.

		+ 10 higher education students = 206		
	<i>Number of women whose well-being was improved as a result of project activities</i>	12 workers local + 72 native population + 06 CEBA Iñapari students + 01 higher education student = 91	Section 0 and Section 4.1.1 (Table 4.3 and Table 4.4)	72
Biodiversity conservation	<i>Change in the number of hectares significantly better managed by the project for biodiversity conservation,⁹ measured against the without-project scenario</i>	169,956.81	Section 5.3.1 (Table 5.6)	169,956.81
	<i>Number of globally Critically Endangered or Endangered species¹⁰ benefiting from reduced threats as a result of project activities,¹¹ measured against the without-project scenario</i>	<u>IUCN Red List</u> Fauna: Endangered: 2 Flora: Endangered: 2	Section 5.1.1 (Table 5.2 and Table 5.4)	<u>IUCN Red List</u> Fauna: 1 Flora: 1

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 project area faces increasing threats from unsustainable agrarian practices from neighboring local religious communities and others. To deal with it, the project plans to combine an increase in protection measures (patrolling, working together with other forest concessions and the forest and political authorities) with the promotion of productive activities for neighboring communities, as a strategy to offer alternative sources of income that do not imply the clearing of forest areas. Based on this approach, the project expects to reduce projected deforestation.

Notwithstanding, the Consultative Committee is already operative many years ago and has agreed and supported different actions with neighboring communities in topics as health, employment and education. Health and education are the indicators most in need of support, information that local stakeholders have expressed in the dialogue with stakeholders and the community.

In addition, the project has implemented actions regarding biodiversity and borders protection. Also, project proponent participates actively in inter institutional task force to consolidate forestry sector in Tahuamanu province.

The objectives of the project are:

- Avoid 1,129.95 ha of forest loss in the project area in 2022.
- Avoid the negative impact over the biodiversity:
- Protect 4 species at risk of extinction according to IUCN Red List (2 fauna and 2 flora).
- Contribute with the improvement of well-being of 13 neighboring communities.

A net annual GHG emission reduction of 588,900 tCO_{2e} for the year 2022.

The promotion of activities with partners whose goals are focused on protecting ANPs and PIACI territory, is an activity that the company has been developing despite not yet having any money from carbon sales, as we will see in the development of this report. At the same time, biodiversity actions, dissemination and collaboration in community development have been implemented and the results presented in this report have been achieved.

2.1.2 Audit History (VCS, 4.1)

Audit Type	Period	Program	VVB Name	Number of years
Validation	19 April 2017 – 18 April 2047	VCS//CCB	AENOR	30
Verification	19 April 2017 – 31 December 2019	VCS//CCB	AENOR	3
Verification	01 January 2020 – 31 December 2021	VCS//CCB	ICONTEC	2
Verification	01 January 2022 – 31 December 2022	VCS//CCB	AENOR	1

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 and/or Degradation (AUDD)

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

Organization name	Maderera Río Acre S.A.C.
Contact person	Nelson Kroll Kohel
Title	Regional Manager
Address	Car. Interoceanica Sur-Puerto Km. 227, Iñapari, Tahuamanu, Madre de Dios, Perú
Telephone	+51 982 798 120
Email	nkroll@maderacre.com

2.1.5 Other Entities Involved in the Project

Organization name	Paskay S.A.C.
Role in the project	Co-developer
Contact person	Jorge Torres Padilla

Title	Chief Executive Officer
Address	C. Grimaldo del Solar 162, Miraflores 15074
Telephone	+51 943 206 810
Email	jtorres@paskay.com

2.1.6 Project Start Date (VCS, 3.8)

Project start date	19 April 2017
Justification	Date on which the government resolution that authorizes the implementation of the forest management plan for the 2017 period comes into force, empowering the execution of management and protection activities in the project area.

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

Crediting Period	30 years crediting period, equivalent to the project life. A robust custody and surveillance system of the project area is implemented.
Start Date of First or Fixed Crediting Period	19 April 2017 to 18 April 2047
Total Number of Years of Crediting Period	30 years
CCB Benefits Assessment Period	01 January 2022 to 31 December 2022

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

☒ KML file has been provided

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
Tool	VT0001	Tool for the Demonstration and Assessment of Additionality in VCS	...

		Agriculture, Forestry and Other Land Use (AFOLU) Project Activities	3.0
Tool	-	AFOLU Non-Permanence Risk Tool	4.0

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

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

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 project contributes to the development of the locality. The jobs comply with legislation and a number of jobs are given to women and local people, helping to increase their economic level.

Citizens are educated in sustainable development and forest management. Avoids carbon emissions through monitoring and surveillance activities, the placement of milestones, guardhouses and the FMU's Integral Custody Plan. Collaborates with the conservation of 169,956 ha. through forest management, and also indirectly protects the areas of indigenous populations in voluntary isolation and initial contact (PIACI).

Table 2.1: Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	1.3	Social protection systems and measures for everyone	Implemented activities to increase	A total of 258 workers (33 women) who are part of the project, maintain health and accident insurance, and food security during their working days.	During the project life, 693 workers (92 women) who carry out activities directly related to forest management have benefited ¹² .
2)	3.1	Reduction in maternal mortality rate	Implemented activities to decrease	Risk prevention to ensure the physical and psychological well-being of 02 pregnant mothers working for the project.	No measure before.
3)	3.3	Neglected tropical diseases	Implemented activities to increase	09 workers with a confirmed case of dengue and 05 with leishmaniasis were treated ¹³ , both considered tropical diseases.	No measure before.

¹² Colaboradores 2017 - 2022

¹³ Informe_Enfermedades_Tropicales_2022

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
4)	3.8	Cover access to quality essential health services and access to medicines	Implemented activities to increase	A total of 258 workers (33 women) who are part of the project have insurance that covers 100% of all their health care.	During the project life, 693 workers (92 women) who carry out activities directly related to forest management have benefited.
5)	3.9	Disease reduction through vaccine immunization	Implemented activities to decrease	A total of 182 project workers have been vaccinated to prevent different diseases, with emphasis on common ones. The vaccines provided are Yellow Fever, Hepatitis B, Diphtheria Tetanus Toxoid (dT), Influenza and Measles.	During the project life, 263 workers who carry out activities directly related to forest management have benefited.
6)	4.3	Ensure equal access to technical education	Implemented activities to increase	10 students have participated in the “Iberia Higher Education Institute” due to the agreement signed between the project proponent and the Institute.	A total of 17 people has benefited from the improvement in technical knowledge during the project life.
7)	5.1	End all forms of discrimination against women	Implemented activities to decrease	The project proponent implements 01 Anti-discrimination policy and promotes labor equality. There are 0 reported records of discrimination cases.	During the execution of the project, the project proponent has remained committed to ending discrimination by implementing its policies at all organizational levels, which is why 0 cases of discrimination of any form have been recorded.

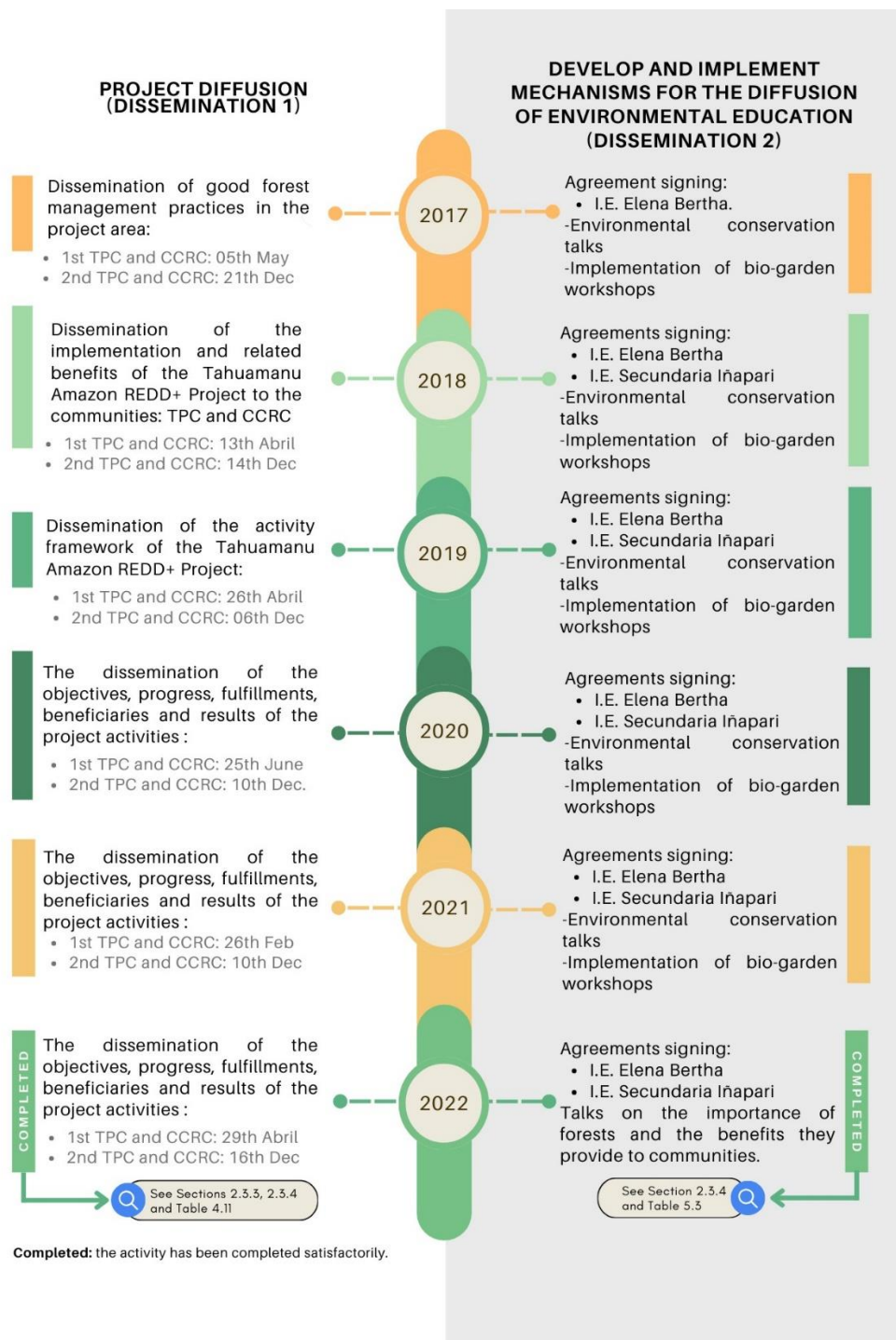
Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
8)	8.5	Achieve full and productive employability and decent work for men and women	Implemented activities to increase	The Project proponent generated 258 jobs with average salaries of 14.17 USD/day.	The project proponent adheres to national policies and improves daily income from 7.24 USD/day during the start of the project to 8.99 USD/day in 2022. A total of 693 benefited workers (92 women) have been registered.
9)	10.3	Ensure equal opportunities and reduce inequality	Implemented activities to decrease	The project proponent implements 01 Anti-discrimination policy of any form and promotes labor equality. There are 0 reported records of discrimination cases.	During the execution of the project, the project proponent has remained committed to ending discrimination by implementing its policies at all organizational levels, which is why 0 cases of discrimination of any form have been recorded.
10)	11.4	Expenses allocated to the preservation, protection and conservation of natural heritage	Implemented activities to increase	The project proponent implements actions that allow conserving 169,956.81 hectares of project area considered natural forest heritage.	The economic investment for the implementation of project activities has allowed the conservation of 169,956.81 hectares of forest, without registering any external interference with the forest heritage.
11)	13	Tonnes of greenhouse gas emissions avoided	Implemented activities to decrease	By conserving 169,956.81 hectares of tropical rainforest, Tahuamanu Amazon REDD Project has prevented the release of 603,942 thousand tons of carbon into the atmosphere during the monitoring period.	Prevented the release of 2,279,588 thousand tons of carbon into the atmosphere.

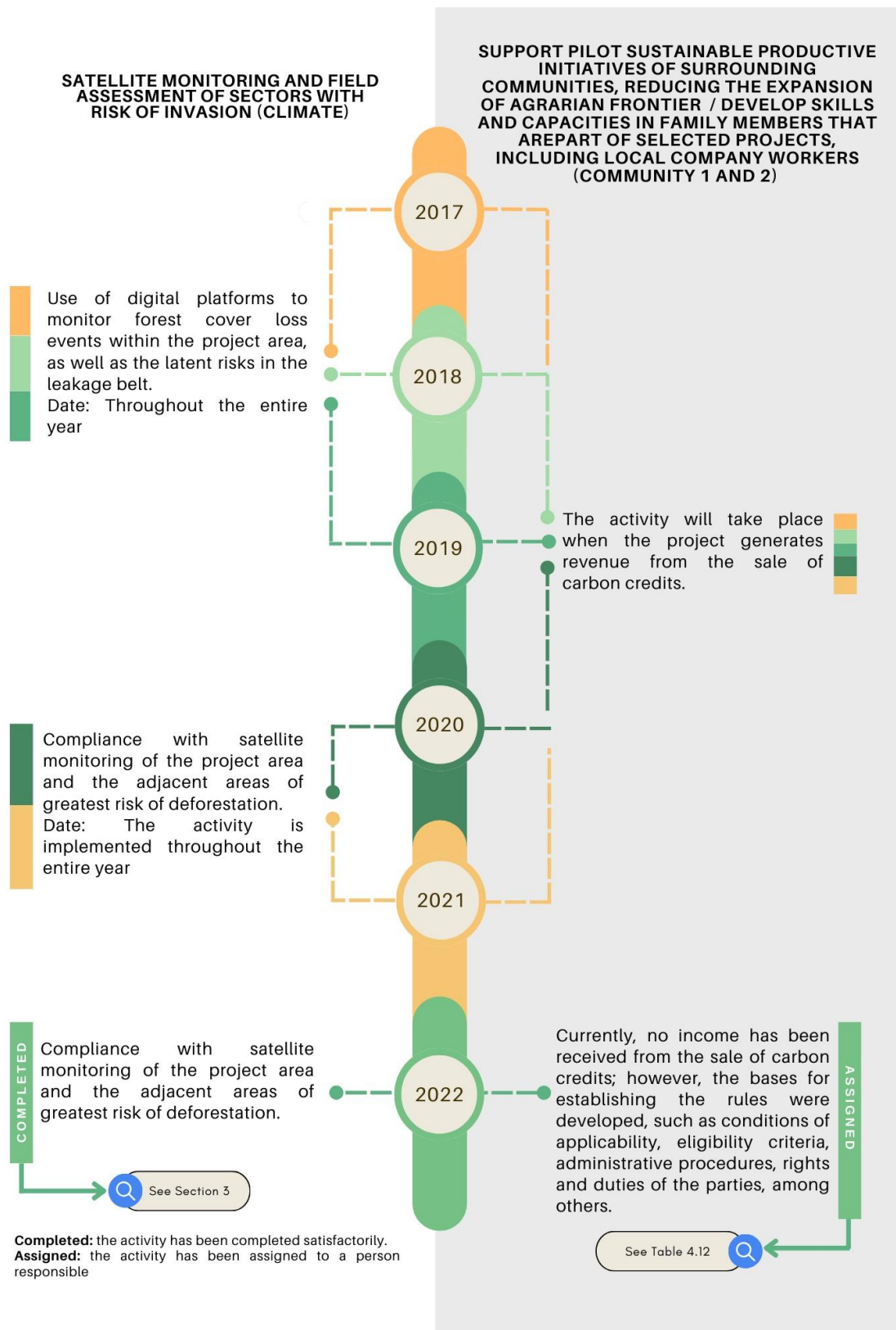
Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
12)	15.1	Forest area conserved in proportion to the total area	Implemented activities to increase	100% of the forest area has been conserved during the present vintage.	During the life of the project, 100% of the forest area has been conserved without suffering alterations due to invasions.
13)	15.2	Promoting progress towards sustainable forest management	Implemented activities to increase	The project area is part of the certified areas by the FSC in 2022, with the project proponent being a responsible forest manager.	Throughout the life of the project, the project proponent has annually submitted the FSC certification granted for the responsible management of forests and the contribution to their conservation.
14)	15.5	Protection of threatened species in danger of extinction	Implemented activities to increase	The project proponent conserves 04 species of wild flora and fauna categorized in the IUCN red list: - <i>Ateles chamek</i> (EN) - <i>Sylvilagus brasiliensis</i> (EN) - <i>Amburana cearensis</i> (EN) - <i>Swietenia macrophylla</i> (EN)	In the present vintage, the conservation of an additional individual is recorded, increasing from 03 to 04 species due to continuous monitoring of wild fauna.
15)	15.7	Adoption of measures to end poaching and trafficking of protected species of wild flora and fauna	Implemented activities to decrease	Poaching is prohibited within the project area, and custody and surveillance actions are carried out. 0 events of poaching and commercialization species have been recorded.	During the project development, 0 events of poaching and commercialization species have been recorded thanks to the robust custody and surveillance system in the project area and the prohibition of hunting activities.

2.2 Project Implementation Status

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

The project proponent details the most important milestones that mark the development of the project activities:





PROMOTE ACTIVITIES PARTNERS WHOSE GOALS ARE FOCUSED ON PROTECTING ANPs AND PIACI TERRITORY (COMMUNITY 3)

The activity is designed to be implemented after revenue is generated from the sale of carbon credits. However, efforts have been made in favor of Indigenous Peoples in Isolation and Initial Contact (PIACI) during the years 2017, 2018, and 2019 for their protection. The project proponent elaborated an anthropological contingency plan to address risk situations in case of evidence or encounters with indigenous populations in isolation or initial contact, and shared it with key stakeholders for their protection, as well as provided training to the personnel directly working on the project

Tripartite inter-institutional cooperation agreement between the Alto Purus National Park, MADERACRE SAC and Aid for Wildlife Society. Agreement signed but not developed due to Pandemic. This agreement includes the implementation of many key activities for the protection of PIACI.

Currently, no income has been received from the sale of carbon credits, however, the project proponent, the area responsible for the management of the Alto Purus National Park (PNAP) and the Frankfurt Zoological Society (SZF) maintain agreements for the implementation and development of activities aimed at the protection of the PIACI and PNAP.

ASSIGNED

See Table 4.7 and Table 4.14.

Assigned: the activity has been assigned to a person responsible.
In Progress: the activity is underway

PROMOTE ACTIVITIES WITH ENTITIES WHOSE GOALS ARE ADDRESSED TO CONTRIBUTE TO THE SUSTAINABLE DEVELOPMENT OF THE POPULATION (COMMUNITY 4)

Agreements signed in favor of:

- Education: Belgica Native Community (Sept)
- Health: Belgica Native Community (Sept), Inapari Health Center (January)

Agreements signed in favor of:

- Education: Belgica Native Community (Oct), CEBA - Belgica Native Community (July), CEBA located in Inapari (March)
- Health: Belgica Native Community (Oct), Inapari Health Center (June)

Agreements signed in favor of:

- Education: Belgica Native Community (Oct), CEBA - Belgica Native Community (March)
- Health: Belgica Native Community (Oct)

Agreements signed in favor of:

- Education: Belgica Native Community (Oct), CEBA - Belgica Native Community (November), CEBA located in Inapari (November)
- Health: Belgica Native Community (Oct)

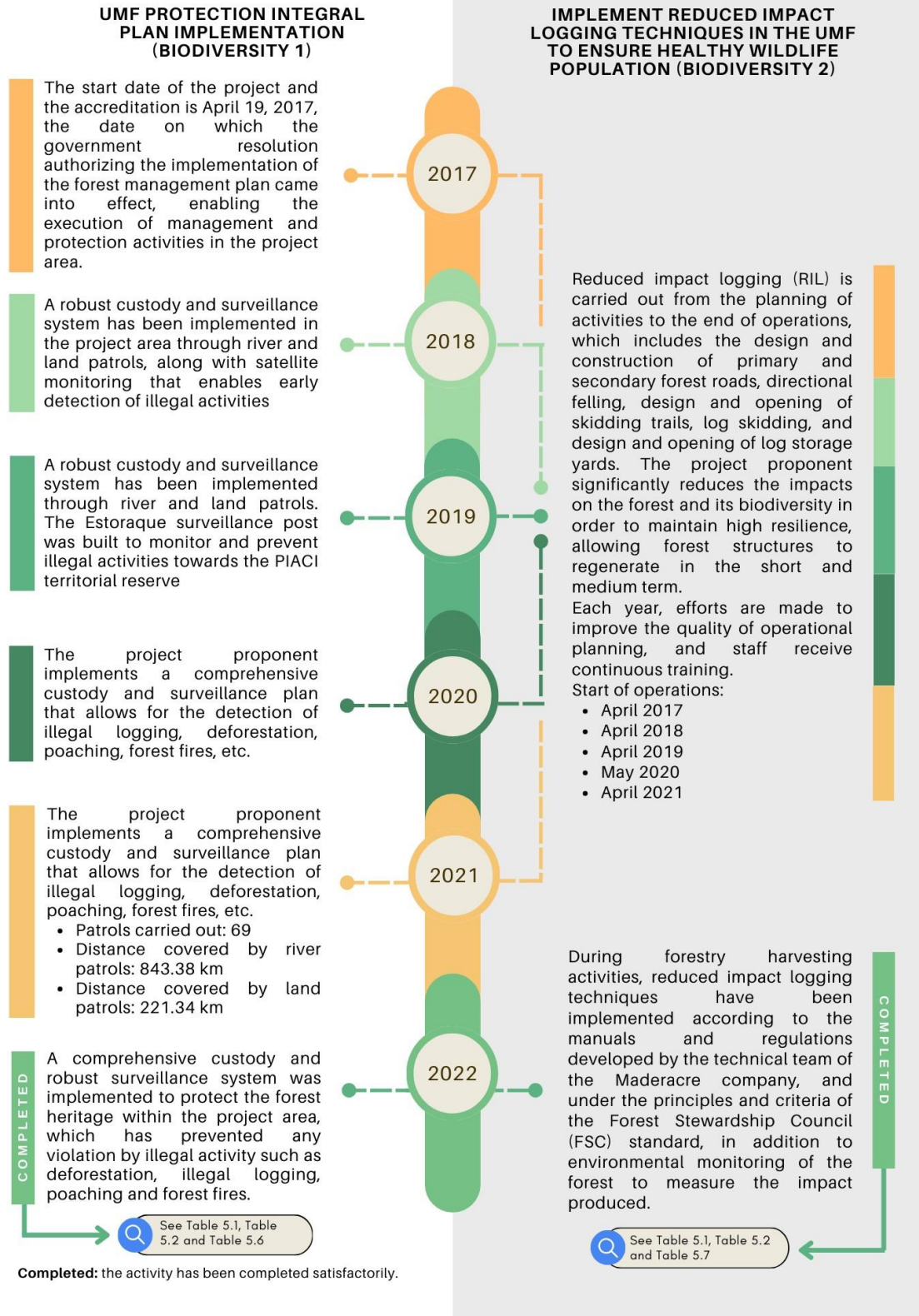
Agreements signed in favor of:

- Education: Belgica Native Community (Oct), CEBA - Belgica Native Community (May)
- Health: Belgica Native Community (Oct)

Currently, no income has been received from the sale of carbon credits, however, support has been provided in the axes described in the Community Development Plan. The health and education agreements in the province of Tahuamanu are maintained

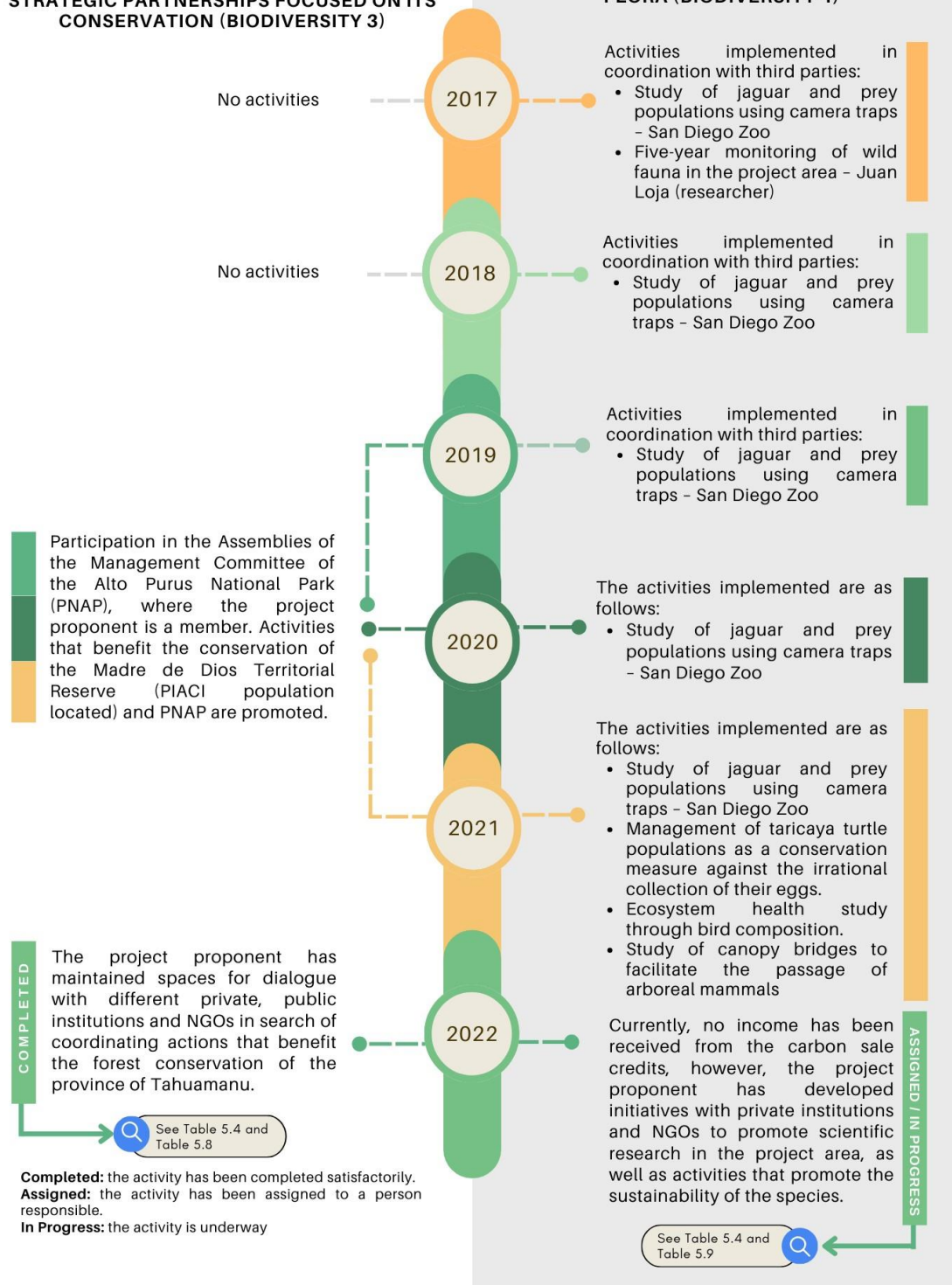
ASSIGNED / IN PROGRESS

See Table 4.3, Table 4.4, Table 4.5, Table 4.6



PARTICIPATE IN DIALOGUE SPACES AND MANAGEMENT OF PROTECTED AREAS, INCLUDING THE MADRE DE DIOS TERRITORIAL RESERVE, SEARCHING FOR STRATEGIC PARTNERSHIPS FOCUSED ON ITS CONSERVATION (BIODIVERSITY 3)

PROMOTE ACTIVITIES WITH PARTNERS WHOSE GOALS ARE FOCUSED ON PROTECTING EMBLEMATIC FAUNA AND FLORA (BIODIVERSITY 4)



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)

For this Monitoring Report, the deviation applied in the previous report (2020-2021) was followed. It 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 2016, it was decided to use three images close to the beginning of the crediting period (2012, 2014, and 2016), 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 is detailed in Appendix 7.

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 was not used.

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

The project does not consider minor changes to project design.

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 report (2020 – 2021) were followed.

Stakeholder engagement

FENAMAD is an indigenous organization that advocates for the enforcement and respect of the rights of indigenous peoples in the department of Madre de Dios, including PIACI. However, there is no formal presence or on-the-ground actions by this organization within the project's area of influence. FENAMAD was identified as a stakeholder during the project's validation due to the organization's objectives in favor of indigenous peoples. However, its lack of presence has led the project proponent to collaborate with other institutions that promote the protection of the Madre de Dios Territorial Reserve (RTMDD) and the indigenous peoples living within it. As a result, the project proponent is a member of the Alto Purus National Park Management Committee (CGdPNAP), whose area of influence includes the RTMDD, which in turn is part of the project's area of influence. The Committee coordinates inter-institutional actions for the surveillance, control, and protection of PIACI territory, the conservation and promotion of natural resources, participatory management, and environmental education. The actions implemented in favor of the protection of PIACI are described in Table 4.5 of this document. Finally, the project proponent has decided to continue its actions for the protection of PIACI territory in collaboration with the Alto Purus National Park administration, together with the active members of the CGdPNAP, which they lead, and temporarily remove FENAMAD from the list of stakeholders until concrete actions can be taken with the organization.

Other Entities Involved in the Project

Other entities have been involved in the project by providing technical support to the project proponent for the development of the 2022 Monitoring Report (MR). The company "Paskay" was responsible for developing the Climate component, which helped to highlight the carbon credits generated by emission reduction efforts. The PD deviation was identified in monitoring period 2020-2021.

Change in the Project area extension

The initial project area had a total extension of 171,584.07 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, the deforestation and non-forest existing until the end of 2016 were removed, resulting in a corrected project area of 169,956.81 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 Appendix 8. The results are shown in the following table.

Table 2.2. Changes in deforestation rate in the reference region

Year	Original Deforestation rate in the reference region (ha/year)	Deforestation rate in the reference region (including project area and leakage belt) (ha/year)	Type of data
2007	918.95	927.63	Historical data
2008	2,447.12	2,461.95	
2009	913.22	918.63	
2010	1,557.00	1,602.36	
2011	1,748.08	1,765.71	
2012	1,084.61	1,157.76	
2013	1,854.78	1,984.86	
2014	2,558.32	2,753.01	
2015	2,991.64	3,032.64	
2016	3,545.06	3,802.23	
2017	3,486.94	3,883.64	Beta regression model results
2018	3,929.28	4,416.28	
2019	4,408.48	5,003.30	
2020	4,925.62	5,648.68	
2021	5,480.50	6,355.38	
2022	6,071.66	7,125.28	
2023	6,696.27	7,959.03	
2024	7,350.02	8,855.79	
2025	8,027.05	9,813.07	
2026	8,719.98	10,826.52	

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 2.3. 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)
2017	2,069.37	129.51	1,224.27	565.20
2018	2,331.90	491.22	1,379.61	857.52
2019	2,616.21	621.27	1,547.82	1,076.13
2020	2,923.11	909.45	1,729.44	1,198.71
2021	3,252.42	983.61	1,924.20	1,494.72
2022	3,603.24	1,129.95	2,131.83	1,670.13
2023	3,973.86	1,238.67	2,351.07	1,927.71
2021	4,361.85	1,470.96	2,580.66	2,072.07
2025	4,763.61	1,644.12	2,818.35	2,349.72
2026	5,174.73	1,907.64	3,061.53	2,482.83

Change in the baseline emissions

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

Table 2.4. 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
2017	64,516.5	-6,234.8	4,704.8	62,986.4
2018	226,483.8	-3,533.8	36,066.4	259,016.4
2019	308,438.6	-5,971.5	23,621.5	326,088.6
2020	474,115.5	-2,239.1	11,972.8	483,849.2

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
2021	492,255.3	-6,571.8	33,470.5	519,153.9
2022	559,882.6	-4,910.2	44,059.8	599,032.2
2023	613,752.6	-4,910.2	48,299.1	657,141.5
2024	728,850.7	-4,910.2	57,356.8	-81,297.3
2025	814,650.3	-4,910.2	64,108.7	873,848.9
2026	945,222.7	-4,910.2	74,384.1	1,014,696.6
Total	5,228,168.7	49,102.1	398,044.4	5,577,111.0

Table 2.5. Updated Net Emission Reductions (NERs)

Year	Net Emission Reductions (NERs)
2017	94,405
2018	188,029
2019	227,714
2020	349,046
2021	378,975
2022	435,295
2023	474,753
2024	559,059
2025	621,904
2026	660,828
Total	510,148

Tables 10, 11.b and 11.c of Methodology VM0015 v.1.1 section 5.1 were included, in order to summarize the changes and comply with the requirements.

Table 2.6. 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)
2017	129.51	129.51	129.51
2018	491.22	491.22	620.73
2019	621.27	621.27	1,242.00
2020	909.45	909.45	2,151.45
2021	983.61	983.61	3,135.06
2022	1,129.95	1,129.95	4,265.01
2023	1,238.67	1,238.67	5,503.68

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)
2024	1,470.96	1,470.96	6,974.64
2025	1,644.12	1,644.12	8,618.76
2026	1,907.64	1,907.64	10,526.40
Total	10,526.40	10,526.40	

Table 2.7. 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)
2017	565.2	565.2	565.2
2018	857.52	857.52	1,422.72
2019	1,076.13	1,076.13	2,498.85
2020	1,198.71	1,198.71	3,697.56
2021	1,494.72	1,494.72	5,192.28
2022	1,670.13	1,670.13	6,862.41
2023	1,927.71	1,927.71	8,790.12
2024	2,072.07	2,072.07	10,862.19
2025	2,349.72	2,349.72	13,211.91
2026	2,482.83	2,482.83	15,694.74
Total	15,694.74	15,694.74	

Table 2.8. 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_05_16	Map of Land Change /Land Use, GEOBOSQUES from 2005 to 2016	m	Distance to croplands	30 – 10,000	Least Cost distance	N/A	N/A	Euclidean distance
2	DIST_CROPS_05_16_LOG		Log(m)	Logarithmic transformation of distance to croplands	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
3	DIST_GRASS_05_16		m	Distance to grasslands	30 – 8,000	Least Cost distance	N/A	N/A	Euclidean distance
4	DIST_GRASS_05_16_LOG		Log(m)	Logarithmic transformation of distance to grasslands	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
5	DIST_RIVERS		m	Distance to water bodies	0 – 30,000	Least Cost distance	N/A	N/A	Euclidean distance
6	DIST_RIVERS_LOG		Log(m)	Logarithmic transformation of distance to water bodies	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
7	DIST_ROADS_MAIN	Peruvian Ministry of Transport and Communications	m	Distance to main roads (Interoceanic Highway)	30 – 106,057	Least Cost distance	N/A	N/A	Euclidean distance
8	DIST_ROADS_MAIN_LOG		Log(m)	Logarithmic transformation of distance to main roads	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
9	DIST_ROADS_SEC		m	Distance to secondary (departmental) roads	0 – 25,000	Least Cost distance	N/A	N/A	Euclidean distance
10	DIST_ROADS_SEC_LOG		Log(m)	Logarithmic transformation of distance to secondary roads	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	
11	DIST_SET_05_16	Map of Land Change /Land Use, GEOBOSQUES from 2005 to 2016	m	Distance to settlements	30 – 20,000	Least Cost distance	N/A	N/A	Euclidean distance
12	DIST_SET_05_16_LOG		Log(m)	Logarithmic transformation of distance to settlements	0 – 12	Least Cost distance	N/A	N/A	Log(Euclidean distance)
13	DEM_3	SRTM 90m Digital Elevation Database.	m	Altitude	0 – 500	Punctual elevation data per pixel	N/A	N/A	N/A

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

This is not a grouped project.

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

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
Fires cannot be controlled, and enter in the project area	Forest fires generate GHG emissions negatively affecting the climate benefits of the project	Forest fires are still frequent as a method to clear areas for future agricultural purposes. The project proponent prohibits burning practices within the project area and implements a satellite monitoring system that includes the use of digital platforms that display alerts for forest fires and heat sources from the last 24 hours, allowing for immediate action if these arise on the periphery of the project area. Forest fires: considered a fire that spreads freely with undesirable effects on the vegetation and without being subject to human control. In the humid tropical forests of Peru, the causes of forest fires are mostly due to anthropogenic action. Heat island: considered any point on the land's surface that emits enough temperature for the pixel of a satellite image to report it as having a high temperature compared to neighboring pixels. There is a probability that hot spots can change their status and become forest fires. In Figure 2.1, a total of 155 forest fires and 760 heat sources have been recorded for the year 2022 in the region of project activities, mostly developed in the most critical deforestation areas. The high number of heat sources located in agricultural and livestock areas represent the potential existence of forest fire, these can be represented by more than one heat source; That is, continuous outbreaks in space and time are considered as part of the same fire event.

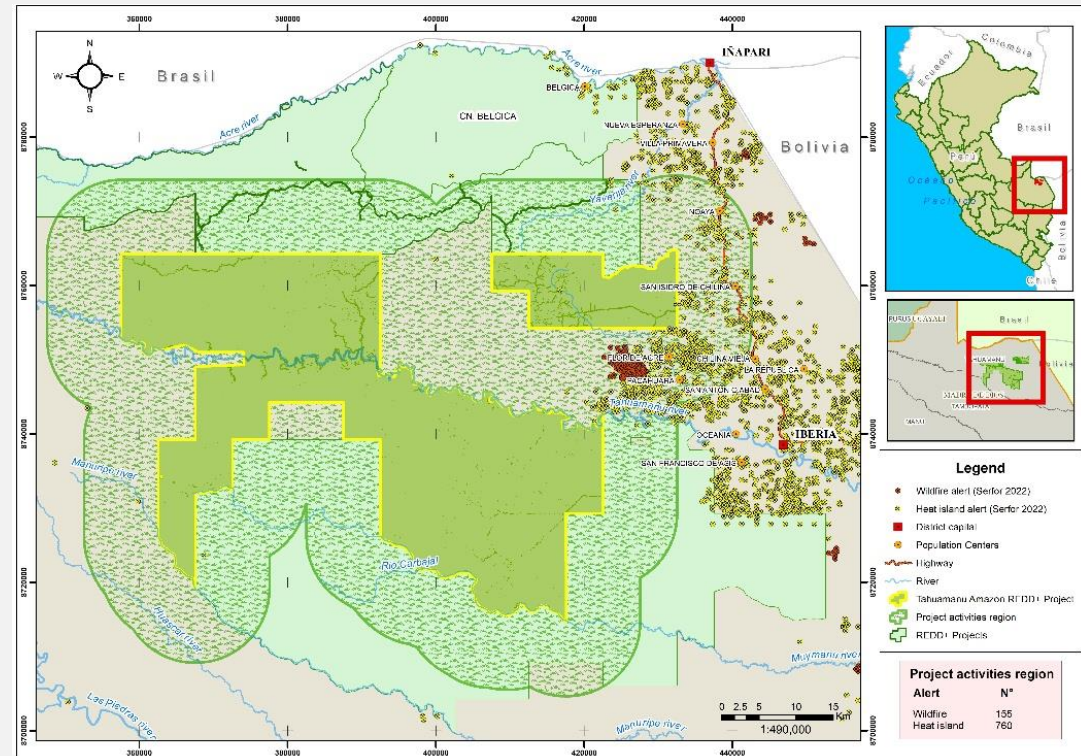


Figure 2.1. Heat islands and forest fires in the districts of Iberia and Iñapari.

In Figure 2.2, a total of 49 forest fires and 326 heat sources were recorded located in the leakage belt, mostly concentrated in this area considered high risk. The direct intervention of man through the burning of biomass has led to an alteration of natural spaces translated into the expansion of the agricultural frontier in the province of Tahuamanu. These anthropic events create a series of disturbances that include: loss of biomass and carbon reserves, displacement of wildlife, decrease in ecosystem services, among others.

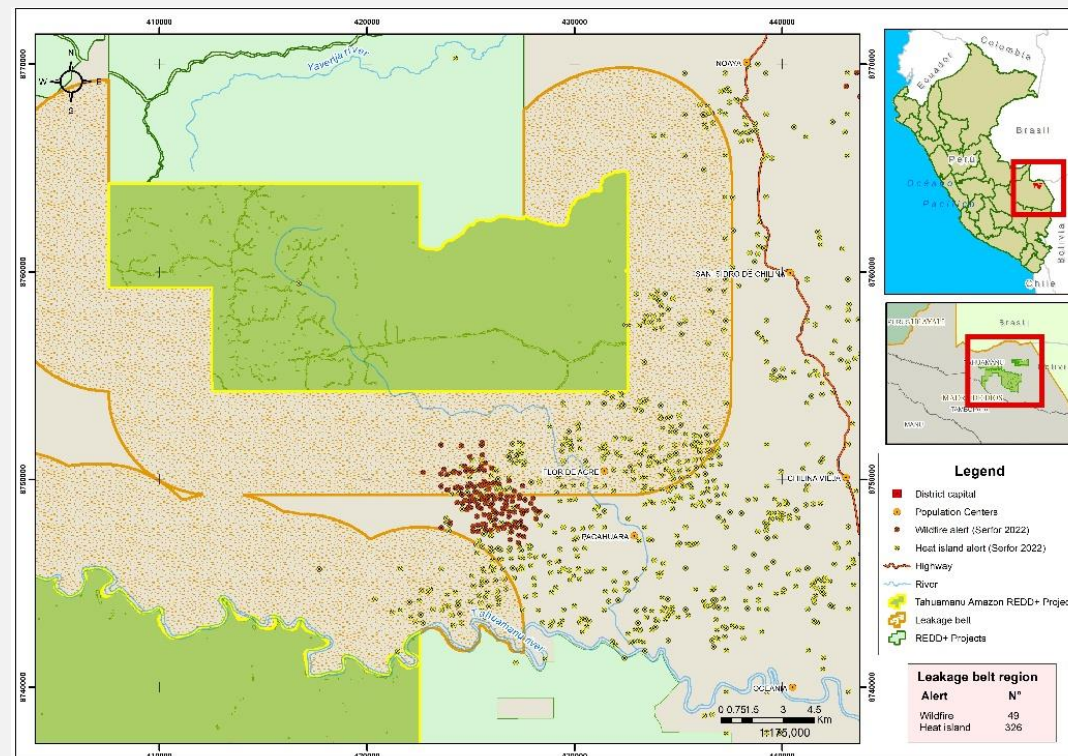


Figure 2.2. Lands with the highest number of heat sources and forest fires

To train MADERACRE SAC Company staff, involving them in the preparation for the prevention of forest fires due to the vulnerability that the region presents to eventual events of this type, affecting all the surrounding areas, so, they were given talks on firefighting techniques¹⁴.

Invasion of the project area by	Forest areas may be substituted by agrarian	The project proponent implements a comprehensive robust custody and surveillance system for the protection of the project area, which consists of land and river patrols in the areas with
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¹⁴ Informe 006 MF 2022 - Manejo de fuego - Prevención de Incendios Forestales

residents of towns and adjacent communities

areas, reducing the climate and biodiversity benefits of the project

the highest risk of illegal activities and main navigable rivers, respectively, as shown in Figure 2.3.

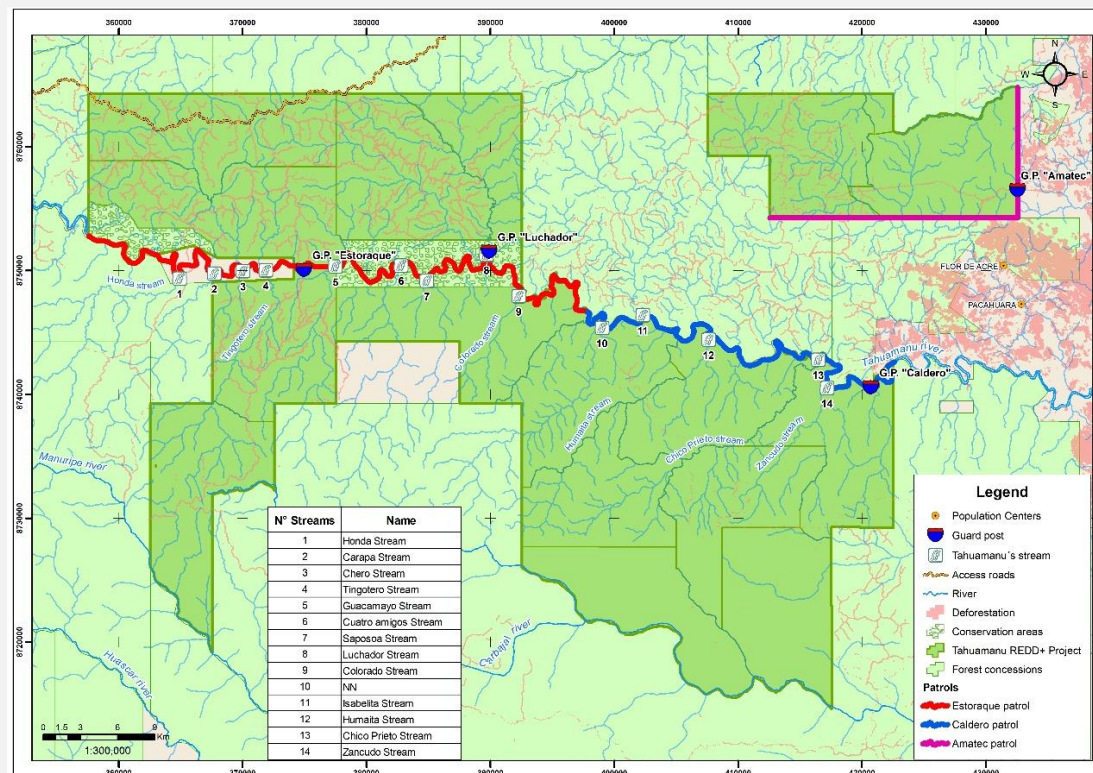


Figure 2.3. Main areas of river and land patrol carried out by forest custodians.

Likewise, the boundary of the project area is carried out in areas surrounding the communities, where patrols are organized to avoid the interference of agents that cause the alteration of the forest heritage. See Table 5.1

Increased land use change areas in project activities region	Forest areas may be substituted by agrarian areas, reducing the climate and biodiversity benefits of the project	The Project identifies risk areas where activities linked to the deforestation of natural forests that are in the project activities region are being carried out, therefore, activities were implemented in relation to those determined for the project, these are the following: - Implementation of environmental education talks to raise awareness of forest importance for the environment and the goods and services they provide to communities. See Table 5.3 - The need to implement PPAMAs in the communities surrounding the project to reduce the pressure exerted on the forests is relevant to the project, however, these depend on the income generated by the sale of the carbon credits that have not yet arisen. It is worth mentioning that the bases have been prepared for the application of projects for the following year.
Productive activities are not enough attractive to change the pattern of land use of agrarian neighbors 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	Forest areas may be substituted by agrarian areas, reducing the climate benefits of the project	The risk is still threatening the project zone and has deepened with newcomers and increasing corn demand from local chicken farms or other sources of demand for agricultural and livestock products. Project still does not access to carbon incomes to implement mitigation activities. Meanwhile, the project is focused on ensure forest consolidated integrity and work with surrounding communities through the Consultative Committee. In addition, during 2022, public meetings were held that involved sharing information about the importance of sustainable forest management in order to continue raising awareness about forest resources.
Internal conflicts within local settlements	Project activities may be difficult to implement with this type of conflicts	During this period, no internal conflicts have been reported within local settlements. The project proponent has protocols and procedures to adequately address possible social conflicts.

		Note: 'Local settlements' refer to the geographic area where a population is established, which is usually organized around natural resources, cultural traditions, or local economic activities. The description of the local settlements of the project is found in section 4.1.1 of the PD. It is important to note that these groups are located in the areas surrounding the project, but not within it.
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2.2.8 Benefit Permanence (CCB, G1.11)

During the current monitoring period (pre-carbon incomes), the main activities developed by project proponent are associated with custody and surveillance, environmental awareness, health and education support, disseminate activities for surrounding communities, being remarkable the signature of a partnership to implement joint activities for the development of the project zone.

Climate

During the period and throughout the life of the project, education and training activities are carried out in the communities, so that the climate benefits will extend beyond the life of the project. Raising awareness among future generations will prolong the forest management, which translates into carbon sequestration and fewer emissions into the atmosphere.

Community

During the current monitoring period, which corresponds to a period prior to the income from carbon sales, the main activities for social component developed by the project proponent are associated with education, health, communication and information for the surrounding communities and stakeholders, being these the benefits that remain in the social factor of the project. These measures are:

- Social Responsibility Plan¹⁵ where informative workshops and meetings with the consultative committee are developed with the communities.
- Community Development Program¹⁶ with health and education support programs, mainly, developed in Iñapari and Iberia district, as well as others line of action included.
- Training in sustainable forest management, certifications and environmental issues for workers directly related to the project. See Section 2.3.15
- Actions that collaborate with the protection and good practices in relation to PIACI populations to safeguard their physical integrity and not be disturbed by activities related to the intrusion of their territory. See Table 4.7
- Specific studies to measure degradation potential (DPDD)¹⁷ to know the current status of the surrounding populations in the use of forest lands found in the region of project activities.

¹⁵ Plan de Responsabilidad Social de Maderacre

¹⁶ Plan de desarrollo comunitario

¹⁷ Diagnóstico sobre el potencial de deforestación y degradación forestal en la región de actividades del Tahuamanu Amazon REDD+ Project

Biodiversity

During the period and life of the project, education and training actions for communities will help raise awareness about ecosystem importance of flora and fauna and, benefits of biodiversity conservation. Learning from generation to generation will go beyond the life of the project. Awareness of endangered animals and management of forest species will extend the care and protection of the forest over time. In addition, all biodiversity maintenance actions (forest management, HCV maintenance, etc.) seek permanent benefits for this and future generations.

2.3 Stakeholder Engagement & Safeguards

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

The project does not identify any change or variation of stakeholders, community groups or communities during this vintage.

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

Access to the project documents is through the Spanish language, the official language of the country. Regarding the Belgica Native Community, the entirety of its population speaks Spanish in their daily lives and no longer speaks their native language¹⁸.

In 2022, information about the project was accessible to communities and stakeholders. The previous documents, such as Monitoring Reports vintage 2017-2019 and 2020-2021 and, Project Description (1st validation) are available on the company's website¹⁹, freely accessible to all. The procedures, actions, benefits and results has been shared with stakeholders through three ways:

- I. The Project proponent socializes social responsibility protocols through physical letters and electronic mail²⁰, which includes:
 - Flowchart for the attention and constructive transformation of possible complaints, claims or social conflicts with populations and/or third parties.
 - Protocol for attention to possible losses or damages to the community and/or third parties.
 - Procedure for addressing complaints, queries or external requests.
 - Procedure for information on non-routine operations of the company.

¹⁸ Website: <https://bdpi.cultura.gob.pe/index.php/localidades/belgica>

¹⁹ Website: <https://maderacre.com/sostenibilidad/>

²⁰ Informe 011_2022. Difusión de Protocolos responsabilidad social

- II. Public summaries²¹ of the activities implemented by the company are disseminated in order to report the results of the environmental impacts evaluation of operations and social actions with localities:
 - Public summary of social monitoring²²
 - Public summary of environmental and forestry monitoring²³
 - Custody and surveillance plan for the project area²⁴
- III. The company's website contains management documents related to the project, such as:
 - Environmental management documents
 - Commercial management documents
 - Forest management documents
 - Certification
 - Labor management documents
 - Social management documents
- IV. Interested parties may request all information related to the development of the project, with the exception of sensitive information, which is available in digital format in the company's database. Interested parties must follow the procedures indicated in the Procedure for handling complaints, queries or external requests implemented by the company.

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

Dissemination of summary project documents is through the Spanish language, the official language of the country. Regarding the Belgica Native Community, the entirety of its population speaks Spanish in their daily lives and no longer speaks their native language.

According to section 2.3.2, the dissemination of project documents was done in the following way:

- I. Dissemination of social responsibility protocols

²¹ Informe 019_2023. Difusión de Resumen social, ambiental y forestal

²² Resumen Público Monitoreo Social 2022

²³ Resumen Público Monitoreo Ambiental - Forestal 2022

²⁴ Informe 012_2022. Socialización del Plan de Custodia y Vigilancia 2022

- **To:** public and private institutions, holders of concessions adjacent to the project, native and rural communities.
- **Physical letters delivered:** 23 representatives
- **Email sent:** 09 neighboring forestry companies + 1 special shipment

II. Dissemination of public summaries

- **To:** public and private institutions, holders of concessions adjacent to the project, native and rural communities.
- **Physical letters delivered:** 34 representatives

The dissemination letters refer to the mechanisms that stakeholders must follow to access the project documents and summaries.

Citizen Participation Workshop is a space for open and wide-ranging dialogue with the purpose of involving the greatest number of actors present in the communities within project influence area. It is developed in transparency and information policy framework. They are executed at the beginning and end of each year.

In 2022, Citizen Participation Workshop held the meeting at the beginning²⁵ and end²⁶ of the year, sharing project information in each of them²⁷ ²⁸. The actions developed were the following:

- The objectives and activities of the Tahuamanu Amazon REDD Project were reported, the main axes to be addressed, the benefits and scope of the project, as well as its costs and risks were explained. Information was provided on the Public Tender for Environmentally Friendly Productive Projects to be held in the following period.
- The implementation of the activities for the 2022 period (production, intervention areas, RIL techniques, maintenance of FSC certification, etc.) was reported.
- Dissemination of social responsibility management instruments.

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

Information meetings is through the Spanish language, the official language of the country. Regarding the Belgica Native Community, the entirety of its population speaks Spanish in their daily lives and no longer speaks their native language.

²⁵ Informe 013_2022. TPC inicio de operaciones

²⁶ Informe 080_2022. TPC fin de operaciones

²⁷ TPC_CCRC_2022. Presentación de diapositivas inicio de operaciones

²⁸ TPC_CCRC_2022. Presentación de diapositivas fin de operaciones

In 2022, two informational meetings were held, at the beginning and end of the year, to share the results of the previous year and the planning of activities for the present and the results of the execution of the various activities that the company has carried out during the year, respectively. After that, a space for dialogue is established by MADERACRE in order to institutionalize the support that the company can provide to the communities' development.

I. Citizen Participation Workshop (TPC)

The call meeting for Citizen Participation Workshop is made through the delivery of invitation letters to communities' representatives in area of influence, signing a multiple letter as proof of invitation delivery, as well as support with radio broadcasting. Attendance and participation are completely open to workshop. In this space, people make queries or requests that are filled out in consultation sheets or "fichas de consulta"²⁹ distributed during the meeting and attended to during the course of the workshop.

Description: First Meeting

Date: 29 April 2022

The characteristics of the project, the objectives it pursues and the importance of its implementation were made known. The activities of the project were described, detailing the actions to be implemented to achieve the objectives, highlighting the contribution of the project to the environmental component and the development of the surrounding communities, as well as the contribution to the conservation of protected natural areas and PIACI territories and populations.

Information was provided on the distribution of costs within the framework of the project implementation process, in turn, the risks to which the project is subject due to both natural and external factors, and the consequences in a scenario without a project, were emphasized. Information was provided on the evaluations carried out in the communities that are part of the project activities region, highlighting the evolution of the different productive activities and the impact on forests, thereby encouraging the implementation of good practices that contribute to the conservation of forests and the development of communities, with the forest being an engine of local development due to the goods and services it provides.

The main activities to be implemented for the benefit of the communities after the verification and validation process of the project that arose at that time were highlighted, inviting them to participate in future activities and programming within the framework of the project.

A total of 13 participants were registered, which are detailed in the following table:

²⁹ Formato de la ficha de consulta

Table 2.9. List of TPC participants at the start of operations

Representatives	Institution or community
Lizandro León Mescoco	National Police
Alexander Flores Ushunahera	Iñapari Agrarian Office
José Gastelo Benavidez	La Colonia Neighborhood
Gladys Taype Villegas	OSPA Tahuamanu
Jasmín Palomino	Maderera Canales Tahuamanu
Ricardo Huasicayna Ramos	San Isidro de Chilina
Luis Cueva Maldonado	Virgen del Rosario del Acre Association
Abel Alonso Begazo	I.E. N° 53003 Elena Bertha
Misael Tenazoa Barrera	Nuevo Iñapari Association
Gonzalo Chaparro Mejia	Belgica Native Community
Maritza Vásquez Zapana	I.E.B.R. Secundaria Iñapari
Abraham Cardozo Mouzully	Provincial Municipality of Tahuamanu
Samuel Niño de Guzmán	C.E.R. Noaya

Description: Second Meeting

Date: 16 December 2022

The characteristics of the project, the objectives it pursues and the importance of its implementation were announced. The activities of the project were described, detailing the actions to be implemented to achieve the objectives, highlighting the contribution of the project to the environmental component and the development of the surrounding communities, as well as the contribution to the conservation of protected natural areas and PIACI territories and populations.

Information was provided on the distribution of costs within the framework of the project implementation process, in turn, the risks to which the project is subject due to both natural and external factors and the consequences in a scenario without a project were emphasized. Information was provided on the evaluations carried out in the communities that are part of the region of project activities, highlighting the evolution of the different productive activities and the impact on forests, thereby encouraging the implementation of good practices that contribute to the conservation of forests and the development of communities, with the forest being an engine of local development due to the goods and services it provides.

The invitation was made to participate in the public tender for Environmentally Friendly Productive Projects (PPAMA) to be held in 2023, giving scope to the call process and the form of delivery of the bases for the next period, informing possible call dates and the typology of the projects required to be developed in the communities, as well as the motivation for them to be disseminated to the members of the locality whom they are representing.

A total of 12 participants were registered, which are detailed in the following table:

Table 2.10. List of TPC participants at the end of operations

Representatives	Institution or community
Sonia Jara García	Civil Society
Samuel Roca Rodríguez	Nueva Esperanza
Willy Iuchar Neyra	PNAP Sernanp
Yisela Suaña	PNAP Sernanp
José Apaza Cahuapata	Iñapari Agrarian Office
Samuel Niño de Guzman	IEBR Noaya
Abraham Cardozo Mouzully	Provincial Municipality of Tahuamanu
Daniel Ramírez Balarezo	Belgica Native Community
Oriel Condori Palomino	Rosario del Acre Association
Misael Tenazoa Rivera	Nuevo Iñapari Association
Maritza Velásquez Zapana	IEBR Iñapari
José Gabriel Gástelo Benavidez	La colonia Neighborhood

II. Community Relations Advisory Committee

Community Relations Advisory Committee is an entity defined by Maderacre to guide support that the company can provide to the community development, it constitutes a dialogue space where the participation of different communities within the projects' influence area. It is a space where proposals for action and investment on specific topics linked to improving population quality of life located surroundings projects are proposed and discussed.

Participation in Community Relations Committee is open to all population of project influence area, without any type of restriction, being the most transparent, inclusive and democratic in participation. Generally, in Community Relations Committee there are representatives of public institutions, representatives of civil associations and representatives of neighborhoods or communities.

The call meeting for Community Relations Advisory Committee is made through delivery of invitation letters to each member and interested party who seeks to propose actions and get involved for the benefit of town development, signing a multiple letter as proof of invitation delivery. Attendance and participation are completely open to the committee. In this place, people make consultations, propose action lines and articulate efforts with other institutions and members of civil society. At the beginning of the year³⁰, Community Relations Committee meets to establish action priority lines for local benefits. Then, "Meeting Minutes" are signed in accordance with all points developed in the meeting and agreement with those reached. At the end of the year³¹, a second meeting is held with all committee members and the actions developed around objectives set at the beginning of the year are presented.

Description: First Meeting

Date: 29 April 2022

The action plan for 2022 was discussed with the continuous commitment to contribute and prioritize actions on health and education issues.

The representatives of Nuevo Ñapari Association and San Isidro de Chilina voluntarily became part of the Advisory Committee on Community Relations, a space where the current members have been able to express their opinion on the matter, explaining the importance of integration with the unanimous approval of the current members and, with this, the new Committee is formally established in a meeting minutes.

³⁰ Informe 014_2022. CCRC inicio de operaciones

³¹ Informe 081_2022. CCRC fin de operaciones

Consultation sheets “Fichas de consulta” were provided for the members of the committee to detail opinions, contributions or suggestions for the development of activities for the 2022 period; these were received and, subsequently, responded to by letters considering the contributions according to the nature of the project.

A total of 07 participants were registered, which are detailed in the following table:

Table 2.11. List of CCRC participants at the start of operations

Representatives	Institution or community
Abraham Cardozo Mouzully	Provincial Municipality of Tahuamanu
Misael Tenazoa Rivera	Nuevo Iñapari Association
Maritza Velásquez Zapana	IEBR Iñapari
José Gabriel Gástelo Benavidez	La colonia Neighborhood
Abel Alonso Begazo	I.E. 53003 Elena Bertha
Gonzalo Chaparro Mejía	Belgica Native Community
Ricardo Huasicayna Ramos	San Isidro de Chilina

Description: Second Meeting

Date: 16 December 2022

The action plan for 2022 was discussed with the continuous commitment to contribute and prioritize actions on health and education issues. Additionally, the promotion of capacity building for business entrepreneurship, formalization of micro and small enterprises and motivational workshops for young people, as well as psychology for people in the area of influence of the project was requested and justified.

Consultation sheets (Fichas de consulta) were provided for the members of the committee to detail opinions, contributions or suggestions for the development of activities for 2023 period; these were received and, subsequently, responded to by letters considering the contributions according to the nature of the project.

A total of 05 participants were registered, which are detailed in the following table:

Table 2.12. List of CCRC participants at the end of operations

Representatives	Institution or community
Abraham Cardozo Mouzully	Provincial Municipality of Tahuamanu
Misael Tenazoa Rivera	Nuevo Iñapari Association
Maritza Velásquez Zapana	IEBR Iñapari
José Gabriel Gástelo Benavidez	La colonia Neighborhood
Daniel Ramírez Balarezo	Belgica Native Community

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

Respect to the anthropic risks derived from the project's activities, it can be mentioned that the project generates minimal negative impacts, which are controlled through socio-environmental management measures involving stakeholders during the process. Likewise, the anthropic impacts generated by the project are mostly positive and beneficial to the community.

Table 2.13. Identified risks

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Natural and human induced risks to stakeholders' wellbeing	Encroachment for and agriculture development	Conversion of forests into agricultural or industrial land, leading to deforestation, habitat loss, and reduced carbon sequestration, also, disruption of traditional livelihoods.	The project proponent is committed to the development of local communities, in this way, environmentally friendly productive projects will be implemented to improvement in agricultural productivity, even contemplating tourist activities, which will generate benefits for stakeholders in the short and medium term, and indirectly for local communities, reducing human induced risks by finding greater opportunities for improvement (See Table 4.1. Crop productivity: No impacts were recorded for the period Table 4.1)
Risks to stakeholder participation	Lack of financial incentives	Insufficient financial incentives can lead to low motivation and participation from stakeholders.	5% of the revenue generated from selling carbon credits have been set for direct investment in biodiversity and community components of the project, which allows us to know the concrete actions under development. In addition, investments are directed to community groups, and not to individuals, as demonstrated by the guidelines for the development of PPAMA projects (See Table 4.1) and investments in education and health areas (See Table 4.3 and Table 4.4).

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Working conditions	Lack of local expertise and knowledge	Limited local expertise can affect the effectiveness of REDD+ activities and hinder successful project outcomes.	The project's development staff has extensive experience in FSC-certified sustainable forest management, implementation of robust custody and surveillance mechanisms, wildlife assessments, community work with multiple social actors with different needs, interests and objectives, and other REDD+ projects developed by the proponent (See sections 2.4.1 and 2.4.2). The project implements annual training for all workers who work directly for the project (See section 2.3.15), in addition, it is planned for each winning PPAMA projects.
Safety of women and girls	Limited access to participation and representation in project activities	Women and girls may be underrepresented in decision-making processes, affecting their ability to influence project outcomes and ensure their safety.	The project ensures women's participation in decision-making in dialogue spaces, such as the Community Relations Advisory Committee, where women are active members (See section 2.3.4); girls are part of environmental awareness talks in primary and secondary schools, where spaces have been created to publicize good forest management practices, forest biodiversity and the fight against climate change (See Table 5.3); in addition, education and health support provided by the project proponent, (See Table 4.4).
Safety of minority and marginalized groups, including children	Inequitable benefit distribution without considering indigenous people, women, elderly, disabled and children	Inequitable distribution of benefits can lead to social tensions and conflicts within communities	The project generates benefits for the most vulnerable populations within its activities. During the citizen participation workshops, information is collected on the needs of the local population, and together with the members of the community relations advisory committee, decisions are made to direct actions that can improve the

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
			community well-being and livelihood, especially vulnerable populations (See Table 4.5). Gender equity, anti-discrimination and labor equality policies have been implemented throughout the project life in the development of the project's activities (See sections 2.3.13 and 0)
Pollutants (air, noise, discharges to water, generation of waste, and release of hazardous materials and chemical pesticides and fertilizers)	a. Air and noise pollution produce from machinery and vehicles. b. Generation of waste from REDD+ activities implemented.	a. Emissions from machinery and vehicles used can contribute to air pollution can harm local flora and fauna, and noise pollution can disrupt local wildlife, affecting their natural behaviors and habitats. b. Improper waste disposal can lead to soil and water contamination, and negatively impact the local environment.	a. The project proponent is responsible for reviewing and monitoring the maintenance of minor and heavy-duty vehicles to meet standards for low emissions and permissible noise levels in order not to affect the surrounding ecosystem (See Table 5.1-MOF). b. The project maintains a solid waste system that allows classified waste to be disposed of properly (See section 2.3.15).
Discrimination	Disability discrimination during the execution of project activities	People with disabilities may face physical and informational barriers to participating in REDD+ activities.	The project proponent prohibits any act of discrimination and any form of mistreatment, verbal or physical violence. Gender equity, anti-discrimination and labor equality policy have been implemented throughout the project life in the development of the project's activities (See sections 2.3.13 and 0)

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Sexual harassment	Personal and psychological impact in project workers	Victims of sexual harassment may experience psychological trauma, including anxiety, depression, and post-traumatic stress disorder	The project proponent promotes an environment free of sexual harassment in which there is respectful treatment among all workers. The means are generated for those affected to present their complaints and these are attended to in accordance with the law. Ethics, Anti-Corruption, Anti-Terrorism and Anti-Money Laundering Policy have been implemented throughout the project life in the development of the project's activities (See sections 2.3.13 and 0)
Equal pay for equal work	No risk identified	-	The project proponent is committed to attracting, retaining and motivating workers, so the compensation and benefits system makes no difference to people who perform functions of similar responsibility. In addition, employment contracts are in accordance with national legislation that ensures a fair and standardized salary for workers. Employment Equality and Anti-Discrimination Policy have been implemented throughout the project life in the development of the project's activities (See 2.3.13 and 0).
Gender equity in labor and work	Unequal access to employment opportunities	Women may have limited access to employment opportunities within REDD+ project due to traditional gender roles, or lack of qualifications.	The project proponent is committed to attracting, retaining and motivating workers, so the compensation and benefits system makes no difference to people who perform functions of similar responsibility.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
			Employment Equality and Anti-Discrimination Policy have been implemented throughout the project life in the development of the project's activities (See 2.3.13 and 0).
Forced labor³²	Forced labor infringes on basic human rights	Individuals subjected to forced labor experience severe exploitation, abuse, and lack of freedom	The project proponent categorically rejects child labor and/or any form of forced labor. Customers and suppliers of goods and services are required to comply with and consider the Peruvian Law Legislation Law 27337 Child and Adolescent Code, as well as the III National Plan for the Fight against Forced Labor 2019 – 2022, and Convention No. 105 of the International Labor Organization (ILO).
Child labor	Child labor can severely impact on health and development	Child labor can hinder the physical, mental, and emotional development of children.	
Human trafficking	Severe exploitation	Victims of trafficking are subjected to extreme exploitation and abuse, including forced labor and sexual exploitation.	

³² The identified risks and commensurate mitigation or preventative measure(s) for forced labor, child labor, and human trafficking, must be inclusive of staff and contracted workers employed by third parties.

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Recognition of, respect of, and promotion of the rights to IPs, LCs and customary rights holders	No risk identified	-	The project area is a forest concession granted in cession of use by the Peruvian state for responsible forest management, so the project does not contemplate the use of indigenous population or local community lands. The project has developed the Free, Prior and Informed Consent (FPIC) protocol for the implementation of PPAMA projects in Belgica Native Community, part of the project's area of influence (See 2.5.7).
Preserving and protecting cultural heritage	No risk identified	-	The project will promote activities that aim to improve and strengthen the cultural identity through the PPAMA projects.
Protecting and preserving property rights, customary rights, or protecting legal or customary tenure/access rights to territories, property, and resources, including collective and/or conflicting rights	No risk identified	-	The project area is part of the group of permanent production forests in the province of Tahuamanu that are ceded in use for responsible management in forest use. Within the project area there are no local or native communities that depend on the use of the resource. The use of natural resources for self-consumption and commercialization is evaluated within the communities surrounding the project, in which it was learned that the inhabitants do not depend on the consumption of the resources contained in the project area (See section 4.1.2)
Impacts on biodiversity and ecosystems	Possible loss of biodiversity of wild flora and fauna.	Fragmentation of habitats can isolate wildlife populations, making it difficult for them to find food, mate, and migrate.	The project proponent implements reduced impact logging techniques in its forest harvesting operations, which reduces the negative impact generated on the forest and

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
			a better condition that favors the resilience of the ecosystem (See Table 5.2). The project area has a robust custody and surveillance system that does not allow the entry of invaders into the forest concession (See Table 5.1); therefore, they must look for other unprotected forest areas to carry out activities that negatively impact biodiversity, even generating the loss and/or reduction of habitats. The project proponent promotes actions that concern the sensitization and awareness of forest conservation, and the promotion of environmentally friendly projects. (See Table 5.3)
Soil degradation and soil erosion	No risk identified	-	The project proponent will develop environmentally friendly productive projects with local farmers and ranchers, with the aim of improving their current agricultural practices (See Table 4.1)
Water consumption and stress	No risk identified	-	The project contributes to the maintenance of biodiversity and local ecosystems through proper forest management, whose use takes into consideration the natural cycle; therefore, it contributes to the conservation of resources such as water. The project area protects part of the Tahuamanu and Acre river basins, providing quality water to the communities downstream (See Table 4.6).

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Habitats (and areas needed for habitat connectivity) for rare, threatened, and endangered species	Possible loss of keystone species	The destruction of habitats can result in the decline of species populations	The project proponent implements reduced impact logging techniques in its forest harvesting operations, which reduces the negative impact generated on the forest and a better condition that favors the resilience of the ecosystem (See Table 5.2-LOGGING). The project area has a robust custody and surveillance system that does not allow the entry of invaders into the forest concession (See Table 5.1).
Areas needed for habitat connectivity	No risk identified	-	The project area has a robust custody and surveillance system that does not allow the entry of invaders into the forest concession (See Table 5.1).
Invasive species	No risk identified	-	The project proponent develops a forest management plan for forest natural resources under a system of natural regeneration as a result of its dynamics, not including the activities of plantations or enrichment strips for a better valorization of the forest (See section 5.1.6). The are not invasive species
Ecosystem conversion	Loss of biodiversity, disruption ecosystem services, soil degradation and greenhouse gases emissions	Converting natural ecosystems to agriculture or other land uses can lead to soil erosion, degradation, loss of soil fertility, releases significant amounts of stored carbon into the atmosphere, contributing to climate change, loss of habitats for numerous species,	The project area has a robust custody and surveillance system that does not allow the entry of invaders into the forest concession (See Table 5.1).

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
		potentially driving rare, threatened, and endangered species to extinction.	

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

Tahuamanu Amazon REDD Project was disseminated during the citizen participation workshops, as detailed in section 2.3.4; the presentation highlighted the costs, risks, and benefits to communities for the implementation of the project, as detailed below:

Benefits

- Maintenance of the local microclimate.
- Conservation of the quantity and quality of surface and groundwater.
- Flood risk reduction and soil conservation.
- Maintenance of carbon sinks.
- Conservation of PNAPs and territories occupied by PIACI.
- Conservation of landscapes and biodiversity.
- Development of environmentally friendly production initiatives on a pilot scale aimed at the local population.
- Development of skills and capacities of the members of the families or associations linked to the selected projects.
- Contribution to the sustainable development of the population in the area of the project in accordance with the prioritization determined by the Advisory Committee on Community Relations of the Project.
- Strengthening environmental education for children, adolescents and communities involved in the project.

Costs

- The opportunity costs assumed by the beneficiaries when using their time to participate in citizen participation workshops and environmental education talks, instead of another beneficial activity for them.
- In the process of implementing the PPAMAs, the indirect costs associated with the beneficiary winners are counterparts that they must assume, generally framed in labor, office expenses, project implementation space, logistics, etc., while the project proponent assumes the expenses of infrastructure, inputs, materials, training and technical assistance, among the most important.

Risks

No risks are assumed for the population due to the implementation of the project. There is no displacement of communities or loss of livelihood, since the project area is part of a forest concession granted by the state for timber harvesting purposes, which has not had settlers within its area nor has the change of use of forest lands been allowed. Instead, the project generates benefits for the villagers within the region of project activities to improve their well-being and livelihoods in order to reduce the pressure exerted on the forests.

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

During the citizen participation workshops, participants are informed of the current status of the project, i.e. whether it is in a verification process in any of its stages or, the next processes of verification of the MR and/or revalidation of the PD.

Prior to the visit of the audit team, letters were disseminated³³ to all stakeholders and communities to inform them that the execution of the verification process of the Tahuamanu Amazon REDD Project is scheduled for the period 2022 by an independent certification organization (VVB), detailing the date of field work. Likewise, it is reported that the organization may participate to express its opinion on the project.

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

The communication process to communities and stakeholders of the VVB site visit for the project audit process is described in section 2.3.7.

During the audit process, a tentative schedule of visits will be drawn up, after validation by the VVB, to learn about the progress of the project and the impacts it has been generating in the region of activities, so, the VVB auditors will hold meetings in the districts of Iñapari and Iberia with the neighbourhood councils, boards of directors, leaders of organizations, direct beneficiaries, among others of relevance. The project proponent will facilitate the transfer to the various meeting points, as well as the coordination with the interviewees, according to their availability, for compliance with the established schedule.

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

³³ Dissemination Letter

Ongoing consultation	As described in section 2.3.4, the project proponent convenes two annual meetings inviting representatives of all communities, community groups and stakeholders that are part of the project activity region. In the meetings, two working mechanisms are established, the first is the TPC, which is a space for open and broad dialogue with the purpose of involving the largest number of actors present in the communities within the area of influence of the project, where it contributes to the continuous construction and implementation of the project's activities. as well as, the delivery of files so that they can make consultations, doubts, opinions and contributions for the project; the second is the CCRC, which constitutes a space for dialogue established by the proponent of the project made up of representatives of civil society and is part of the citizen participation mechanisms where proposals for action and investment in specific issues related to the improvement of the quality of life of the populations are raised and discussed.
Date(s) of stakeholder consultation	First Meeting: 29-April-2022 Second Meeting: 16-December-2022
Communication of monitored results	The implementation, main characteristics, objectives and importance of the project is shared at the end of the year through the TPC in a presentation by the project proponent technical team. The results of the project activities, the contribution to the environmental component and community development within the project activity region, the protection of the protected natural area that adjoins the project, the indigenous territories, and communities and peoples in a situation of isolation and initial contact (PIACI) are detailed. In addition, information was provided about the distribution of revenues from the sale of carbon credits for certain activities described in the TOC and the invitation is extended to participate in the public tender of PPAMAs. During the second year-end CCRC, the members of the committee are informed of how the project activities have been executed, with emphasis on the health and education axes prioritized at the beginning of the year, with the continuous commitment to continue developing activities for the project regarding what was agreed in these spaces for dialogue.

Consultation records	During the meetings of the TPC and CCRC, the project proponent gives consultation sheets to the participants so they can generate consultations, proposals, opinions and/or contributions to be analyzed and considered within the framework of the implementation of the project. The responses for each contribution provided are addressed to the participant through the delivery of a letter prepared by the project proponent, where the considerations of the proposal for its implementation in the framework of the implementation of the project are detailed. The letters are attached to the reports of the TPC and CCRC.
Stakeholder input	According to the aforementioned processes, the consultation sheets are delivered to all participants for the generation of contributions and consultations to the project. Among them, the project proponent receives congratulations for good management, requests for support for community development, and proposals for activities that have the profile for participation in the public tender of the PPAMAs. The contributions and consultations provided by each participant are part of the objectives set by the project, so no modification in the implementation and/or deviation of the project activities is contemplated. As well as, the TPC and CCRC, they are priority and binding participation mechanisms for the development and continuous implementation of the project.

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

The project proponent has been implementing over the years a Communications Plan³⁴ that aims to keep communities, community groups and stakeholders informed about the project's activities. The plan details mechanisms available for continuous communication and consultation for the construction and implementation of the project, as shown in the following table:

³⁴ RS Communications Plan

Table 2.14. Communication and Consultation activities that continued during 2022

Mechanisms	Description	Actions	Citizen contributions
Citizen Participation Workshop	It is a space for open and wide-ranging dialogue with the purpose of involving the greatest number of actors present in the communities within project influence area.	First meeting: the activities that the project will carry out during the year are detailed and shared. Compilation of queries and contributions. Second meeting: summary of the activities carried out by the project proponent during the year. Compilation of queries and contributions.	Participants proposed consultations and proposals during the meeting. The answers can be found in Table 2.15
Community Relations Advisory Committee	It constitutes a space for dialogue established by the project proponent made up of civil society's representatives and is part of citizen participation mechanisms where proposals for action and investment in specific issues related to the improvement of the quality of life are raised and discussed.	In both meetings, the priority axes for the development of the communities around the project are discussed.	Participants proposed consultations and proposals during the meeting. The answers can be found in Table 2.15
Suggestion Box	It remained installed outside the project proponent office to ensure access to the entire community ³⁵ . Address: Carretera Interoceánica km 227 - Tahuamanu.	Physically installed	No contribution records

³⁵ Informe 008_2022. Informe de habilitación del buzón de sugerencia externo

Virtual service channels	Maintained the virtual channels of attention such as telephone number (985582143) and e-mail (responsabilidadesocial@maderacre.com).	Provision of telephone number and e-mail in each dissemination letters.	Contribution
Local radio	The communication local media to disseminate project messages such as call for participation processes, informative messages on sustainable forest management and conservation ^{36 37 38 39 40 41} , registration processes in CEBA ⁴² and participation in the public contest for the PPAMA.	Agreement with local radios call “Radio Integración - La radio del pueblo - 95.3 fm” ⁴³ and “Radio Bom Sucesso - A voz do povo - 95.5 fm” ⁴⁴ .	Not applicable
Dissemination of social responsibility procedures and socio-environmental summaries	The Procedure for Attention and Constructive Transformation of Complaints, Claims or Social Conflicts with Populations and/or Third Parties. Environmental and Social Monitoring.	Virtual and physical delivery. See section 2.3.2.	Not applicable.

³⁶ Spot publicitario: Aprovechamiento selectivo

³⁷ Spot publicitario: Buenas prácticas de MF y mantenimiento de reservas de Carbono

³⁸ Spot publicitario: MF para el desarrollo rural y sin cambio de uso del suelo

³⁹ Spot publicitario: Modelo de conservación productiva

⁴⁰ Spot publicitario: TIR – Conservación de Recursos de FFS

⁴¹ Spot publicitario: Zona de amortiguamiento para los PIACI y PNAP

⁴² Advertising spot: CEBA Iñapari and Belgium invitation

⁴³ Contrato Radio Integración 2022

⁴⁴ Contrato Radio Bom Sucesso 2022

Website	Principal project documents through https://maderacre.com/sostenibilidad	Permanent updating of the website	Not applicable.
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Table 2.15. Summary of comments received, responses, and actions taken.

Summary of comments received	Actions taken
Comment received: 29 April 2022; Mechanism used: TPC Stakeholder: Samuel Niño de Guzmán Institution or community: C.E.R. Noaya Consultation on training for the installation and management of a forest nursery, as well as the recommendation of viable species.	Comment answered: 10 October 2022; Letter code: Carta N°027-2022 Actions taken: More information is requested from the participant in order to guide them with the topics of their interest. Project design update: None. The project proponent needs more information to take actions.
Comment received: 29 April 2022; Mechanism used: TPC Stakeholder: Alexander Flores Ushinahera Institution or community: Iñapari Agrarian Office Request for infrastructure improvement for Iñapari Agrarian Office belonging to the Ministry of Agriculture.	Comment answered: 10 October 2022; Letter code: Carta N°028-2022 Actions taken: The request has been accepted, and he is asked to detail the materials necessary for the repair of the infrastructure. Field visits will be coordinated in the coming days. Project design update: No applicable
Comment received: 29 April 2022; Mechanism used: TPC Stakeholder: Luis Cueva Maldonado Institution or community: Virgen del Rosario del Acre Association Construction of a communal place for feeding children in the district of Iñapari.	Comment answered: 10 October 2022; Letter code: Carta N°029-2022 Actions taken: The project proponent committed to supporting other initiatives according to benefit of forest conservation and the environment. Unfortunately, there is not enough budget for the construction of a communal premises at the moment. Project design update: No applicable
Comment received: 29 April 2022; Mechanism used: TPC Stakeholder: Lizandro León Mazco Institution or community: National Police	Comment answered: 10 October 2022; Letter code: Carta N°030-2022

Summary of comments received	Actions taken
Gratitude for the activities that have been carried out through the project for the communal development of the district of Iñapari.	Actions taken: The generation of these spaces for interaction with the local population is part of the social responsibility policies of the project proponent. It is considered relevant for other companies to create spaces to inform citizens about the management they carry out in their organizations. Project design update: No applicable
Comment received: 29 April 2022; Mechanism used: TPC Stakeholder: Gladys Taipe Villegas Institution or community: OSPA Tahuamanu Request support for the construction of fish farming and reduce pressure on the ichthyological resource of the Tahuamanu River, as well as to grant land for a tourist area.	Comment answered: 10 October 2022; Letter code: Carta N° 031-2022 Actions taken: The importance of the contribution and the strategic nature of guaranteeing future sources of revenue for your families and, at the same time, reducing the pressure on the increasingly scarce ichthyological resource in the Tahuamanu River is highlighted, therefore, the invitation is extended to you and your organization to participate in the PPAMA public contest, to be held in the first quarter of 2023. Project design update: No applicable
Comment received: 29 April 2022; Mechanism used: CCRC Stakeholder: Abel Alonso Begazo Institution or community: I.E. 53003 Elena Bertha Continue to strengthen the sustainable management of agricultural crops to improve their production per unit area, and thus reduce pressure on forests.	Comment answered: 10 October 2022; Letter code: Carta N° 023-2022 Actions taken: The project proponent, as part of the environmental education program, has been working on lines of action for the implementation of techniques that contribute to the improvement of soil management in agricultural production in the province of Tahuamanu with different actors, thereby allowing greater production by reducing the pressure exerted on the forests. Project design update: No applicable
Comment received: 29 April 2022; Mechanism used: CCRC	Comment answered: 10 October 2022; Letter code: Carta N° 024-2022

Summary of comments received	Actions taken
Stakeholder: Maritza Velásquez Zapana Institution or community: IEBR Iñapari Implementation of a project for the environment conservation and/or valuation of natural resources from forests.	Actions taken: Currently, there is an agreement with his institution and, as part of the activities, work is being done to strengthen environmental awareness and the sustainable use of its resources. Activities can be implemented with other actors to generate positive results in forest conservation. Project design update: No applicable
Comment received: 29 April 2022; Mechanism used: CCRC Stakeholder: Misael Tenazoa Barrera Institution or community: Nuevo Iñapari Association Provide ornamental, fruit, and forest species, among others of relevance to improve the park appearance of the Nuevo Iñapari Association.	Comment answered: 10 October 2022; Letter code: Carta N° 025-2022 Actions taken: The project proponent is already working on trees planting in its streets as part of ornamentation improvement, as a barrier to dust and microclimate improvement. In addition, their application has been accepted and we are working on the production of corresponding seed trees. Project design update: No applicable
Comment received: 29 April 2022; Mechanism used: CCRC Stakeholder: Ricardo Huasicayna Ramos Institution or community: San Isidro de Chilina Ask about the opening of forests by forest roads and, if they regenerate over time, as well as if it is necessary to carry out forest plantations in these spaces.	Comment answered: 10 October 2022; Letter code: Carta N° 026-2022 Actions taken: Intervened Forest areas, as part of the execution of the forest management plan, their natural regeneration is prioritized. The system is based on systematic forest harvesting based on a 20-year cutting cycle. Project design update: No applicable
Comment received: 16 December 2022; Mechanism used: TPC Stakeholder: Jara García Sonia Institution or community: Civil Society	Comment answered: 14 February 2023; Letter code: Carta N° 009-2023

Summary of comments received	Actions taken
Gratitude for the contribution to the health and education sector and conserved the forests.	Actions taken: The project proponent reaffirms its commitment to the conserved the forests, population well-being and the contribution to community education and health. Project design update: No applicable
Comment received: 16 December 2022; Mechanism used: TPC Stakeholder: Samuel Roca Rodriguez Institution or community: Nueva Esperanza Request for improvement in neighbourhood roads during the dry season.	Comment answered: 14 February 2023; Letter code: Carta N°003-2023 Actions taken: There is a possibility of support in the maintenance of community roads, for which you are requested to send it to project proponent office where the pertinent steps will be taken to evaluate the feasibility of your proposal. Project design update: No. The project proponent needs more information to take actions.
Comment received: 16 December 2022; Mechanism used: TPC Stakeholder: Oriel Condori Palomino Institution or community: Rosario del Acre Association Consultation on the intervention degree in community development by the project proponent and the programs intended for it.	Comment answered: 14 February 2023; Letter code: Carta N°004-2023 Actions taken: The invitation is extended to you and your association to participate in PPAMA public contest, to be held in the first quarter of 2023. Project design update: No applicable
Comment received: 16 December 2022; Mechanism used: TPC Stakeholder: Yisela Suaña Copacandori Institution or community: PNAP Sernanp Consultation on the affectation or interaction of wildlife due to their susceptibility to the execution of forestry operations.	Comment answered: 14 February 2023; Letter code: Carta N°006-2023 Actions taken: You are invited to visit the website of the project proponent where you will find the results of environmental monitoring, wildlife studies and management documents that may answer your questions about the activities conducted by the company. Project design update: No applicable

Summary of comments received	Actions taken
Comment received: 16 December 2022; Mechanism used: TPC Stakeholder: José Apaza Cahuata Institution or community: Iñapari Agrarian Office Request for the development of syntropic systems projects as a pilot working mechanism.	Comment answered: 14 February 2023; Letter code: Carta N°008-2023 Actions taken: The invitation is extended to you and your association to participate in PPAMA public contest, to be held in the first quarter of 2023. Project design update: No applicable
Comment received: 16 December 2022; Mechanism used: CCRC Stakeholder: José Gastelo Benavidez Institution or community: La colonia Neighborhood Consult about the procedure for requesting support.	Comment answered: 14 February 2023; Letter code: Carta N°002-2023 Actions taken: It is reported that the consultation and/or support procedures are carried out through the submission of a request with the requirement specification, then, the Social Responsibility (SR) area will take charge of the procedures according to guidelines. It is reported that the consultation and/or support procedures are carried out through the submission of a request with the requirement specification, so, the Social Responsibility (SR) area will take charge of the procedures that it merits. Project design update: No applicable
Comment received: 16 December 2022; Mechanism used: CCRC Stakeholder: Misael Tenazoa Barrera Institution or community: Nuevo Iñapari Association Request for the continuous support of the project proponent with the communities.	Comment answered: 14 February 2023; Letter code: Carta N°005-2023 Actions taken: The project proponent has been carrying out actions in benefits of the surrounding community's development, likewise, the invitation is extended to you and your association to participate in the PPAMA public contest, to be held in the first quarter of 2023. Project design update: No applicable
Comment received: 16 December 2022; Mechanism used: CCRC Stakeholder: Maritza Velasquez Zapana	Comment answered: 14 February 2023; Letter code: Carta N°010-2023

Summary of comments received	Actions taken
Institution or community: IEBR Iñapari Request procedures for the participation of PPAMA.	Actions taken: At the beginning of March 2023, the Social Responsibility (SR) area will be publishing and socializing the rules of the PPAMA contest, extending the invitation to you and your institution to participate. Project design update: No applicable
Comment received: 16 December 2022; Mechanism used: CCRC Stakeholder: Daniel Ramirez Balarezo Institution or community: Belgica Native Community Ask about the harvest time of the species <i>Dipteryx micrantha</i> "shihuahuaco" associated with cocoa.	Comment answered: 14 February 2023; Letter code: Carta N°007-2023 Actions taken: In the case of agroforestry systems, the harvest of cocoa fruits is planned to begin three years after planting and the timber harvest of the species <i>Dipteryx micrantha</i> "shihuahuaco" would be carried out at 30 years. Similarly, the invitation is extended to you and your community to participate in the PPAMA public contest, to be held in the first quarter of 2023. Project design update: No applicable

2.3.11 Stakeholder Consultation Channels (CCB, G3.5)

The dissemination process of objectives, characteristics, activities, beneficiaries, audit processes, management documents and results of the project has been considered to include all the communities, community groups and stakeholders that are part of the project activity region, as well as those directly related to the management and conservation of forest concessions. This is detailed in the PD, section 2.1.9 Stakeholder Descriptions.

The actors who received and signed the dissemination letters are detailed in Table 2.16. It is worth mentioning that in each process, the maximum effort is made to achieve the invitation to all communities, community groups and stakeholders that are part of the project, however, the goal is not completely met due to the lack of response, refusal and/or lack of interest of the representatives. On the contrary, new participants are also registered who are attracted by the various means of dissemination that the proponent of the project uses to continue with the objective of strengthening community development, and improving their well-being and livelihood.

Table 2.16. Consultations and participatory processes disseminated through letters with communities and stakeholders

Community group and stakeholder you represent	Dissemination						
	A		B		C		D
	Means of verification						
	A.1	A.2	B.1	B.2	C.1	C.2	D.1
National Police	✓	✓					✓
Ospa Iberia	✓						
Rosario del Acre Association	✓	✓					✓
Iñapari Agrarian Office	✓	✓					✓
National Agrarian Health Service of Peru (SENASA)	✓	✓					
Catahua S.A.C.	✓						✓
Iñapari Health Post	✓	✓					✓
Maderyja S.A.C.	✓						✓
Sector República	✓	✓					✓
San Francisco de Asís	✓	✓					✓
Sector Chilina Vieja	✓	✓					✓
OSPA Tahuamanu	✓						
Oceanía Community	✓	✓					✓
Nuevo Iñapari Association	✓			✓	✓		✓
San Isidro de Chilina	✓	✓				✓	✓
I.E. N°52056 Noaya	✓	✓					✓
Sector Flor de Acre	✓	✓					✓
Arca Pacahuara Community	✓						
Provincial Municipality of Tahuamanu			✓	✓			✓

Community group and stakeholder you represent	Dissemination						
	A		B		C		D
	Means of verification						
	A.1	A.2	B.1	B.2	C.1	C.2	D.1
I.E.B.R. Elena Bertha			✓	✓			✓
Mothers La Colonia Club			✓				✓
Moradores La Colonia Association			✓	✓			
Belgica Native Comunnity			✓	✓			
Sector La Vuelta		✓					
I.E. N° 52144 Villa Primavera		✓					✓
Alto Purús National Park		✓					
San Antonio de Abad		✓					
Control Post - Iñapari		✓					✓
Nueva Esperanza Community		✓					✓
I.E.B.R. Secundaria Iñapari		✓					✓
Matirija and Yaverija Farmers Association							✓

A. Subject: Invitación al Taller de Participación Ciudadana

- A.1. Carta Múltiple N°007-2022-MADERACRE-SAC/RS/MECM/I-TAH-MDD. See Informe 013_2022. TPC inicio de operaciones.
- A.2. Carta Múltiple N°011-2022-MADERACRE-SAC/RS/MECM/I-TAH-MDD. See Informe 080_2022. TPC fin de operaciones.

B. Subject: Invitación al Taller de Participación Ciudadana y al Comité Consultivo de Relacionamento Comunitario

- B.1. Carta Múltiple N°006-2022-MADERACRE-SAC/RS/MECM/I-TAH-MDD. See Informe 013_2022. TPC inicio de operaciones.
- B.2. Carta Múltiple N°010-2022-MADERACRE-SAC/RS/MECM/I-TAH-MDD. See Informe 080_2022. TPC fin de operaciones.

C. Subject: Invitación para ser miembro del Comité Consultivo de Relacionamento Comunitario

- C.1. Carta N°014-2022-MADERACRE-SAC/RS/MECM/I-TAH-MDD. See Informe 014_2022. CCRC fin de operaciones.
- C.2. Carta N°015-2022-MADERACRE-SAC/RS/MECM/I-TAH-MDD. See Informe 014_2022. CCRC fin de operaciones.

D. Subject: Socialización y difusión de protocolos de Responsabilidad Social

- D.1. Carta Múltiple N°004-2022-MADERACRE-SAC/RS/MECM/I-TAH-MDD. See Informe 011_2022. Difusión de protocolos de responsabilidad social

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

As previously described in section 2.3, the full participation of all communities, community groups and stakeholders, as well as the voluntary adoption of new members, without distinction of race, gender or age range, is foreseen in the participation of the design, implementation, monitoring and evaluation of the project. The mechanisms implemented by the project proponent have made it possible to strengthen the participation of all those involved and, as a whole, the proposals for continuous improvement that the project must direct in contribution to communal development, in pro of population well-being and livelihood, in harmony with the conservation of the forests in province of Tahuamanu.

The participatory processes respect the dissemination mechanisms of each identified community groups, respecting times and spaces for responding to requests for participation in the participatory and consultation processes.

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

The project proponent keeps updated and disseminates⁴⁵ its Anti-Discrimination Policy⁴⁶ that is involved in all the activities carried out by the project where it is specified that discrimination and any form of mistreatment, verbal or physical violence and segregation from authorities in workplace towards the staff and among the staff in terms of physical appearance, culture, disability, language, sex, gender, age, social, economic, health or legal status, pregnancy, marital status, religion, opinions, ethnic or national origin, sexual preferences, and immigration status are strictly prohibited. There is an official communication channel where recommendations and/or complaints for non-compliance with the policy can be made. The aforementioned is in line with the provisions of the "Law No. 27270 against acts of discrimination of the Peruvian state.

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

Grievances received	Resolution and outcome
N/A	N/A

During 2022, no complaints have been received from stakeholders. The project proponent makes available channels for dealing with complaints and claims described in section 2.3.10. The dissemination of company management documents also considers the protocols that the interested parties and the project proponent, must consider to carry out the procedure as shown in the following figure:

⁴⁵ Report 010_2022. Report on the dissemination of the Labor Equality and Anti-Corruption Protocol of the company Maderacre

⁴⁶ Employment Equality and Anti-Discrimination Policy



Social Responsibility Area
MADERACRE SAC

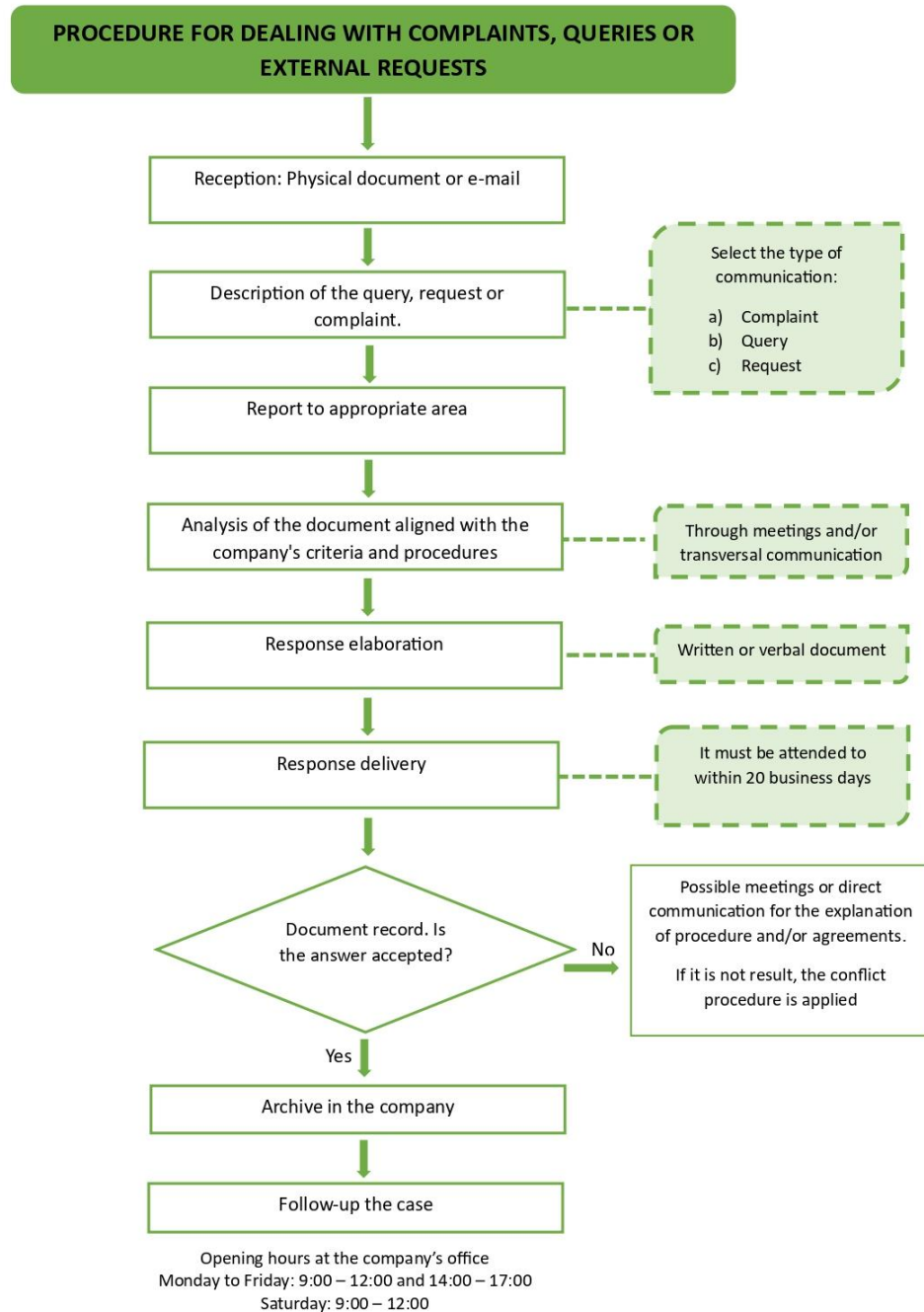


Figure 2.4. Project Feedback and Grievance Redress Mechanism. Source: Communication Plan

In first instance, the communication processes between peers must reach agreements for the resolution of conflicts, therefore, if this is not possible, the process is submitted by the measurement of third parties and, if the aforementioned does not work, the process would be submitted to arbitration to finally resolve the problems involved. The project proponent reaffirms its commitment to conflict resolution and, therefore, details the following action flowchart:

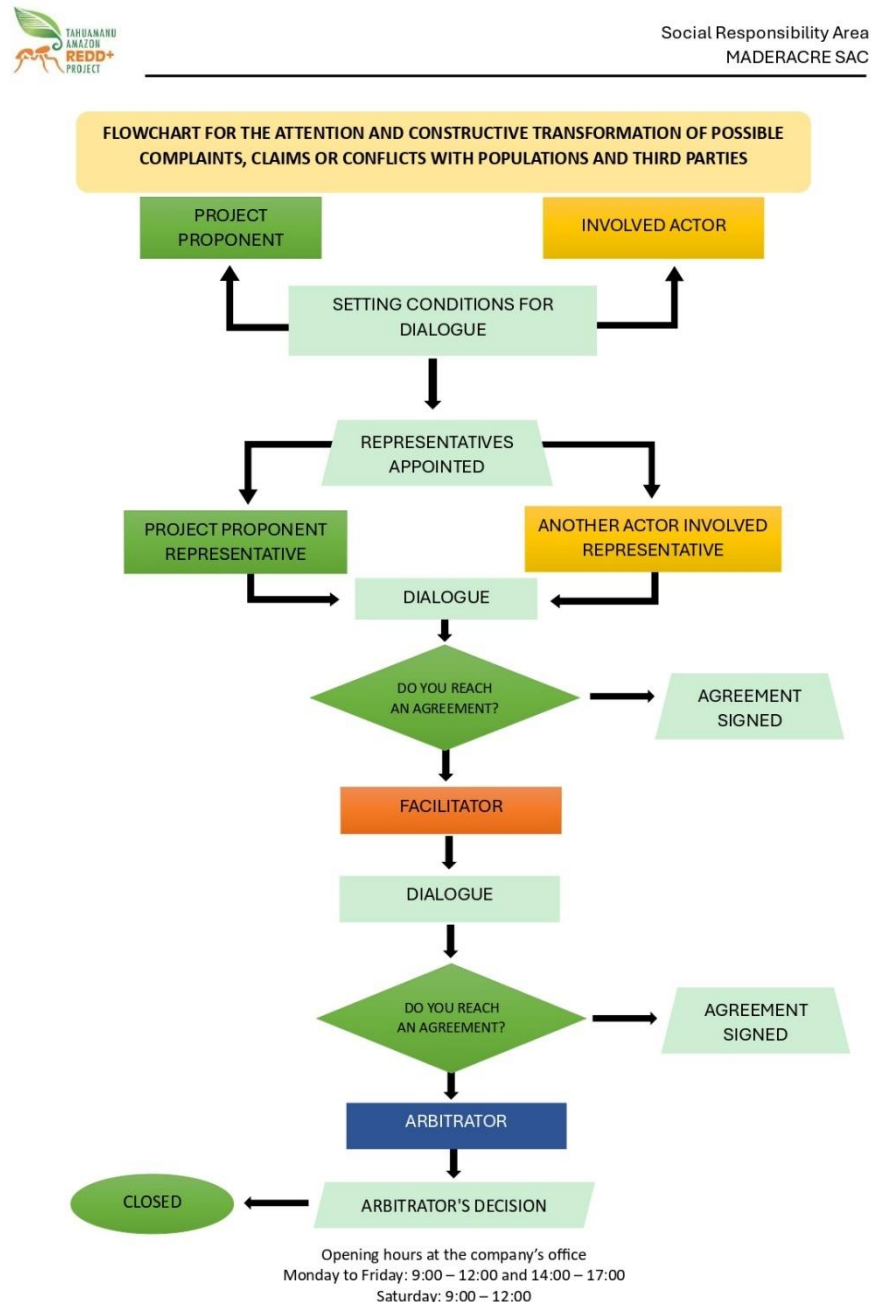


Figure 2.5. Flowchart for the attention and constructive transformation of complaints, claims or conflicts. Source: Communication Plan

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

The project has implemented an **Annual Training Plan**⁴⁷, and each year training is developed on various capacity building topics, which are developed on a regular basis to update and refresh the knowledge of workers, as well as new personnel joining the operations. During 2022, 26 training sessions were held, training a total of 258 workers (62 local workers), with 33 women (12 local workers) as part of the total. During the current monitoring period, MADERACRE SAC has provided training to its workers and third-party partners in different topics, being the most relevant the following.

Charge area	Syllabus	Participants
Forest Management	Good practices and correct use of tools, equipment and machinery	43 ⁴⁸
	Construction, cleaning and camp closure	42 ⁴⁹ ; 14 ⁵⁰
	Forestry management, forestry certification - Chain of Custody (CoC)	85 ⁵¹ ; 17 ⁵²
	Waste management	58 ⁵³ 81 ⁵⁴
	Reduced impact logging (RIL)	86 ⁵⁵
	Forestry inventory	14 ⁵⁶
	Cubing and coding of roundwood	71 ⁵⁷
	High Conservation Value Forests (HCVF)	17 ⁵⁸
	Forest Operations Monitoring	8 ⁵⁹

⁴⁷ Plan anual de capacitaciones 2022

⁴⁸ Reporte N°001-2022-Bienvenida, buenas prácticas y uso correcto de maquinarias, equipos y herramientas

⁴⁹ Reporte N°002-2022-Construcción, limpieza y cierre de campamentos-Presentación de manual de campamentos

⁵⁰ Reporte 008-2022 Cierre de Campamento Censo Oct 2022

⁵¹ Reporte N°007-2022-Manejo- Certificación Forestal y CoC

⁵² Reporte de capacitación 006-2022 Manejo Forestal

⁵³ Reporte N°005-2022-Manejo de Residuos

⁵⁴ Informe 008 MF 2022 - Gestión y Manejo de Residuos Sólidos

⁵⁵ Reporte N°004-2022-AIR

⁵⁶ Reporte de capacitación 004-2022 Equipos, Metos y Censo Forestal

⁵⁷ Reporte N°006-2022-Cubicación y codificación de madera rolliza

⁵⁸ Reporte de capacitación 007-2022 BAVC

⁵⁹ Reporte de capacitación 009-2022 MOF

Charge area	Syllabus	Participants
	Evaluation of Permanent Monitoring Plots (PPM).	5 ⁶⁰
	Wild Fauna assessment	8 ⁶¹
	Custody and Surveillance Plan	22 ⁶²
	Targeted cutting down	50 ⁶³
Ecosystem services	Code of Conduct towards populations	235 ^{64 65}
	PIACI - Protocols, characterization, Reporting Flowchart	257 ^{66 65}
	REDD project dissemination: project objectives, actions, and results	86 ⁶⁷
Human resources	Contracts and interpretation of pay slips, social benefits and International Labour Organization (ILO) convention	78 ⁶⁸
	Social benefits (bonuses, compensation for time of services - CTS- and vacations)" and Safety (ESSALUD, SCTR y Vida Ley)	56 ⁶⁹
Occupational health and safety	First Aid	54 ⁷⁰
	IPER-C	75 ⁷¹
	Use and handling of fire extinguishers	90 ⁷²
	Safety in Forest Management Operations	165 ⁷³

⁶⁰ Reporte de capacitación 010-2022 PPM

⁶¹ Reporte de capacitación 008-2022 FS

⁶² Reporte de capacitación 005-2022 Plan Integral de Custodia 2022

⁶³ Reporte N°003-2022-Tala Dirigida

⁶⁴ Carpeta: Capacitaciones Código de Conducta Empresarial

⁶⁵ Carpeta: Capacitaciones Código de Conducta Empresarial y PIACI

⁶⁶ Carpeta: Capacitaciones PIACI

⁶⁷ Carpeta: Capacitaciones REDD

⁶⁸ Contratos e interpretación de boletas de pagos, beneficios sociales y convenio OIT.

⁶⁹ Seguros y Beneficios Sociales 2022

⁷⁰ Informe 001 MF 2022 - Primeros Auxilios

⁷¹ Informe 004 MF 2022 - IPER-C

⁷² Informe 005 MF 2022 - Uso y manejo de extintores

⁷³ Informe 007 MF 2022 - Seguridad en Operaciones de Manejo Forestal

Charge area	Syllabus	Participants
	Fire Management – Forest fire Prevention	94 ¹⁴
	Ophidism	58 ⁷⁴

The list below shows the area managers and coordinators who have provided training during the years 2022:

Nombre del capacitador
Luis Ñaña Socualaya ⁷⁵
Cesar Carcheri Rosas ⁷⁶
Miriam Chupan Minaya ⁷⁷
Jersson Mendoza Ipanaque ⁷⁸
Jean Paul Panduro Navarro ⁷⁹
Franco Nuñez Huayllapuma ⁸⁰
Jose Castro Torres ⁸¹

The system implemented by the project proponent, where training was passed on to new workers in case of staff turnover, included the following actions:

- **Standardized training material:** manuals, video tutorials, and presentations that cover essential tasks, safety protocols, and project-specific knowledge is developed. These materials are regularly reviewed and updated as processes or technologies evolve.
- **Training program:** structured onboarding process for new workers is implemented. This will include training sessions with experienced staff and access to the standardized training materials.
- **Periodic Refresher Training:** refresher courses for all staff to ensure knowledge remains up-to-date and consistent across the team is organized.

⁷⁴ Informe 002 MF 2022 - Ofidismo

⁷⁵ Contrato Luis Ñaña

⁷⁶ Contrato César Carcheri

⁷⁷ Contrato Miriam Chupán

⁷⁸ Contrato Jersson Mendoza Ipanaque

⁷⁹ Contrato Jean Paul Panduro Navarro

⁸⁰ Contrato Franco Nuñez Huayllapuma

⁸¹ Contrato Jose Castro Torres

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

Prior to hiring, it is important to have the best trained personnel and, therefore, the project proponent applies a requirement, selection and incorporation of personnel flow that consists of the following steps:

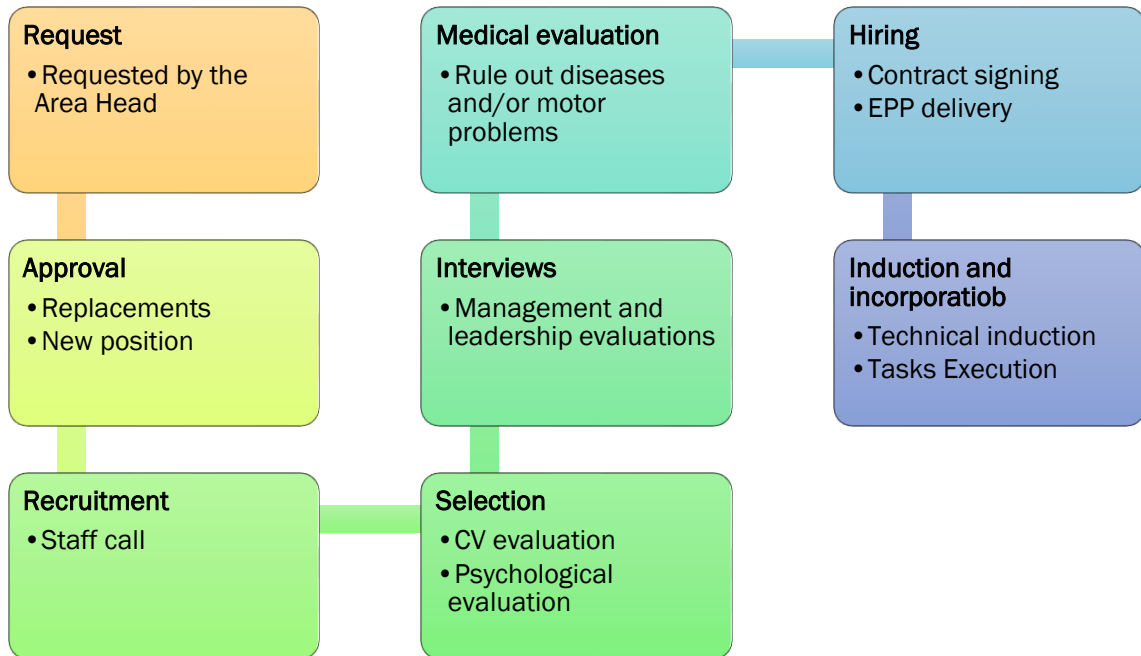


Figure 2.6. Requirements, selection and incorporation of personnel flow. Source: Own elaboration

Within the technical induction, topics related to social benefits, quality standards - FSC, labor benefits, ILO Conventions No. 87 and 98, health care, SCTR, safety and health at work, among others^{82 83}; in order to generate knowledge of the benefits received from the company and the importance of being part of it, so, to be able to generate trust and reduce the level of turnover of collaborators, maintaining a solid work team to face the project activities.

⁸² Seguros y Beneficios Sociales (1)

⁸³ Seguros y Beneficios Sociales (2)

The company has the "Policy and Procedures for Promotions and Transfers"⁸⁴ and the "Labor Equality and Anti-Discrimination Policy" that allows the personnel working in the project to occupy a different job position than the current one, or the promotion of position, with a higher economic remuneration, promoting equal opportunities and the promotion of the employees labour development, generating the opportunity to carry out a career path for leadership and management positions, regardless of: race, colour, religion, gender, sexual orientation, marital status, nationality, disability or any other situation.

In "Selection" step, priority is given hiring of locality residents belonging to the project activity region, generating opportunities for personal and professional development, boosting the local economy by injecting money into the community and improving the well-being and livelihood of families in the province of Tahuamanu.

The company, which is in charge the project proponent, is a source of employability as it contributes with job offers in the community, giving opportunities to occupy jobs, also giving the opportunity to women and vulnerable and / or marginalized people, so that they have a fair chance to occupy positions for which they can be trained. The list of workers⁸⁵ is summarized as follows:

- Total workers: 258 (62 locals)
- Total woman: 33 (12 locals)
- Total elder workers (+60 years): 12 (7 locals)
- Total disabled: 1

The specific actions taken in the community of Iñapari and within Madre de Dios are:

- Dissemination of the calls for proposals⁸⁶ through local radio stations in Iñapari and Iberia, also, Puerto Maldonado Radio (The Recruitment area prepares quarterly reports on the broadcasts and positions offered), as well as advertisements through digital platforms and pasting posters of job offers in the streets of Puerto Maldonado^{87 88 89}.

⁸⁴ Política y Procedimientos de Promociones y Transferencias

⁸⁵ MRA 2022 Collaborators

⁸⁶ Aviso radial de Puesto Laboral Disponible

⁸⁷ Informe N° ADMP-001-2022

⁸⁸ Informe N° ADMP-002-2022

⁸⁹ Poster - Position for Forest Custodian

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

The project adheres to the "Occupational Health and Safety Policies"⁹⁰ that the company Maderacre implements, which is committed to leading the safety management system, promoting the prevention of potential occupational injuries and diseases that affect employees, suppliers, contractors and others, and motivating a culture of safety and health at work.

The company implements Hazard Identification and Risk and Controls Assessment (IPER-C) processes^{91 92}, which serves as a tool to control hazards during the execution of activities, prevent occupational injuries or diseases. The following procedures are established for compliance:

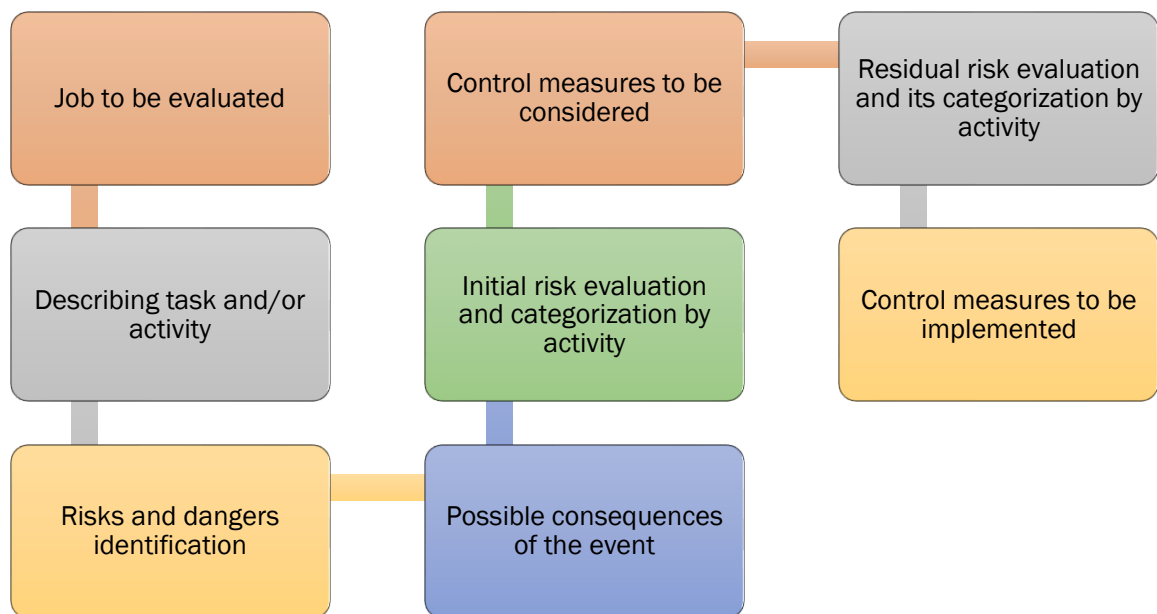


Figure 2.7. Procedure IPER- C. Source: Own elaboration

Maderacre S.A.C. has developed an evaluation for IPERC-C to which workers are exposed daily in the performance of their tasks, has developed an industrial safety regulation also applicable to third parties and has provided training to collaborators in the identification of these risks and dangers, in addition to informing about the measures they must take to carry out a safe work.

⁹⁰ Occupational Health and Safety Policy

⁹¹ IPER-C Forest Harvesting Matrix

⁹² IPER-C Matrix Evaluation & Monitoring

The company equips all its collaborators with personal protective equipment depending on the type of tasks they perform, monitors their correct use and timely renewal⁹³. It also provides firefighting equipment for facilities and machinery in general.

We are concerned about the health of our collaborators, so we provide them with basic first aid training, they are provided with medicine cabinets and health professionals who are constantly present in the field operations camps.

2.4 Management Capacity

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

The project team is successfully implementing another REDD+ project with similar characteristics since 2012. The project has been validated and verified by VCS and CCB Gold, which is a guarantee of proven abilities in terms of climate, community and biodiversity. In addition, the project proponent is FSC certified. FSC certification is made up of a set of principles that include community participation and biodiversity assessment.

Regarding carbon measurement, Maderacre S.A.C. has contracted Paskay S.A.C.⁹⁴, which is a consulting company, made up of professionals who have participated in the design, implementation, monitoring, and verification of many REDD+ projects carry out in Peru, such as, Tahuamanu Amazon REDD project, Castaña REDD project, Madre de Dios REDD project, Jaguar REDD project, Regional Jurisdictional Programs among others.

Project activities are aimed at reducing deforestation and degradation in the project area through the implementation of an effective system of custody and surveillance of the project area, the implementation of reduced impact techniques in forest management, and strengthening the development mechanisms of the surrounding communities by promoting productive initiatives that are more environmentally friendly, ecological restoration, as well as the valorization of the standing forest, contributing in this aspect with local producers organizations, communities, and institutions linked to biodiversity conservation, management of protected natural areas and the territory of indigenous peoples in voluntary isolation. In this sense, it is essential that the technical team is maintained over time and that it strengthens its technical capacities, as well as soft skills that allow them to lead, build and strengthen the implementation of project activities with a holistic and empathetic approach with the variety of actors present in the project's area of influence.

⁹³ Registro de entrega de EPPs MRA

⁹⁴ Website: <https://paskay.pe/>

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

The project's planning, execution and monitoring team has extensive experience in the sustainable forest management of the forests in the province of Tahuamanu. The Table 2.17, show a list of the most important skills and abilities of the technical team and manager members, responsible for the implementation of activities, maintenance of community commitments, biodiversity assessment and monitoring of carbon metrics, deforestation, and degradation.

Table 2.17. Skills and abilities of the manager and technical team members

Charge	Name	Experience and specialization
General Coordinator	Nelson Kroll Kohel	-More than 18 years of experience as a forest manager. Manager of the first FSC certification in Peru and the first CCB+VCS REDD certification in productive forests in the world. -Forestry Engineer at National University Agrarian La Molina
Commercial Specialist	Jose Luis Canchaya	-More than 18 years of experience. Manager of the first FSC certification in Peru and the first CCB+VCS REDD certification in productive forests in the world. -MBA at Tulane University Freeman Business School. Economist Pacifico University
REDD+ Specialist	Cesar Carcheri Rosas	-Specialist develops nature-based solutions projects with more than 5 years in monitoring and evaluation of forestry operations in the province of Madre de Dios. -Forestry Engineer at National University Agrarian La Molina. Forest Carbon Science, Policy & Management specialization at Michigan State University.
Forestry Specialist	Luis Ñaña Socualaya	-Specialist in sustainable forest management with more than 11 years of experience in the forest management resources under FSC certifications. -MSc Forestry Management and forest resources at National University Agrarian La Molina. Forestry Engineer at National University Central Peru.
Social Specialist	Leslie Monteagudo Cchencho	-Specialist in rural and Amazonian anthropology with more than 5 years of experience in the development of rural and native communities' projects. -Anthropologist at National University Federico Villarreal. Community relation management specialization at National University San Marcos.

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

Regarding carbon measurement and general REDD advisory, the project proponent is working with Paskay S.A.C., the consulting company that helped with the PD elaboration and, validations and verification processes. Paskay 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.

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

Maderacre S.A.C.'s financial statements for current monitoring period have been carried out and, are available for audit team review during field visit. This one is considered sensitive information, so it is not included both Project Description and Monitoring Report, but it will be shared for review during audit visit.

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

The project proponent has developed and implements an Ethics and Anti-Corruption Policy⁹⁵ aimed at directors, managers, collaborators, suppliers and / or clients so that they apply ethical principles in their efforts and activities inside and outside the company.

Being the main economic activity of MADERACRE SAC the forest management to obtain products derived from wood, we have signed the National Pact for Legal Wood⁹⁶, a commitment that involves and links state entities, NGOs and private companies, both producers and users of the wood.

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

Table 2.18. Commercially sensitive information excluded from the public version of the MR.

Section	Information	Justification
Cash flow	It contains information on the revenue generated by the sale of timber and carbon credits, the expenses of activities execution linked to the	It reveals the company's financial health and ability to generate revenue, which directly affects its value in the market and can influence the

⁹⁵ Política de Ética, Anticorrupción, Antiterrorismo y prevención de lavado de activos

⁹⁶ Publicaciones relacionadas: <https://www.actualidadambiental.pe/cuanto-ha-avanzado-el-pacto-nacional-por-la-madera-legal/> // <https://www.midagri.gob.pe/porta/otas-de-prensa/otas-de-prensa-2014/11835-ministros-firman-pacto-nacional-por-la-madera-legal>.

Section	Information	Justification
	project and operations, as well as administrative expenses.	investment decisions of investors and other stakeholders.
Contracts	It contains significant legal, financial, and competitive implications for the parties involved.	Protect the confidentiality and security of the parties.
Salary	Compensation that an employee receives for their work in relation to the type of job position they occupy.	It safeguards worker privacy and security, as well as is a measure to maintain labor company equity and the strategic confidentiality.

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)

MADERACRE SAC sustainably manages a forest management unit under the protection of the forest concession contracts that it signed with the Peruvian State^{97 98} and through which it undertook to comply with the legislation on the matter, as well as, to protect the forest heritage of the Nation. Thus, MADERACRE SAC complies with the provisions of the Forestry Law No. 29763 and its regulations approved by Supreme Decree No. 018-2015-MINAGRI. The same ones that regulate the categorization of forests, access to forest resources, forestry and forest management, infractions in forestry matters, control, etc.

Access to forest resources is legally recognized as of the approval of the forest management plans⁹⁹, Operation Plan^{100 101} and them resolutions^{102 103 104 105}, at the same time periodically the Wildlife Oversight Organization (OSINFOR) executes audits of Maderacre's operations, not in 2022, and annually the MADERACRE SAC operation is audited by independent certification body under the FSC-MF and CoC-Standards¹⁰⁶, a standard that contemplates in principle one compliance with national and international legislation on forest management.

⁹⁷ Resolución Directorial Regional N° 425-2019

⁹⁸ Contrato de concesión 17_TAH_C_J_001_02

⁹⁹ Plan General de Manejo Forestal (PGMF) CMRA 2019

¹⁰⁰ Plan Operativo (PO) PC 18

¹⁰¹ Plan Operativo (PO) PC 19

¹⁰² Resolución Directorial Forestal N° 080_2019_GOREMAD

¹⁰³ Resolución N° 146. Aprobación movilización de saldos PC 18

¹⁰⁴ Resolución N° 148. Aprobación reintegro a la PC 18

¹⁰⁵ Resolución N° 149. Aprobación del PO PC 19

¹⁰⁶ Maderera Río Acre FSC FM audit 23 SPA

The concession contracts, the resolutions that approve the management plans and the results of the OSINFOR inspections and the FSC certificates that validate compliance with the forest legislation are available to the audit team.

Table 2.19. Relevant Legal Framework

Laws	Term	Content
The Constitution	October 31 st , 1993	It has a chapter that establishes the State's policy with respect to the environment and natural resources. Thus, it provides in article 66 that natural resources, both renewable and non-renewable, are the heritage of the Nation, and that an organic law establishes the conditions for their use and their granting to individuals. The concession grants its holder a right in rem, subject to that legal rule. With respect to environmental policy, article 67 of the Constitution recognizes the role of promoting the use of natural resources, affirming the State's commitment to developing possible mechanisms for the conservation and sustainable use of its biological diversity. Likewise, article 69 emphasizes the role of the State in promoting the sustainable development of the Amazon.
Law No. 28611 "General Environment Law"	October 15th, 2005	In Article VI of this Law, it stipulates that environmental management has as priority objectives to prevent, watch and avoid environmental degradation, and that when it is not possible to eliminate the causes that generate it, the corresponding measures of mitigation, recovery, restoration or eventual compensation are adopted. Likewise, article XI mentions that the design and application of environmental public policies are governed by the principle of environmental governance, which leads to the harmonization of policies, institutions, regulations, procedures, tools and information in such a way that it is possible for the effective and integrated participation of public and private actors in decision making, conflict management and consensus building, based on clearly defined responsibilities, legal security and transparency. On the other hand, Article 150 of the Law stipulates that those measures or processes that, on the initiative of the owner of the activity, are implemented and executed with the purpose of reducing and/or preventing environmental pollution and the degradation of natural resources, constitute conducts that can be rewarded with incentives. Article 92 of the law states that the State promotes the sustainable use of forest and wildlife resources, as well as the conservation of natural forests, emphasizing the principles of management and zoning of the national forest area, the management of forest resources, legal security in the granting of rights and the fight against illegal logging and hunting. It also promotes and supports the sustainable management of wild fauna and flora, prioritizing the protection of endemic and endangered species and varieties, based on technical, scientific and economic information and traditional knowledge. Article 94 of this Act states that environmental services include the protection of water resources, the protection of biodiversity, the mitigation of greenhouse gas emissions and scenic beauty, among others. In addition, while they generate benefits that are used without retribution or compensation, it establishes the need for the State to establish mechanisms to value, compensate and maintain the provision of these environmental services, seeking to achieve the conservation of ecosystems, biological diversity and other natural resources. This article ends by mentioning that the National Environmental Authority (Ministry of the Environment) promotes the creation of financing, payment and supervision mechanisms for environmental services.

Laws	Term	Content
DL No. 1013 "Law for the Creation of the Ministry of the Environment"	May 15th, 2008	Through this standard, the Ministry of Environment is created, its scope of sectorial competence is established and its organic structure and its functions are regulated. The Ministry of Environment is the governing body of the executive branch of the environmental sector, which develops, directs, supervises and executes the National Environment Policy. The environmental sector includes the National Environmental Management System as a functional system, which integrates the National Environmental Impact Assessment System, the National Environmental Information System and the National System of Natural Areas Protected by the State. Among its functions is to develop and coordinate the national strategy against climate change and adaptation and mitigation measures, as well as supervise its implementation. It is also up to it to establish policies on environmental services, prepare the inventory and establish mechanisms to value, reward and maintain the provision of environmental services, as well as to promote financing, payment and supervision thereof. Finally, it is up to him to promote the creation of financing, payment and supervision mechanisms for environmental services.
DS No. 12-2009-MINAM "National Environment Policy"	May 23rd, 2009	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 5 objectives, 4 policy axes and specific objectives and guidelines for each policy. One objective of the National Environmental Policy relevant to the Project is to achieve the conservation and sustainable use of the country's natural heritage, with efficiency, equity and social welfare, prioritizing the integrated management of natural resources. The environmental services are identified within the National Policy of the Environment in diverse points, indicating the necessity to foment its economic valuation through economic and financial instruments, emphasizing the importance of implementing systems of conservation of forests and protection of such as far as the degradation and deforestation.
DS No. 006-2009-MINAM "Accurate denomination and proper functioning of the National Commission for Climate Change in accordance with"	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.

Laws	Term	Content
Legislative Decree No. 1013"		
RM 104-2009-MINAM "Approves procedure for the assessment and authorization of Greenhouse Gas (GHG) emissions and carbon sequestration projects"	May 24th, 2009	With the approval of this procedure, the Ministry of the Environment proposes to promote the conservation of the environment, guaranteeing the sustainable use of natural resources in the framework of projects developed under the Clean Development Mechanism provided for in the Kyoto Protocol, forestry projects, projects to reduce emissions from deforestation and degradation (REDD) and programmatic CDM. The General Directorate of Climate Change, Desertification and Water Resources of the Ministry of the Environment is responsible for responding to project conformity.
DS No. 014-2011-MINAM "National Plan of Environmental Action" PLANAA - PERU 2011-2021	July 9th, 2011	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 the natural resources, the improvement in the environmental quality; and therefore, to improve 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 the area of 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. 011-2015-MINAM "National Strategy on Climate Change" update of DS No 086-2003-PCM	September 23rd, 2015	It is based on adaptation to the adverse effects and takes advantage of the opportunities imposed by climate change, laying the foundations for low-carbon sustainable development. The main objectives are for the population, economic agents and the state to increase awareness and adaptive capacity for action against the adverse effects and opportunities of climate change and; for the population, economic agents and the state to conserve carbon reserves and contribute to the reduction of GHG emissions. The means necessary for implementation are based on institutional and governance, public awareness and capacity building, scientific knowledge and technology, and financing.

Laws	Term	Content
Law 26839 "Law on the Conservation and Sustainable Use of Biological Diversity"	July 17th, 1997	It regulates the general framework for the conservation of biological diversity and the sustainable use of its components. It includes 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	It regulates the general framework for the sustainable use of natural resources, as they are part of the Nation's heritage. This law establishes that the natural resources maintained at their source, whether they are renewable or nonrenewable, are part of the Nation's heritage. The fruits and products of the natural resources, obtained in the manner established in this Act, are the property of the holders of the rights granted over them. The rights over natural resources are granted to individuals through concessions, permits, and authorizations in accordance with the conditions established by the special rules for each resource. The special rules include the mechanisms for financial compensation to the State for the granting thereof, the maintenance of the right in force, the conditions for registration in the appropriate registry, and the possibility of assignment between individuals. This means that ownership, i.e. the ownership of the fruits and products obtained in accordance with this organic law, belongs to the holders of the rights granted over the areas where the natural resources providing them are located. The regulation for the grant of rights to private individuals for the use of natural resources, renewable and non-renewable, varies according to the nature of such resources.
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 technology.
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.

Laws	Term	Content
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.
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.
Law No. 29763 “Forestry and Wildlife Law” and its four Regulations	September 30th, 2015	Aims to promote the conservation, protection, increase and sustainable use of forest and wildlife heritage within the national territory, integrating its management with the maintenance and improvement of forest and other wild vegetation ecosystem services, in harmony with the social, economic and environmental interest of the Nation; as well as to promote forest development, improve its competitiveness, generate and increase forest and wildlife resources and their value to society. The purpose of this Law is to establish the legal framework to regulate, promote and supervise forestry and wildlife activities in order to achieve their purpose. Article 13 creates the Forestry and Wildlife Service (SERFOR) as a specialized technical public body, being the National Forestry and Wildlife Authority. Likewise, the SERFOR is the governing body of the National System of Forestry and Wildlife Management (SINAFOR) and is constituted as its technical-normative authority at the national level, in charge of dictating the rules and establishing the procedures related to its scope. It coordinates its technical operation and is responsible for its proper functioning. With regard to its functions, Article 14 highlights paragraph e) To monitor compliance with the obligations of the rights granted under its jurisdiction and to sanction violations arising from its failure to comply, respecting the powers of the Forestry and Wildlife Oversight Organization (OSINFOR), the Environmental Assessment and Monitoring Agency (OEFA), regional and local governments and other public bodies; paragraph g)

Laws	Term	Content
		Exercise the function of Authority of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Peru for the specimens of the species of wild flora and fauna that reproduce on land, including all kinds of amphibians and emerging aquatic flora. Article 18 of the Forestry and Wildlife Oversight Organization (OSINFOR) is responsible for supervising and monitoring the sustainable use and conservation of forest and wildlife resources and the services provided by forest and other wild vegetation ecosystems, granted by the State through enabling titles regulated by this Act. The SERFOR and the regional and local governments, through their corresponding officials, compulsorily inform OSINFOR about the forest and wildlife management, the scope and status of the enabling titles granted, under administrative responsibility and without prejudice to civil and criminal liabilities. OSINFOR reaches in a timely manner all information that may be useful for the administration and control of forest and wildlife resources to the corresponding entity. In article 19, the regional government is the regional forestry and wildlife authority (ARFFS). Article 23. Forest and wildlife manager is the natural person with training and professional experience in the area that requires being managed and registered in the National Registry of Forest and Wildlife Regents, who formulates and subscribes to forest management or wildlife. He is responsible for directing the activities in application of the approved management plan, to guarantee the sustainability of the forest resource. It is jointly and severally responsible with the holder or holder of the enabling title of the veracity of the content of the management plan and its implementation, as well as the correct issuance of the forest transport guides. Article 29. Permanent production forests are established by ministerial resolution of the Ministry of the Environment, at the proposal of SERFOR, in category I and II forests, for the purpose of permanent production of wood and other forest products other than wood, as well as wildlife and the provision of ecosystem services. The State promotes the integrated management of these forests. To this end, the regional forestry and wildlife authority prepares, directly or through third parties, and approves the Master Management Plan containing, at a minimum, the identification of sites requiring special treatment to ensure the sustainability of harvesting, access routes, common roads and control points. Prior to its establishment, the State carries out the environmental impact assessment and consults the population that may be affected by its establishment.
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.
DS No. 007-2013-MINAGRI "Regulation"	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

Laws	Term	Content
of Organization and Functions of the National Forest and Wildlife Service - SERFOR"		the governing body of the National 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.
DS No. 018-2015-MINAGRI "Regulation for Forest Management"	September 30th, 2015	The regulation aims to promote the conservation, protection, enhancement and sustainable use of the forest heritage, integrating its management with the maintenance and improvement of forest and other wild vegetation ecosystem services. This applies to the different natural or legal persons, of public or private law, linked to the management of forests and wildlife, to the sustainable use of forest resources, to the services of the ecosystems of wild vegetation and to the forest and other forestry and related activities, throughout the national territory.
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.
Resolución de Dirección Ejecutiva N° D000040-2023-MIDAGRI-SERFOR-DE	February 20th, 2023	Approve the 'Action Plan for the proper implementation of the inclusion of Shihuahuaco (genus <i>Dipterix</i>) and Tahuari (genus <i>Handroanthus</i>) in Appendix II of CITES, years 2023 and 2024' which is an integral part of this Resolution.

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

Relevant laws and regulations that contemplate the rights of workers in the country. The project fully accomplishes all the applicable laws with its workers.

Table 2.20. Worker's Rights Legal Framework

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	This law promotes the massive access to employment through special programs and stimulates productive private sector investment. Furthermore, it improves levels of appropriateness in the country so substances, as well as combating unemployment and underemployment. Finally, ensures job security and incomes of workers, while respecting the constitutional rules of job security.
Supreme Decree 001-96-TR productivity and competitiveness regulation	January 26th, 1996	This regulation develops and specifies the objectives and tenets of Legislative Decree 728.
Law 29245 third-party services provider law	June 26th, 2008	This law regulates private third-party services. Also, it regulates the cases from outsourcing, the requirements, rights and obligations, and penalties for companies that distort the use of this method for corporate engagement.
Supreme Decree 006-2008-TR third-party services provider regulations	September 12th, 2008	This regulation develops and specifies the objectives and tenets of Law 29245.
TUO Supreme Decree 001-97-TR seniority benefits law	March 1st, 1997	This law regulates compensation for length of service that has the quality of social benefit provision of contingencies that causes the cessation of work and promotion of workers and their families.
Supreme Decree 004-97-TR seniority benefits regulation	April 15th, 1997	This regulation develops and specifies the objectives and tenets of Supreme Decree 001-97-TR
Legislative Decree 713 vacation law	November 8th, 1991	This law regulates the consolidation of the benefits provided by the existing labor laws.
Supreme Decree 012-92-TR vacation regulation	December 3rd, 1992	This regulation develops and specifies the objectives and tenets of Legislative Decree 713.
Law 27735 half/end-of-year holiday bonuses law	May 8th, 2002	This law establishes the right of workers subject to the labor of the private sector to receive two bonuses in the year, among others.
Supreme Decree 005-2002-tr half/end-of-year holiday bonuses regulation	July 4th, 2002	This regulation develops and specifies the objectives and tenets of Law 27735.
Legislative Decree 892 profit sharing law	November 8th, 1996	This standard regulates the right of workers to participate in the profits of companies that develop income-generating activities.

Norm	Effective Date	Relevant articles demonstrating compatibility with the layout/implementation of the Project
Supreme Decree 009-98-TR profit sharing regulation	November 6th, 1998	This regulation develops and specifies the objectives and tenets of Supreme Decree 009-98-TR.
Legislative Decree 688 social benefits consolidation law	5th, 1991	This law regulates social benefits for workers.
Supreme Decree 024-2001-TR social benefits consolidation regulation	July 22nd, 2001	This regulation develops and specifies the objectives and tenets of Legislative Decree 688.
Supreme Decree 007-2002-TR law on days of work, hours and overtime	July 4th, 2002	This law regulates days of work, hours and overtime in benefit of workers and proceedings for Peruvian labor authority and registries in order to organize quality and quantity of work hours. Finally, it sets the maximum days and hours of work, including for night work, and regulate overtime.
Supreme Decree 008-2002-TR regulation on days of work hours and overtime	July 4th, 2002	This regulation develops and specifies the objectives and tenets of Supreme Decree 008-2002-TR.
Legislative Decree 25593 (TUO supreme decree 010-2003-TR) law on collective labor relations	October 5th, 2003	This law regulates union's freedom, i.e., all those relations through which workers can bargain collectively for better working conditions or otherwise.
Supreme Decree 011-92-TR regulation on collective labor relations	October 14th, 1992	This regulation develops and specifies the objectives and tenets of Law on Collective Labor Relations.
Law 28806 labor inspection law	July 22nd, 2006	This law aims to regulate the labor inspection system, its composition, organization structure, powers and duties in accordance with Convention 81 of the International Labor Organization.
Supreme Decree 019-2006-TR regulation of labor inspection system	September 1st, 2007	This regulation develops and specifies the objectives and tenets of Law 28806.
Law 26636 procedural labor law	June 21st, 1996	This law regulates all the judicial procedures that workers and employers need to do in order to access justice.
Supreme Decree 039-91-TR internal regulation	December 30th, 1991	Every employer who employs more than 100 workers is required to have internal work regulations. The regulation must contain the main provisions of the labor regulations in force and will be

Norm	Effective Date	Relevant articles demonstrating compatibility with the layout/implementation of the Project
		approved by the administrative labor authority upon presentation. Workers who consider that the regulation violates legal or conventional provisions in force at the workplace may take legal action.

The Project, through Maderacre S.A.C., pays vacations, holiday bonuses, extra hours and CTS, as requested by law. In addition, the company verifies that contractors meet these standards, also. Workers have life insurance and have the right to unionize as stated in ILO 169.

There is an internal regulation approved by the Company and inspections from MINTRA (Ministry of Labor) and SUNAFIL (Labor Inspection Superintendence). Based on all these standards, the company ensures that all labor opportunities offered to local communities are appropriately communicated and fair. The company is not forced to share net profits.

The project proponent has an administrative area of "Social well-being" in charge of communicating and training employees annually in relation to their labor rights and social benefits granted by the company. Likewise, if the personnel working on the project want to know in more detail its benefits, they should approach the "Social well-being" office located in the district of Iñapari.

2.5.3 Human Rights (VCS, 3.19)

The project proponent recognizes the rights of indigenous peoples and native communities through various actions in its Social Development Plan¹⁵ that allow the project activities to be proposed taking into account the social and cultural characteristics of these population groups. Belgica Native Community has been benefiting with agreements strengthen their local culture, customs, crafts, health and intercultural education (See Table 4.3). Moreover, given the proximity of occupied areas of indigenous people in voluntary isolation, the project proponent proposes actions for its preservation (See Table 4.7).

The implementation of activities proposed for the project, compliance with the "Policy on ethics, anti-corruption, anti-terrorism and prevention of money laundering"⁹⁵ is maintained, which promotes behaviour based on respect and recognition of communities, willing to dialogue, with the purpose of finding and developing common interests.

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

As mentioned above, the project contributes to the local culture preservation through the good relations and benefits it provides to the local communities and Belgica Native Community, mainly. In this sense, it contributes to the cultural heritage of the community and the population of Iñapari.

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

Disputes over rights to territories and resources	N/A
Respect for property rights	As described in the PD, <i>section 2.5.2 Recognition of Property Rights</i> , the forest concession granted to Maderacre S.A.C. has not any type of conflicts neither with other legal rights nor with consuetudinary rights of ancient traditional communities. The project area has been used for timber extraction for many decades, so no other rights are disputed over this area. It must be remembered that the concession was granted in 2002 over previous forest areas, in most of the cases already managed by the same companies/persons previously.

2.5.6 Benefit Sharing Mechanism (VCS, 3.18, 3.19)

According to section 2.5.5, benefit sharing mechanism is not applicable to the project.

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

Consent	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.
Outcome of FPIC	-

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

As indicated in section 2.5.5, the project area has been used for timber production purposes since decades and, since 2003, through a concession contract valid for 40 years, renewable automatically every 5 years, so, at a practical way, permanent. Tahuamanu province has a large tradition of forestry activities with abundance of rich species.

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

Maderacre S.A.C. is a company built on solid and transparent principles, where there is no room for illegal activities. Maderacre S.A.C. ensures that the financing of its activities, including the development and implementation of the Tahuamanu Amazon REDD Project, comes from the same productive activity of the business and the financing of banking institutions.

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

No ongoing disputes are pending to be solved within the project area. To confirm that, the borders of the concession are clearly signaled with physical milestones, settled at approximate equivalent distances, that cover the 100% of the project boundaries.

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

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

Data / Parameter	<i>CF</i>
Data unit	Mg C (Mg DM) ⁻¹
Description	Carbon fraction of dry matter in wood
Source of data	Default value of 0.5 (VM0006)
Value applied	0.50 (Tropical region; wood, tree d ≥ 10 cm)
Justification of choice of data or description of measurement methods and procedures applied	According to the IPCC, the default value for tropical region is 0.49 Mg C (Mg DM) ⁻¹ is applicable for wood, tree with d ≥ 10 cm all three tiers when remaining forest land, forest land or biomass carbon.
Purpose of data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario, Calculation of leakage
Comments	1 Mg C (Mg DM) ⁻¹ <> 1 t C (t DM) ⁻¹

Data / Parameter	<i>SC₁</i>
Data unit	-
Description	First shape factor for the forest scarcity equation; steepness of the decrease in deforestation rate (greater is steeper).
Source of data	See Appendix 2. Estimation of Scarcity Factor.
Value applied	-15.06
Justification of choice of data or description of measurement methods and procedures applied	See Appendix 2. Estimation of Scarcity Factor.

Purpose of data	Calculation of baseline emissions
Comments	-

Data / Parameter	SC ₂
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	See Appendix 2. Estimation of Scarcity Factor.
Value applied	0.6683
Justification of choice of data or description of measurement methods and procedures applied	See Appendix 2. Estimation of Scarcity Factor.
Purpose of data	Calculation of baseline emissions
Comments	-

Data / Parameter	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	$s/p(ty)$
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	$f_o(ty)$
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 Methodology VM006 V2.2 pág 102 (Winjum et al. 1998)
Value applied	0.85 for being Sawnwood from a tropical forest region
Justification of choice of data or description of measurement methods and procedures applied	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.

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	$\rho_{wood,j}$										
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										
Value applied	<table border="1"> <tr> <td>Apuleia leiocarpa</td><td>0.7</td></tr> <tr> <td>Hymenaea oblongifolia</td><td>0.62</td></tr> <tr> <td>Myroxylon balsamum</td><td>0.78</td></tr> <tr> <td>Amburana cearensis</td><td>0.43</td></tr> <tr> <td>Dipteryx odorata</td><td>0.93</td></tr> </table>	Apuleia leiocarpa	0.7	Hymenaea oblongifolia	0.62	Myroxylon balsamum	0.78	Amburana cearensis	0.43	Dipteryx odorata	0.93
Apuleia leiocarpa	0.7										
Hymenaea oblongifolia	0.62										
Myroxylon balsamum	0.78										
Amburana cearensis	0.43										
Dipteryx odorata	0.93										
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, 3.16)

Data / Parameter	<i>Size_{projectArea}, Size_{leakageArea}, Size_{ReferenceRegion}, Size_{ReferenceForest}.</i>			
Data unit	ha			
Description	Size of project area, leakage area, reference region, reference forest region			
Source of data	Geospatial information: Verra Search Page Excel Monitoring report.			
Description of measurement methods and procedures to be applied	Coverage and demarcations will be monitored and created using satellite imagery.			
Frequency of monitoring/recording	Size _{projectArea} and Size _{leakageArea} 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 monitored	Size _{projectArea}	Size _{leakageArea}	Size _{ReferenceRegion}	Size _{ReferenceForest}
	169,956.81	100,554.47	523,510.20	466,168.32
Monitoring equipment	Satellite imagery and GeoBosques Satellite Information			
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 the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario, Calculation of leakage emissions			
Calculation method	It works with the vector file			
Comments	No comment			

Data / Parameter	$\Delta area_{projectAreaEAH,projectScenario}(t, i)$						
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].						
Source of data	Remote sensing analysis - Excel Monitoring report						
Description of measurement methods and procedures to be applied	For the monitoring period within the project area, there is no deforestation, so there are no areas in transition.						
Frequency of monitoring/recording	At least once before verification						
Value monitored	((Project area – Area of felling plots) / Project area * $D_{projectAreaprojectScenario.DF}(t)$ $D_{projectAreaprojectScenario.DF}(t)$ is equal to “0” for each year. <table><tr><th>Year</th><th>Area of felling plots</th><th>$\Delta area_{projectAreaEAH,projectScenario}(t, i)$</th></tr><tr><td>2022</td><td>14,403.19</td><td>15.84</td></tr></table>	Year	Area of felling plots	$\Delta area_{projectAreaEAH,projectScenario}(t, i)$	2022	14,403.19	15.84
Year	Area of felling plots	$\Delta area_{projectAreaEAH,projectScenario}(t, i)$					
2022	14,403.19	15.84					
Monitoring equipment	Software GIS, images Landsat,						
QA/QC procedures to be applied	Monitored data using GEOBOSQUES annual deforestation maps.						
Purpose of the data	Calculation of project emissions						
Calculation method	It works with the vector file						
Comments	Data on the area of the felling plots can be found in the general forest management plan.						

Data / Parameter	$\Delta area_{projectAreaEAH,BaselineScenario}(t, i)$
Data unit	ha yr ⁻¹
Description	Hectares undergoing transition <i>ii</i> within the project area, excluding the ANR area, and harvest areas, under the baseline scenario for year <i>ss</i> .

Source of data	Land-use change for Geobosques (MINAM) - Excel Monitoring report						
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 monitored	((Project area – Area of felling plots) / Project area * $D_{\text{projectAreabaselineScenario.DF}^{(t)}}$ $D_{\text{projectAreabaselineScenario.DF}^{(t)}}$ is equal to “0” for each year. <table><tr><th>Year</th><th>Area of felling plots</th><th>$\Delta \text{area}_{\text{projectAreaEAH,BaselineScenario}(t, i)}$</th></tr><tr><td>2022</td><td>14,403.19</td><td>1,034.19</td></tr></table>	Year	Area of felling plots	$\Delta \text{area}_{\text{projectAreaEAH,BaselineScenario}(t, i)}$	2022	14,403.19	1,034.19
Year	Area of felling plots	$\Delta \text{area}_{\text{projectAreaEAH,BaselineScenario}(t, i)}$					
2022	14,403.19	1,034.19					
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 the data	Calculation of baseline emissions; Determination of baseline scenario						
Calculation method	Calculation of the area of the shapefile in vector format and Determination of baseline scenario						
Comments	Data on the area of the felling plots can be found in the general forest management plan.						

Data / Parameter	$\Delta \text{area}_{\text{projectAreaWithANR}, \text{baselineScenario}}(t, i)$
Data unit	ha yr ⁻¹
Description	Hectares undergoing transition i within the leakage area under the project scenario for year t
Source of data	-
Description of measurement methods and procedures to be applied	Not applicable.

Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable because ANR is not included as a project activity.

Data / Parameter	$\Delta area_{leakageArea,projectScenario}(t, i)$					
Data unit	ha yr ⁻¹					
Description	Hectares undergoing transition <i>ii</i> within the leakage area under the project scenario for year <i>ss</i>					
Source of data	Geobosques Data - Excel Monitoring report.					
Description of measurement methods and procedures to be applied	Coverage and demarcations will be monitored and created using satellite imagery.					
Frequency of monitoring/recording	At least once before verification					
Value monitored	<table><tr><td>Year</td><td>$\Delta area_{leakageArea,projectScenario}(t, i)$</td></tr><tr><td>2022</td><td>456.57</td></tr></table>		Year	$\Delta area_{leakageArea,projectScenario}(t, i)$	2022	456.57
Year	$\Delta area_{leakageArea,projectScenario}(t, i)$					
2022	456.57					
Monitoring equipment	Software GIS, images Landsat					
QA/QC procedures to be applied	high-resolution images will be used to assess accuracy of results initially obtained. The application will be based on statistically robust parameters.					
Purpose of the data	Calculation of project emissions					

Calculation method	Calculation of the area of the shapefile in vector format and Determination of baseline scenario
Comments	Excel Monitoring Report Sheet 2.

Data / Parameter	$\Delta area_{leakageArea, baselineScenario}(t, i)$				
Data unit	ha yr ⁻¹				
Description	Hectares undergoing transition <i>ii</i> within the leakage area under the baseline scenario during year <i>ss</i>				
Source of data	Baseline - Excel Monitoring report				
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 monitored	<table border="1"> <thead> <tr> <th>Year</th><th>$\Delta area_{leakageArea, baselineScenario}(t, i)$</th></tr> </thead> <tbody> <tr> <td>2020</td><td>1,670.13</td></tr> </tbody> </table>	Year	$\Delta area_{leakageArea, baselineScenario}(t, i)$	2020	1,670.13
Year	$\Delta area_{leakageArea, baselineScenario}(t, i)$				
2020	1,670.13				
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 the data	Calculation of Baseline scenario				
Calculation method	Calculation of the area of the shapefile in vector format and Determination of baseline scenario				
Comments	Excel Monitoring Report Sheet 2				

Data / Parameter	$\Delta area_{historical} (CS1 \rightarrow CS2, t1 \rightarrow t2)$
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	Geobosques (MINAM) - Excel Monitoring report.						
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 monitored	In this case, as indicated by the methodological deviation, all deforestation is considered to be caused by the pasture driver. Only one representative class and only one stratum. <table border="1"> <tr> <td></td><td>2022</td></tr> <tr> <td>Project area</td><td>15.84</td></tr> <tr> <td>Leakage belt</td><td>456.57</td></tr> </table>		2022	Project area	15.84	Leakage belt	456.57
	2022						
Project area	15.84						
Leakage belt	456.57						
Monitoring equipment	Software GIS, Landsat images						
QA/QC procedures to be applied	-						
Purpose of the data	Calculation of project emissions						
Calculation method	Methodological deviation using GEOBOSQUES data						
Comments	The only post-deforestation land use considered is pastures as it has the highest carbon stock, making the land-use change emission factor more conservative.						

Data / Parameter	Area _{biomassloss(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 monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable because biomass loss for creating firebreaks is not included in project activity.

Data / Parameter	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	No prescribed fires activities were implemented.
Frequency of monitoring/recording	At least once before verification.
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-

Comments	Not applicable because biomass loss for creating firebreaks was not included in project activity nor prescribed fires.
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Data / Parameter	$area_{fireBiomassLoss,ANR}(t, i)$
Data unit	ha
Description	Area of biomass removed by prescribed burning within ANR stratum i during year t
Source of data	Records of implemented activities or management plan
Description of measurement methods and procedures to be applied	Not applicable.
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable because ARN is not part of project activities.

Data / Parameter	$area_{projectAreaWithANR,projectScenario}(t, i)$
Data unit	ha
Description	Amount of land on which ANR activities are planned under the project scenario for year t and in stratum i
Source of data	Records of implemented activities or management plan

Description of measurement methods and procedures to be applied	Not applicable.
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable because ANR is not part of project activities.

Data / Parameter	Area _{harvest} (t, i)					
Data unit	ha					
Description	Area of forest in harvest stratum <i>ii</i> that is harvested at time <i>ss</i> . - Excel Monitoring report -					
Source of data	Project Description or Forest/Harvest Management Plan					
Description of measurement methods and procedures to be applied	Forest analysis described in PGMF					
Frequency of monitoring/recording	At least once before verification					
Value monitored	<table><tr><td>Year</td><td>Area _{harvest}(t, i)</td></tr><tr><td>2022</td><td>14,403.19</td></tr></table>		Year	Area _{harvest} (t, i)	2022	14,403.19
Year	Area _{harvest} (t, i)					
2022	14,403.19					
Monitoring equipment	GPS					
QA/QC procedures to be applied	-					

Purpose of the data	Calculation of baseline emissions; Calculation of project emissions; Determination of baseline scenario.
Calculation method	It works with the vector file.
Comments	-

Data / Parameter	$Area_{projectArea with Harvest, Project Scenario}(t, i)$		
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 - Excel Monitoring report		
Description of measurement methods and procedures to be applied	Forest analysis described in Forestal Management Plan		
Frequency of monitoring/recording	At least once before verification		
Value monitored	<table><tr><td>$Area_{harvest}(t, i)$</td></tr><tr><td>14,403.19</td></tr></table>	$Area_{harvest}(t, i)$	14,403.19
$Area_{harvest}(t, i)$			
14,403.19			
Monitoring equipment	GPS		
QA/QC procedures to be applied	-		
Purpose of the data	Calculation of project emissions.		
Calculation method	It works with the vector file.		
Comments	-		

Data / Parameter	$Area_{projectAreawithHarvest,BaselineScenario}(t, i)$	
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	Forest Management Plan - Excel Monitoring report.		
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 monitored	$(\text{Area}_{\text{projectArea with Harvest, projectScenario}}(t, i) / \text{Project area}) *$ $D_{\text{projectArea, baselineScenario, DF}}(t, i)$ <table> <tr> <td>$\text{Area}_{\text{projectArea with Harvest, BaselineScenario}}(t, i)$</td> </tr> <tr> <td>95.76</td> </tr> </table>	$\text{Area}_{\text{projectArea with Harvest, BaselineScenario}}(t, i)$	95.76
$\text{Area}_{\text{projectArea with Harvest, BaselineScenario}}(t, i)$			
95.76			
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_Deteccion_Perdida_de_Bosque. And the general forest management plan (PGMF).		
Purpose of the data	Calculation of baseline emissions; Determination of baseline scenario.		
Calculation method	Sheet 10		
Comments	-		

Data / Parameter	BetaRegDF (t)
Data unit	ha yr ⁻¹
Description	Beta regression model describing the relationship between time and deforestation rate in the reference region during the historical reference period.
Source of data	Historic forest degradation and deforestation modeling - Excel Monitoring report.
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 monitored	Year	BetaReg _{DF} ^(t)
	2017	3,883.64
	2018	4,416.28
	2019	5,003.30
	2020	5,648.68
	2021	6,355.38
	2022	7,125.28
	2023	7,959.03
	2024	8,855.79
	2025	9,813.07
	2026	10,826.52
Monitoring equipment	Statistical Software R	
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 the data	Calculation of baseline emissions, Determination of baseline scenario	
Calculation method	Applying a Beta Regression to historical values	
Comments	Changes were derived from application of methodology VM0015 v.1.1.	

Locations, Descriptions, Qualitative and Social Data

Data / Parameter	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 monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable because agricultural intensification activities are not included in project activity.

Data / Parameter	$DF W_{baseline}$
Data unit	m ³ yr ⁻¹
Description	Annual volume of fuelwood gathered for domestic and local energy in the baseline scenario
Source of data	Participatory rural appraisals Recent (<10 yr) literature in the reference region Recent (<10 yr) literature in an area similar to the reference region
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-

QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	$DFW_{project}$
Data unit	$m^3\ yr^{-1}$
Description	Biomass (dry matter) of fuelwood collected by project participants under the project scenario.
Source of data	Participatory rural appraisals Recent (<10 yr) literature in the reference region Recent (<10 yr) literature in an area similar to the reference region
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. There is no consumption of fuelwood in the area.

Data / Parameter	$DFW_{allowed}$
Data unit	$m^3\ yr^{-1}$

Description	Biomass (dry matter) of allowed fuelwood collection in the project area under the project scenario. This amount is typically fixed in a management plan. [m ³ yr ⁻¹]
Source of data	Forest management plan
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. There is no consumption of fuelwood in the area.

Data / Parameter	$VG_{baseline}$
Data unit	m ³ yr ⁻¹
Description	Biomass (dry matter) of understory vegetation extraction by project participants under the baseline scenario. [Mg DM yr ⁻¹]
Source of data	Participatory rural appraisals Recent (<10 yr) literature in the reference region Recent (<10 yr) literature in an area similar to the reference region
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-

Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. Does not occur within the project area.

Data / Parameter	$VG_{project}$
Data unit	Mg DM yr ⁻¹
Description	Biomass (dry matter) of understory vegetation extraction by project participants under the project scenario.
Source of data	Participatory rural appraisals Recent (<10 yr) literature in the reference region Recent (<10 yr) literature in an area similar to the reference region
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-

Comments	Not applicable. Does not occur within the project area.
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Data / Parameter	$VG_{allowed}$
Data unit	Mg DM yr ⁻¹
Description	Biomass (dry matter) of understory vegetation extraction under the project scenario. This amount is typically fixed in a management plan.
Source of data	Forest management plan
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. Does not occur within the project area.

Data / Parameter	$CT_{baseline}(h, j, ty, t)$
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	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 monitored	<table><tr><th>Year</th><th>m³</th></tr><tr><td>2022</td><td>45,549.08</td></tr></table>	Year	m ³	2022	45,549.08	
Year	m ³					
2022	45,549.08					
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 the 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	Same value as CT _{project} (h, j, ty, t). In Sheet 7 of Excel Monitoring Report.					

Data / Parameter	$CT_{project}(h, j, ty, t)$					
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 h by species j and wood product class ty during year t .					
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 monitored	<table><tr><th>Year</th><th>m³</th></tr><tr><td>2022</td><td>45,549.08</td></tr></table>	Year	m ³	2022	45,549.08	
Year	m ³					
2022	45,549.08					

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 the 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	In Sheet 7 of Excel Monitoring report.

Data / Parameter	<i>Contribution_{DF}(d) and Contribution_{DG}(d)</i>
Data unit	-
Description	Relative contribution of driver i respectively to total deforestation and forest degradation.
Source of data	GEOBOSQUES combined with Beta Regression.
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 monitored	Excel Monitoring Report, sheets “contribution” and “Deforestation rate”.
Monitoring equipment	Computer.
QA/QC procedures to be applied	Constant and complete revisions in each update of the spreadsheets.
Purpose of the 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	-

Data / Parameter	<i>RelativeDriverImpact_{DF}(t,d)</i> and <i>RelativeDriverImpact_{DG}(t,d)</i>
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	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. No geographically unconstrained driver has been identified in the baseline scenario.

Data / Parameter	<i>leakage_{unconstrained}(d)</i>
Data unit	-
Description	Leakage cancellation rate for avoiding deforestation/degradation from geographically unconstrained drivers.
Source of data	-
Description of measurement methods and procedures to be applied	-

Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. A default value of 100% was used as recommended by the methodology.

Data / Parameter	<i>effectiveness(α, d)</i>
Data unit	-
Description	Effectiveness of every project activity α 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. - Excel Monitoring report.
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 monitored	Legal recognition of the land tenure status: 0.040 Demarcation and forest protection: 1.000 Alternative livelihoods: 0.312

Monitoring equipment	The <i>effectiveness(α, d)</i> 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 the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario.
Calculation method	-
Comments	-

Data / Parameter	$\Delta A_{\text{rice}}(tt)$
Data unit	ha
Description	Annual increase in harvested area of rice due to leakage prevention measures.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. No rice cultivation activity is implemented as a measure to prevent leakage.

Data / Parameter	$t_{\text{flooded}, \text{max}}$
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Data unit	Days yr ⁻¹
Description	Maximal period of time a field is flooded.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. No rice cultivation activity is implemented as a measure to prevent leakage.

Data / Parameter	$GR_{baseline}$
Data unit	-
Description	Number of grazing animals of type g within the project boundary baseline.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-

Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	$GR_{allowed}$
Data unit	-
Description	Number of grazing animals of type g allowed for grazing within the project boundary in the project scenario.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	$Fuelwood(t)$; $Fuel(t)$
------------------	------------------------------

Data unit	$\text{m}^3 \text{ yr}^{-1} \text{ HH}^{-1}$
Description	Average annual volume of biomass fuel consumed by households in the absence of the project activity in year t for cooking purpose.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	$HH_{non-CFE}(t)$
Data unit	-
Description	Total number of household in the project area that collect biomass fuel from the project area and do not use CFE in year t .
Source of data	Social assessments results or wood energy statistics applicable to the project.
Description of measurement methods and procedures to be applied	Ex-post, this value must be obtained from socio-economic survey.

Frequency of monitoring/recording	At least once before verification.
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	<i>η_{old}</i>
Data unit	-
Description	Default value of 0.10 for three stone stove or conventional stove that lacks improved combustion air supply mechanism and flue gas ventilation systems i.e., without a grate as well as a chimney; for rest of the systems 0.2 default value may be used.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-

Calculation method	-
Comments	Not applicable.

Data / Parameter	η_{new}
Data unit	-
Description	Efficiency of the baseline cookstoves or appliances.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	$U_{CFE}(t)$
Data unit	-
Description	Fraction of cumulative usage rate for technologies in project scenario in year t.
Source of data	-

Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	$DF_{LeakageCFE}(t)$
Data unit	-
Description	Leakage discount factor applicable to GHG emissions reduction benefits from CFE activities.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-

Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	$EF_{non-CSS2,ccuel}$, $EF_{CSS2,ccuel}$
Data unit	t CO ₂ TJ ⁻¹
Description	Respectively, non-CO ₂ emission factor of the fuel that is reduced and CO ₂ emission factor for the substitution of non-renewable biomass by similar consumers.
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	EF_{forest}
Data unit	tCO ₂ e
Description	Emission factor related to leakage.
Source of data	-

Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data on Organic Matter and Carbon Densities

Data / Parameter	$OM_o(i)$
Data unit	Mg DM ha ⁻¹
Description	Plant-derived organic matter of LULC class or forest stratum i in pool o .
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 – $OM_{AGT}(i)$, aboveground non-tree – $OM_{AGNT}(i)$, lying dead wood – $OM_{LDW}(i)$, standing dead wood $OM_{SDW}(i)$, belowground $OM_{BG}(i)$, and soil organic matter $OM_{SOM}(i)$
Frequency of monitoring/recording	At least once before every baseline update
Value monitored	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 $OM_{\text{plant}}(i)$ and $OM_{\text{soil}}(i)$
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario
Calculation method	-
Comments	-

Data / Parameter	Proportion _{DF} (d) and Proportion _{DG} (d)								
Data unit	-								
Description	Proportion of the gradual carbon loss that leads to deforestation or forest degradation, respectively, due to driver <i>d</i>								
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 monitored	<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%							
Monitoring equipment	-								
QA/QC procedures to be applied	-								
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario								
Calculation method	-								
Comments	-								

Data / Parameter	$C(t, i)$												
Data unit	Mg C ha ⁻¹ yr ⁻¹												
Description	Carbon stock density at time in stratum (AGL + BG)												
Source of data	National Forest and Wildlife Inventory (SERFOR, 2019).												
Description of measurement methods and procedures to be applied	For the forest class: <table><tr><td>$p \cdot \text{Exp}(-1.499 + 2.148 \cdot \ln(\text{dbh}) + 0.207 \cdot \ln(\text{dbh})^2 - 0.0281 \cdot \ln(\text{dbh})^3)$</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>$\text{BGB.t} = 0.489 \cdot \text{AGB.t}^{0.890}$</td><td>All</td><td></td><td>Mokany <i>et al.</i>, 2006</td></tr></table>	$p \cdot \text{Exp}(-1.499 + 2.148 \cdot \ln(\text{dbh}) + 0.207 \cdot \ln(\text{dbh})^2 - 0.0281 \cdot \ln(\text{dbh})^3)$	Selva Baja	Moist forest	Chave <i>et al.</i> , 2005	Below-ground biomass in trees (BGB.t)				$\text{BGB.t} = 0.489 \cdot \text{AGB.t}^{0.890}$	All		Mokany <i>et al.</i> , 2006
$p \cdot \text{Exp}(-1.499 + 2.148 \cdot \ln(\text{dbh}) + 0.207 \cdot \ln(\text{dbh})^2 - 0.0281 \cdot \ln(\text{dbh})^3)$	Selva Baja	Moist forest	Chave <i>et al.</i> , 2005										
Below-ground biomass in trees (BGB.t)													
$\text{BGB.t} = 0.489 \cdot \text{AGB.t}^{0.890}$	All		Mokany <i>et al.</i> , 2006										
Frequency of monitoring/recording	At least once before verification												
Value monitored	Forest: 372.68 Mg dm/ha * 0.5 Pasture: 66.47 Mg dm/ha * 0.5												
Monitoring equipment	-												
QA/QC procedures to be applied	Use of the most updated reported values in literature.												
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario												
Calculation method	-												
Comments	-												

Data / Parameter	$f_{allometric}(y)$
Data unit	Equation
Description	Allometric relationship to convert a tree metric such as DBH or tree height into biomass.
Source of data	National Forest and Wildlife Inventory (SERFOR, 2019).
Description of measurement methods and procedures to be applied	

Frequency of monitoring/recording	At least once before every baseline update.
Value monitored	Allometric equations were used to calculate aboveground biomass by ecozone: $AGB.t = \rho * \text{Exp}(-1.499 + 2.148 * \text{Ln}(dap) + 0.207 * \text{Ln}(dap)^2 - 0.0281 * \text{Ln}(dap)^3)$
Monitoring equipment	-
QA/QC procedures to be applied	Use of the official national information, for the respective forest stratum.
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario.
Calculation method	-
Comments	

Data / Parameter	$f_{belowground}(y)$
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 (SERFOR, 2019).
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	At least once before every baseline update.
Value monitored	$BGB.t = 0.489 * AGB.t^{0.890}$
Monitoring equipment	-
QA/QC procedures to be applied	Use of the official national information, for the respective forest stratum.
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario

Calculation method	-
Comments	-

Data / Parameter	$C_{\text{harvest}}(t,i)$
Data unit	Mg C ha ⁻¹
Description	Biomass carbon stock density at time t 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 monitored	690.63
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 the data	Calculation of baseline emissions, Calculation of project emissions.
Calculation method	Carbon Stock – (carbon content in timber harvested / harvested area)
Comments	-

Data / Parameter	$CE_{\text{inventory, harvest}}(t,i)$
------------------	---------------------------------------

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 monitored	0.011
Monitoring equipment	Uncertainty estimate in carbon stocks in harvested strata must come from sampling of plots in harvested areas.
QA/QC procedures to be applied	-
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions; Determination of baseline scenario.
Calculation method	100% Census in harvest plot
Comments	-

Data / Parameter	$CE_{inventory,ANR}(t,i)$
Data unit	-
Description	Combined error in estimate of average biomass stock density in ANR areas in stratum I at time t
Source of data	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-

Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable.

Data / Parameter	<i>Uclassification</i>
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 LULC map for year 2022
Description of measurement methods and procedures to be applied	Section 8.1.2.7 of VM0006.
Frequency of monitoring/recording	At least once before verification
Value monitored	0.946667
Monitoring equipment	GIS software
QA/QC procedures to be applied	- Randomization of 150 points per class (strata). A total of 600 points evaluated. - Kappa Index to evaluate accuracy of the classified image with higher resolution maps (Planet monthly mosaics)
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions
Calculation method	Confusion matrix

Comments	-
Data / Parameter	$u_{\text{stratification}}$
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	-
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/recording	-
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	Not applicable. There is only one forest stratum in the project.

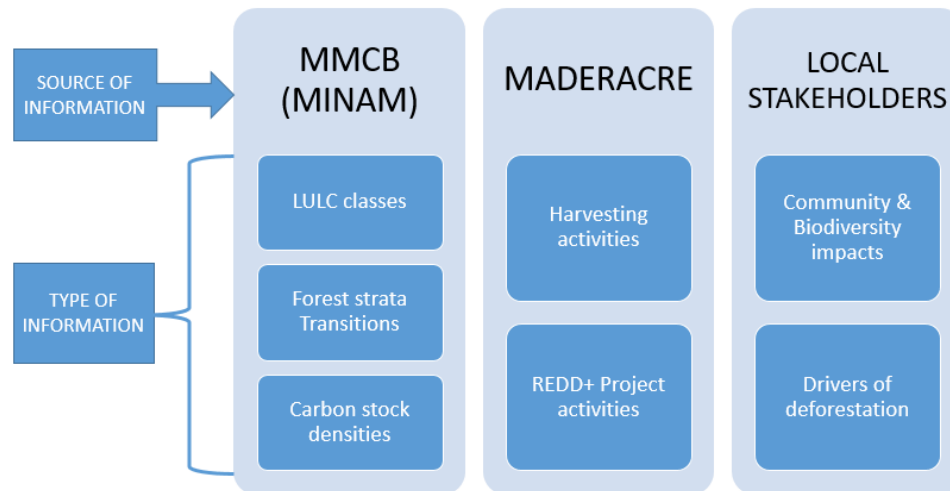
Data / Parameter	$u_{\text{transition}} (i)$
Data unit	[-]
Description	Discounting factor for the emission factor for the transition from LULC class or forest stratum 1 to class 2 according to the uncertainty of the biomass inventory.
Source of data	Eder Ramos-Hernández & José Luis Martínez-Sánchez in “Almacenes de biomasa y carbono aéreo y radicular en pastizales de Urochloa

	decumbens y Paspalum notatum (Poaceae) en el sureste de México. Excel Monitoring report
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
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	Calculation of baseline emissions, Calculation of project emissions;
Calculation method	$u_{transition}(CS1 \rightarrow CS2) = \begin{cases} 1 & \text{if } CE_{transition}(CS1 \rightarrow CS2) \leq 0.15, \\ 1 - CE_{transition}(CS1 \rightarrow CS2) & \text{if } 0.15 < CE_{transition}(CS1 \rightarrow CS2) < 1, \\ 0 & \text{if } CE_{transition}(CS1 \rightarrow CS2) \geq 1 \end{cases} \quad [EQ34]$
Comments	-

3.1.3 Monitoring Plan (VCS, 3.16, 3.20)

The main objective of the Monitoring Plan is the collection of data that allow the verification of deforestation within the project area and its leakage belt over time, periodically updating the emission estimates as well as the generation of information. sufficient and timely to measure the results of the implementation of the activities defined to achieve the objectives of the Tahuamanu Amazon REDD Project and from there make the necessary adjustments in the strategies or activities as part of the adaptive management being implemented.

Figure 3.1. Sources of information by type



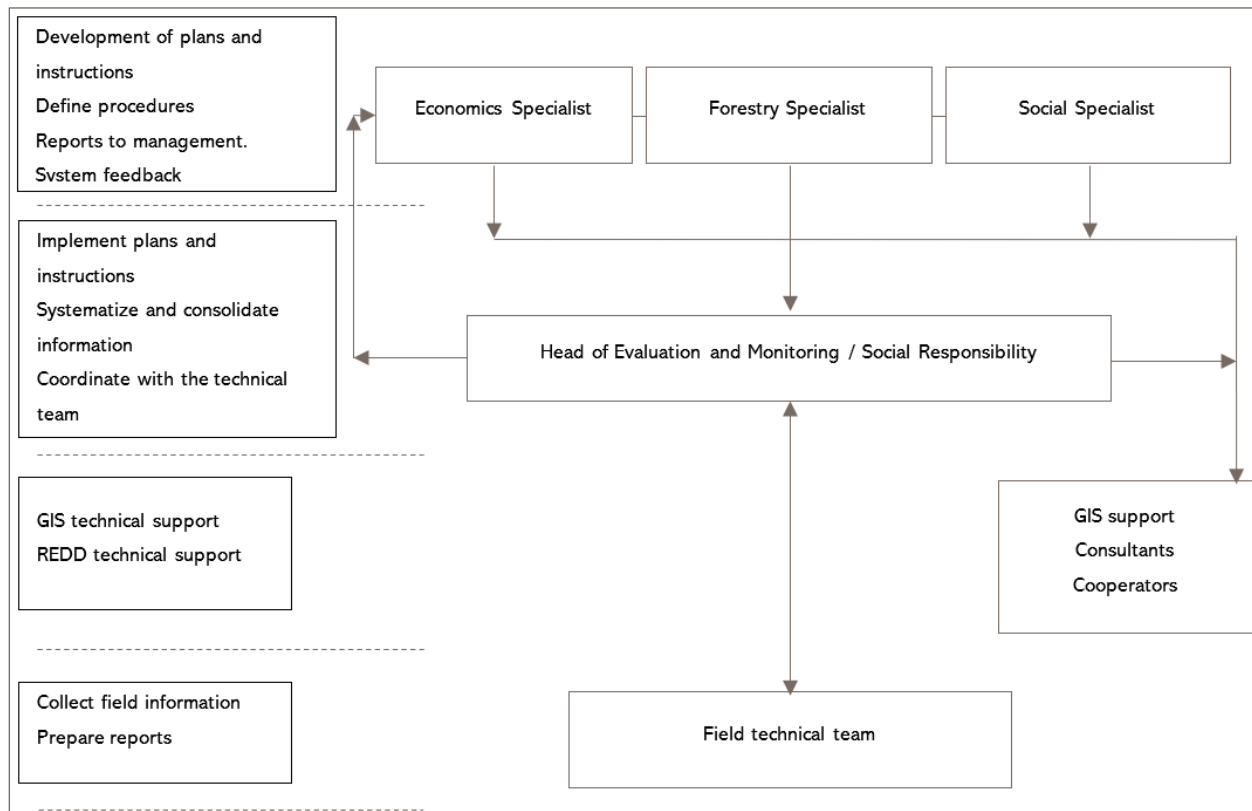
ORGANIZATIONAL STRUCTURE

The Project is implemented by MADERACRE SAC, a company with almost two decades of experience in the sustainable management of natural tropical forests in order to obtain ecosystem benefits from the sustainable management of the landscape. MADERACRE SAC has a trained and experienced technical team for the implementation of the project, capacities that also extend to monitoring tasks.

The development of the Monitoring Plan is in charge of a multidisciplinary team, led by an economist, a forestry specialist, and a social specialist, allowing a comprehensive approach to the different components of the plan. Its implementation is in charge of the head of the Monitoring and Evaluation Area (M&E), who must articulate it with the technical field staff, the latter is the one who performs the measurements on the ground and corroborates the information in the office. It has specialized consultants with extensive experience who provide support in the calculations of emissions, as well as support in GIS for the analysis and interpretation of satellite images necessary for the calculation of deforestation.

The information flow of the monitoring system and the organizational structure of the project monitoring system are detailed below.

Figure 3.2. Organizational Structure



INFORMATION MANAGEMENT: COLLECTION, TREATMENT and REPORTS

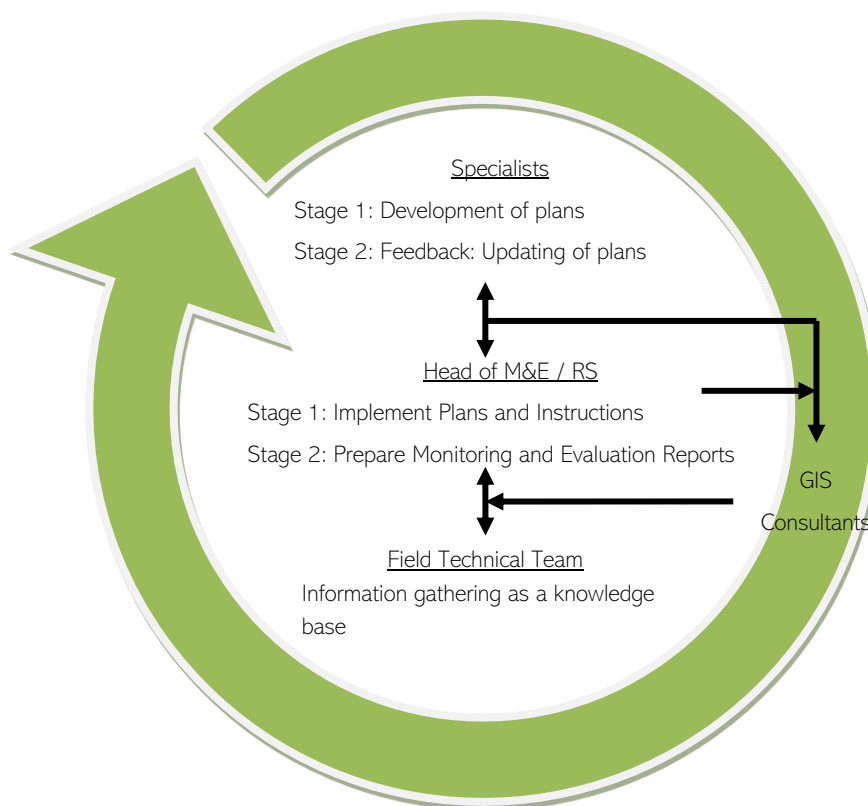
The project is based on the premise of "Adaptive Management", in this sense all intervention in the forest is based on previous information collected in the field. Based on this knowledge, the Management Plans, Operational Plans and other management instructions necessary for the implementation of the project, the interventions in the forest and the treatment of the social component are defined.

The permanent implementation of the Monitoring Plan allows to identify the trends of the different indicators, which are oriented to measure the fulfillment or impact of the project activities. The knowledge that is generated allows us to validate or adapt the system, and if necessary, make changes in the management tools or in the project activities.

The information collected in the field by the technical staff is entered, reviewed and systematized by the Head of Monitoring and Evaluation for the environmental component and by the Social Responsibility Coordinator (SR) for the community component, both at the end of the period (annually) They present the corresponding monitoring reports to the forestry specialist and social specialist for their review and validation. The relevant information is incorporated in the process of reviewing the management tools and in the preparation of the new Operational Plan for the project.

The information flow in the framework of the adaptive management of the project is presented below.

Figure 3.2 Adaptive Management



Forms have been developed to collect field data for those variables to be monitored. The data collected is digitized, reviewed and incorporated into a database in Excel-type spreadsheets, also designed according to the information requirements. The calculations are made in said spreadsheets using the corresponding formulas and they are the ones that allow calculating the monitoring plan indicators that are then presented in the monitoring reports for the period.

All field monitoring processes must be documented, all sampling units or established plots must be georeferenced and systematized within the GIS.

The physical files are stored in the project's administrative office located in the town of Iñapari, while the digital files are stored in a file called "TAH REDD PROJECT" located on the MADERACRE SAC server, which is managed by the Specialist. Forest. These files will be kept throughout the useful life of the project and for at least two years after the end of their crediting period.

ANALYSIS OF DEFORESTATION

For this monitoring component, information management comprises the following steps or processes.

Step 1: Selecting and analyzing the source of land use change

1.1. For the monitoring period, the following actions will be taken:

- The data collected and analyzed should cover the entire project area and the leakage belt. The data must correspond to the year in which the verification occurs.
- The data collected is the Peruvian national environmental authority's data on forest and non-forest.

Geobosques determines forest, non-forest, hydrography and forest loss, and the latter is used as deforestation for the Project area and for calculations.

Considering that the country is in JNR, only the official data was used. For the classification of post-deforestation land uses categories, only one classification has been determined, that of pastures, to be conservative.

Step 2: Interpretation and analysis

2.1. Monitoring deforestation

- a) Deforested area within the Project Area (PA) by stratum.
- b) Deforested area within the leakage belt (LB) by stratum.

In both cases, it must be specified to which type of Land Use (LU) the deforested areas have been changed. Both must be established or indicated by Geobosques data to calculate the emission deforestation avoid in this monitoring period.

- c) Deforested area in risk area to the project with communities

To date, the change land use is not available from Geobosques. Risk areas have been determined due to their proximity to the project area and high deforestation. This is with the intention of establishing the zones and proximities where protection actions and project work with nearby communities or populations that cause deforestation are required.

Within the PRA, interviews will be conducted to determine agricultural productivity and requirements so that the area already deforested in the leakage and, mainly, the areas determined to be at risk, due to their proximity to the project area, which have already been converted to agriculture, do not continue to expand their agricultural border.

- d) Carbon stocks in carbon pools:

The carbon stock is maintained in each stratum defined in the baseline. It will be re-evaluated for the baseline review (in 10 years).

- e) Volume of wood harvested in the concession, by stratum (only one stratum was determinate) and by year.

- f) Deforested area within the Reference Region (for LULC matrix change evaluation)

ANALYSIS AND INTERPRETATION OF SATELLITE IMAGES

Analysis of deforestation and source of land use change should be done with Geobosques tool, which has carried out image processing and determination of deforested areas throughout the country. The calculations have been made with official information

- QA

Review processes will be carried out in order to ensure the quality of the project information, minimizing the risks of error, thus obtaining reliable data as the basis of a solid monitoring system. It includes the following steps:

1. Training

Training will be provided to staff in general in the different roles that they must play in the framework of the project, activities, and the methodologies to be followed, as well as the care they must take in those critical points of information management in its different stages: collection of field data, fingering, processing.

2. Internal validation of images

With the use of confusion matrices and Kappa indices the extent of the reference region (including leakage and project area) is subject to a validation in every monitoring period, to ensure consistency.

3. Review of data collected before and after digitization

Field data collection: form header review, data consistency (values within determined thresholds).

Fingering: once 100% of the information contained in the form has been entered into the database, an indication of "fingering" must be entered in the corresponding form and once the consistency of the fingering has been checked, it must be entered an indicative of "revised".

Processing: is the responsibility of the Head of E&M and the Social Responsibility Coordinator. They should take into consideration the methodological guidelines defined in the monitoring guides or manuals developed by the project.

If any inconsistency of information is identified at the field form level, this information must be verified in the field. If the inconsistency is found in the digitized information, it must be corroborated in the field forms and if the inconsistency persists, it must be corroborated in the field.

4. Review of monitoring reports before publication.

The monitoring reports should be reviewed before publication to confirm that the calculations, analysis, and conclusions are correct and if they have been obtained following the corresponding guidelines. This work is in charge of the Forestry Specialist.

If there are non-conformities during the internal or external audit processes, the data should be reviewed, and the non-conformities addressed.

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

This period the Monitoring Report summary has been sent to the communities for their knowledge and posted on Maderacre's website.

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions (VCS, 3.15)

The emissions of the project's reference activities are found in the following table. These baseline emissions are derived from section 3.2 of the PD and the methodological deviations described in section 2.2.5 of this monitoring report.

Table 3.1. Reference emissions in the project area

Year	L (1) Forest area converted from forest stratum "I" to pasture at the beginning of the crediting period [ha/year]	L (1): Annual carbon loss by conversion of forest lands in pastures [Mg.C/year]	L (1): Annual CO ₂ loss by conversion of forest lands in pastures [Mg CO ₂ /year]
2017	129.51	19,828.31	-69,221.28
2018	491.22	75,207.03	-262,550.20
2019	621.27	95,118.02	-332,060.10
2020	909.45	139,239.11	-486,088.26
2021	983.61	150,593.20	-525,725.74
2022	1,129.95	172,998.23	-603,942.42
2023	1,238.67	189,643.54	-662,051.73
2024	1,470.96	225,207.73	-786,207.48
2025	1,644.12	251,718.96	-878,759.07
2026	1,907.64	292,064.55	-1,019,606.81

According to the second deviation of section 3.1.6 of the PD, conservatively there is only change of use of forest land to pasture. In the Excel file of the monitoring report, all calculations can be observed.

- Baseline emissions from deforestation excluding ANR and harvest areas

Δ GHG from avoided deforestation:

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

$\Delta area_{projectAreaEAH,baselineScenario}^{(i)}$ = (Project Area - harvest area)/Project Area * deforestation rate in Project area in baseline scenario.

Table 3.2. Factors used for changes from forest to non-forest

$nrFNFtransitions$	$u_{classification}(i)$	$u_{transition}(i)$
Number of forest/non-forest transitions between land classes or forest strata	Discounting factor for NERs from avoided deforestation, based on the accuracy of classification, i.e. dividing land into broad land use types.	Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition
1	0.946667	1

Table 3.3. Hectares in transition within the project area excluding ANR and harvest areas in the baseline scenario

Year	$\Delta area_{projectAreaEAH,baselineScenario}^{(i)}$
2022	1,034.19

Table 3.4. Emission factors

Land	Aboveground	Belowground	Total
CS1 (Forestland)	147.705	38.64	186.34
CS2 (Pasture)	2.75095	30.4865	33.24
Emission Factor (tCO ₂ /ha)	-531.50	-2.99	-534.49

Table 3.5. Baseline emissions of deforestation in the project area (excluding ANR and harvest areas)

Year	^{1} (tCO ₂ *ha-1)
2022	523,280.2

- **Baseline emissions/removals in long-lived wood products**

Δ GHG from changes in long-lived wood products:

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

$C_{LWP,baseline}(t)$: Carbon stock in long-lived wood products under the baseline scenario during year t, in Mg C.

For $CT_{baseline}$, and $CT_{project}$, the values were provided by the consolidated MADERACRE SAC, according to the extractions that it has been carrying out in the year 2022, obtaining the volume of wood extracted annually (48,549.08) from each species harvested in m3/year.

Then, both $C_{HWP,project}$ and $C_{HWP,baseline}$ were calculated by multiplying the basic density of each species by the harvested volume and the carbon factor, this for each year in the same way, likewise the carbon in long-lived wood products is found in the project scenario multiplying the $C_{HWP,project}$ or $C_{HWP,baseline}$ by the fraction of carbon that will be emitted into the atmosphere (fo), by the proportion of short-lived products (slp), and by the applicable fraction (wwf) which is 24%.

$$C_{LWP,project}(t) = \sum_{s,wp,ppb,oir}^{ty} C_{HWP,project}(ty, t) \cdot (1 - wwf(ty))(1 - slp(ty))(1 - fo(ty)) \quad [EQ103]$$

$$C_{LWP,baseline}(t) = \sum_{s,wp,ppb,oir}^{ty} C_{HWP,baseline}(ty, t) \cdot (1 - wwf(ty))(1 - slp(ty))(1 - fo(ty))$$

$$C_{HWP,project}(ty, t) = \sum_{h=1}^{HPS} \sum_{j=1}^{SPS} \left((DT_{project}(h, j, ty, t) + CT_{project}(h, j, ty, t)) \cdot \rho_{wood,j} \cdot CF \right) \quad [EQ102]$$

$$C_{HWP,baseline}(ty, t) = \sum_{h=1}^{HPS} \sum_{j=1}^{SPS} \left((DT_{baseline}(h, j, ty, t) + CT_{baseline}(h, j, ty, t)) \cdot \rho_{wood,j} \cdot CF \right)$$

where:

$C_{LWP,project}(t)$	=	Carbon stock of long-lived wood products at time t in the project and baseline scenario, respectively. [Mg C]
and		
$C_{LWP,baseline}(t)$		
$C_{HWP,project}(ty, t)$	=	Total biomass carbon harvested within the project boundary by wood class ty during year t in the project and baseline scenario, respectively [Mg C]
and		
$C_{HWP,baseline}(ty, t)$		
$wwf(ty)$		Fraction of carbon in harvested wood products that is emitted immediately because of mill inefficiency for wood class ty . This can be estimated by multiplying the applicable fraction to the total amount of carbon in different harvested wood product category. The default applicable fraction is 24% and 19% respectively for developing and developed countries (Winjum et al. 1998).
$slp(ty)$	=	Proportion of short lived products. These fractions are 0.2, 0.1, 0.4 and 0.3 respectively for wood class ty , i.e., sawnwood, wood-based panel, paper and paper boards and other industrial round woods as described in Winjum et al. (1998). The methodology assumes that all other classes of wood products are emitted within 5 years.
$fo(ty)$	=	Fraction of carbon that will be emitted to the atmosphere between 5 and 100 years of harvest for wood class ty . See Table 19. [-]
t	=	1, 2, 3,... t years elapsed since the start of the project. [yr]
ty	=	Wood product class – defined here as sawnwood (sw), wood-based panels (wp), other industrial round wood (oir),

Table 3.6. Fraction of carbon and proportion of short-lived products

$fo(ty)$			
$wwf(ty)$	$slp(ty)$	Fraction of carbon that will be emitted into the atmosphere between 5 and 100 years of harvest for wood class ty	ty
Applicable fraction (24%) total carbon for each product class	Proportion of short-lived products		wwf
0.24	0.2	0.85	Sawn wood

Table 3.7. Carbon content in harvested wood products within project area (2022) in the baseline scenario

Year	CT baseline: Volume of annual harvested wood, round wood for commercial sales [m ³ /year]	Common Name	Basic density per specie, using Table GPG-LULUCF 3A.1.9 [Mg.dm/m ³]
2022	3,821.31	ANA CASPI	0.7
	4,888.21	AZUCAR HUAYO	0.62
	10,027.68	ESTORAQUE	0.78

Year	CT baseline: Volume of annual harvested wood, round wood for commercial sales [m ³ /year]	Common Name	Basic density per specie, using Table GPG-LULUCF 3A.1.9 [Mg.dm/m ³]
	1,476.39	ISHPINGO	0.43
	28,335.48	SHIHUAHUACO	0.93
Total 2022	48,549.08		

Table 3.8. Carbon Stock in harvested wood products^{107 108}

$C_{HWP,baseline}(ty, t)$		
Year	Species	Total carbon stocks in harvested wood products within the limits of the reference scenario, at harvest [MgC]
2022	ANA CASPI	1,337.46
	AZUCAR HUAYO	1,515.35
	ESTORAQUE	3,910.80
	ISHPINGO	317.42
	SHIHUAHUACO	13,176.00
	SUBTOTAL 2022	20,257.02

Table 3.9. Carbon in long-lived wood products by species

$C_{LWP,baseline}(t)$		
Year	Species	Carbon in long-lived wood products under the reference scenario [MgC]
2022	ANA CASPI	121.98
	AZUCAR HUAYO	138.20
	ESTORAQUE	356.66
	ISHPINGO	28.95
	SHIHUAHUACO	1,201.65
	TOTAL	1,847.44

¹⁰⁷ Informe de ejecución del Plan Operativo 2022 – 2023 PC 18

¹⁰⁸ Informe de ejecución del Plan Operativo 2022 – 2023 PC 19

Table 3.10. Emissions/removals in changes in long-lived wood products in the baseline scenario

Year	{7} (tCO ₂ *ha ⁻¹)
2022	-6,773.9

- **Baseline emissions from deforestation in areas under harvest**

Detailed formula calculation in Project Emissions section.

Table 3.11. Hectares in transition within the project area in the harvesting zone, in the baseline scenario during year 2022

Year	$area_{projectArea,Withharvest,baselineScenario}(t, i)$
2022	95.76

Table 3.12. Baseline emissions of deforestation in harvesting zones in the project area

Year	{10} (tCO ₂ *ha ⁻¹)
2022	48,452.13

- **Summary of baseline emissions/removals**

Table 3.13. Baseline emissions/removals summary

Year	{1} (tCO ₂ *ha ⁻¹)	{7} (tCO ₂ *ha ⁻¹)	{10} (tCO ₂ *ha ⁻¹)	Total (tCO ₂ *ha ⁻¹)
2022	523,280.2	-6,773.9	48,452.13	564,958.4

3.2.2 Project Emissions (VCS, 3.15)

Project ex-post emissions for this verification period were calculated using the country's official tool GEOBOSQUES to spatially determine deforestation in this monitoring period.

A new benchmark map has been created for the current monitoring period, including an updated LULC matrix.

According to the steps described in section 9.3.2 (Calculation of Ex-post GHG Emissions and Changes in Sinks Under the Project Scenario inside the Project Area) of VM0006 v.2.2 Methodology:

a. Acquisition of remote sensing images between the last verification and the current date:

GEOBOSQUES produces annualized data and is the main input dataset used in the quantification of deforestation in this project, as described in the PD and in all subsequent verification reports. Therefore, the data used included the annualized maps generated for the year 2022.

b. Image classification and accuracy assessment:

GEOBOSQUES final product includes the characterization of the land cover in 5 classes, which includes Forest, Water, Forest loss in the period 2001 -2022, the non-forest area that was defined at the end of year 2000, and unclassified land that could not being effectively classified. This product maintains consistency and apply the same classification model each year. According to the methodology, the same $U_{classification}$ used for ex-ante calculations must be used ex-post until the next baseline update.

c. Comparison of the changes since last verification.

LULC matrix indicating the total changes in the extended area (reference region plus leakage and project area) and a new updated benchmark map with the changes per year are presented below

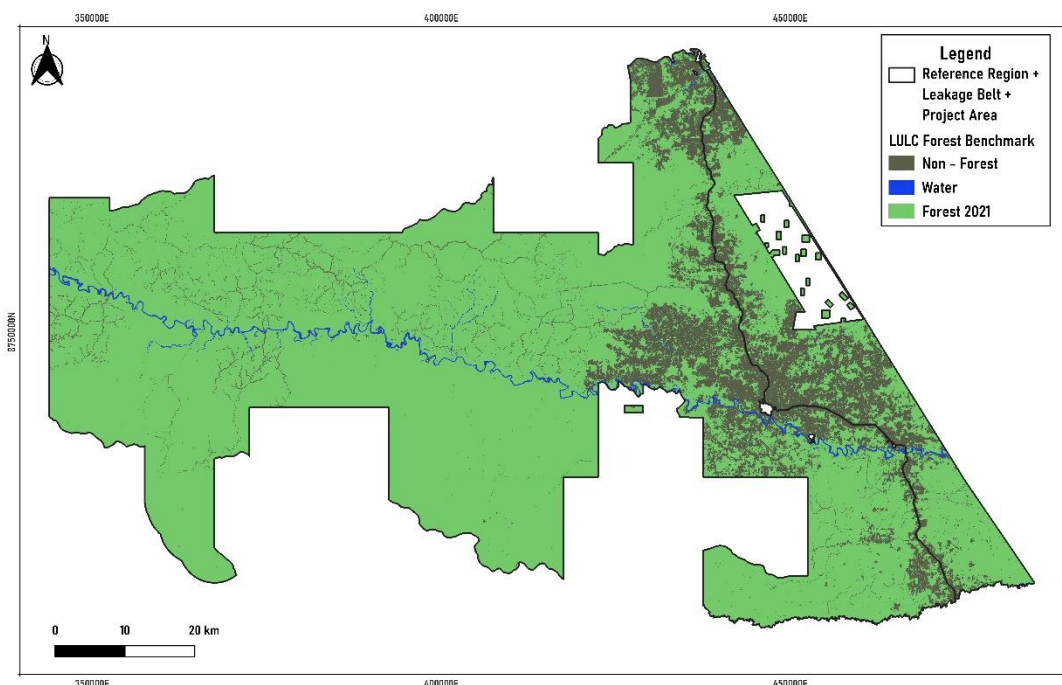


Figure 3.3. Forest extent at the end of the year 2021 (previous monitoring period)

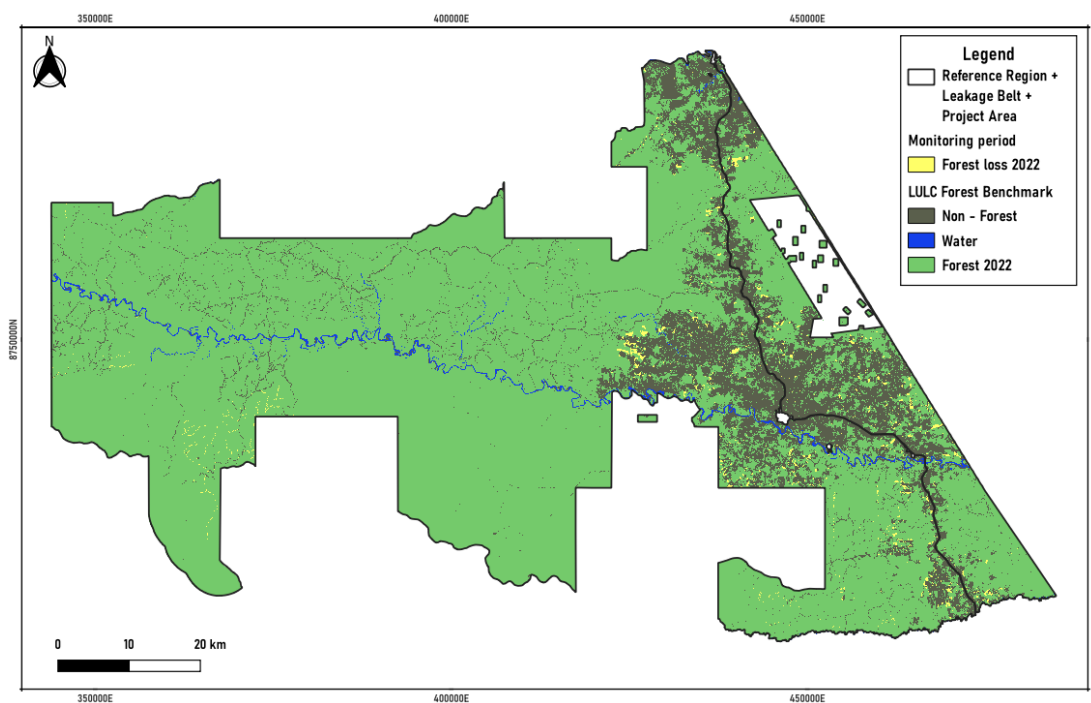


Figure 3.4. Forest benchmark map for LULC transitions in the reference region for the monitoring period (2022)

Table 3.14. LULC matrix for monitoring period (Change from Forest at the start of 2022 to the end of 2022) in the reference region (including leakage and project area)

Land Use	Forest	Water	Non-Forest	Unclassified land	Total (ha)
Forest	433,869.75	0.00	4,255.47	0.00	438,125.22
Water	0.00	5,252.67	0.00	0.00	5,252.67
Non – Forest	0.00	0.00	80,090.91	0.00	80,090.91
Unclassified land	0.00	0.00	0.00	42.12	42.12
Total (ha)	433,869.75	5,252.67	84,346.38	42.12	523,510.92

d. Annualize the land transition matrices in the project area

Below are presented the transitions involving the project area, that excludes ANR activities and harvesting areas.

Table 3.15. Annual transition inside the project area that exclude harvesting and ANR activities

Year	Land Use transition	$\Delta area_{projectAreaEAH,projectScenario}(t,i)$
2022	Forest to Non-Forest	0.00

Project deforestation emissions were calculated following the guidelines in section 9.3.2 of the VM0006 methodology v.2.2. These guidelines require that an annual rate of change, $\Delta area_{projectAreaEAH}(t,i)$, be calculated for each transition. The monitoring found the following deforestation (ha / year) in the project area.

- **Project emissions from deforestation excluding ANR and harvest areas**

ΔGHG from avoided deforestation:

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

$\Delta area_{projectAreaEAH,baselineScenario}(t) = (\text{Project Area} - \text{harvest area}) / \text{Project Area} \cdot \text{deforestation rate in Project area in baseline scenario.}$

Table 3.16. Deforestation rate in the project scenario in the project area

$\Delta area_{projectAreaEAH,projectScenario}(t)$		
Year	Hectares in transition ii within the project area, excluding ANR and harvest areas, in the project scenario during year t (ha/year)	
2022		15.84

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.

In order 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 image 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 Figure 3.5.

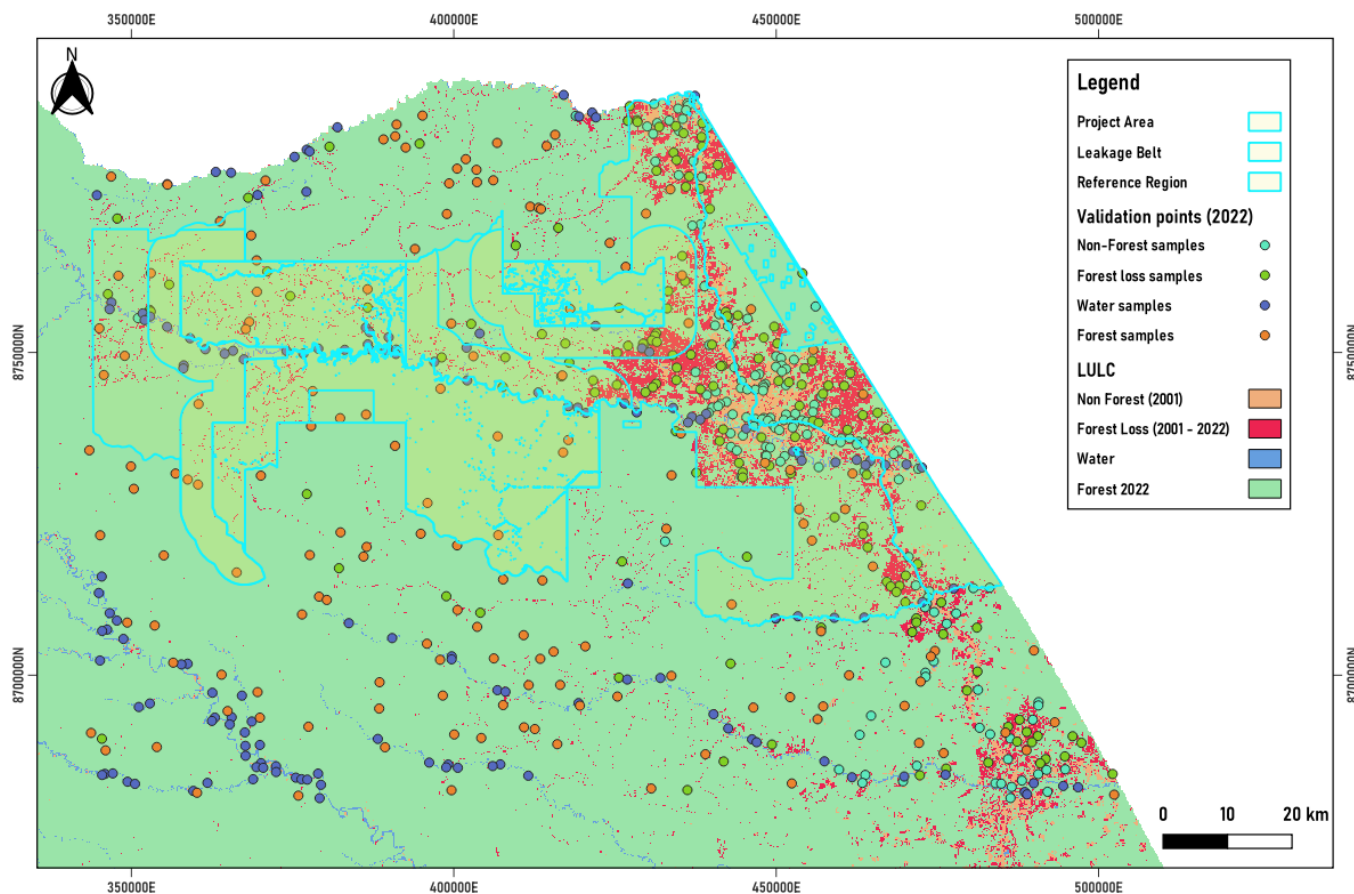


Figure 3.5. Map of distribution of validation points.

Table 3.17. Confusion matrix

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

Land	Non-Forest (2000)	Forest Loss (2001 – 2022)	Water	Forest 2022	Total	Commission error
Total	150	150	150	150	600	
Omission error	0.0333	0.00704	0	0.1071		0.04

The points were contrasted with the Planet-NICFI mosaics (monthly mosaic - December 2022), which have a spatial resolution of 4.77 m. The results of the contrast can be observed in Table 3.17. and the subsequent analysis of the Kappa index in Table 3.18.

Table 3.18. Kappa index

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

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

Table 3.19. Factors used for changes from forest to non-forest

$nrFNFtransitions$	$u_{classification}(i)$	$u_{transition}(i)$
Number of forest/non-forest transitions between land classes or forest strata	Discounting factor for NERs from avoided deforestation, based on the accuracy of classification, i.e. dividing land into broad land use types.	Discounting factor for all emission reductions, based on the uncertainty of biomass inventory related to transition
1	0.946667	1

Table 3.20. Hectares in transition within the project area in the project scenario

Year	$\Delta area_{projectAreaEAH,projectScenario}^{(i)}$
2022	15.84

Table 3.21. Emissions from deforestation excluding ANR and harvest areas in the project scenario

Year	{1} (tCO ₂ *ha-1)
2022	8,014.73

- **Project emissions/removals in long-lived wood products**

Table 3.22. Carbon content in harvested wood products within project area (2022)

Year	CT _{Project} : Volume of annual harvested wood, round wood for commercial sales [m ³ /year]	Common Name	Basic density per specie, using Table GPG-LULUCF 3A.1.9 [Mg.dm/m ³]
2022	3,821.31	ANA CASPI	0.7
	4,888.21	AZUCAR HUAYO	0.62
	10,027.68	ESTORAQUE	0.78
	1,476.39	ISHPINGO	0.43
	28,335.48	SHIHUAHUACO	0.93
Total 2022	48,549.08		

Table 3.23. Carbon Stock in harvested wood products

Year	Species	$C_{HWP,project}(ty, t)$ Total carbon stocks in harvested wood products within the project boundary, at harvest. [MgC] (volumen*0.5*d)
2022	ANA CASPI	1,337.46
	AZUCAR HUAYO	1,515.35
	ESTORAQUE	3,910.80
	ISHPINGO	317.42
	SHIHUAHUACO	13,176.00
	TOTAL	20,257.02

Table 3.24. Carbon in long-lived wood products by Species

Year	Species	$C_{LWP,project}(t)$ Carbon in long-lived wood products within the project [MgC]
2022	ANA CASPI	121.98
	AZUCAR HUAYO	138.20
	ESTORAQUE	356.66
	ISHPINGO	28.95
	SHIHUAHUACO	1,201.65
	TOTAL	1,847.44

Table 3.25. Emissions/removals in changes in long-lived wood products in the project scenario

Year	{7} (tCO ₂ *ha ⁻¹)
2022	-6,773.9

- **Project emissions from deforestation in areas under harvest**

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

$$\textcircled{10} = 0$$

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

$$\textcircled{10} = \Delta C_{\text{areaWithHarvest}}(t) \quad [\text{EQ117}]$$

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 for 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.

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

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

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

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

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

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

Table 3.26. Discounting factors

CE transition	U transition	CE inventory	U inventory
0.014	1	0.011096182	1
CE transition	U transition	CE inventory	U inventory, harvest
0.014	1	0.011096182	1

According to EQ21 $CE_{inventory}(i)$ is equal to 0.014, and according to EQ22, $u_{inventory,harvest}(i)$ is equal to 1.00.

The procedure to estimate $Charvest(i)$ and $u_{inventory,harvest}(i)$, is as described in Section 8.1.4.4 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 3.27. Long-term average carbon stock density contained in harvested areas

Year	$LTAC_{harvest}$: Long term average density in harvest zones [tCO ₂ e/ha]	$Charvest(t,i)$: Carbon density in harvest zone by time and harvest area [tCO ₂ e/ha]
2022	730.54	690.63

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

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

Table 3.28. Emissions/Removals in areas under harvest in the project scenario

Year	Emissions/Removals in areas under harvest in the project scenario (tCO ₂ *ha ⁻¹)
2022	-25,182.68

- Summary of project scenario emissions/removals

Table 3.29. Project emissions/removals summary

Year	{1} (tCO ₂ *ha ⁻¹)	{7} (tCO ₂ *ha ⁻¹)	{10} (tCO ₂ *ha ⁻¹)	Total (tCO ₂ *ha ⁻¹)
2022	8,014.73	-6,773.9	-25,182.68	-23,941.9

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

Leakage was estimated from the baseline scenario using the results of the spatial modelling, described in the project description deviation, and using the VM0015 v.1.1 indications. The following Table describes the EX-ANTE calculations of a project scenario, under the considerations of VM0006 methodology v.2.2.

Table 3.30. Deforestation rate in Leakage area in Baseline Scenario

Year	Carbon emissions from deforestation in leakage area during year t [tCO ₂ e/year]	D _{leakageArea,projectScenario,DF^(t)} : Deforestation rate in leakage area under the project scenario	D _{leakageArea,baselineScenario,DF^(t)} : Reference deforestation rate in leakage	ΔD _{LK,DF} : Induced increasing deforestation rates by leakage during year t of crediting period
------	---	--	---	--

		in time t of crediting period [ha/year]	area at time t of crediting period [ha/year]	[ha/year]
2022	-790,228.52	1,478.48	1,198.71	279.77

For the period 2022, the amount of deforestation was estimated using the GEOBOSQUES data of forest loss for the period mentioned, by overlapping the leakage area with the class that represents the deforested pixels and quantifying its total area in hectares. The monitored data is observed in the following table.

$$\begin{aligned}
 \text{②} = & \sum_{i=1}^{nrFNFtransitions} \sum_{tt=1}^t u_{classification} \cdot u_{transition}(i) \\
 & \cdot \left(\begin{array}{l} +\Delta area_{leakageArea,projectScenario}(t,i) \\ -\Delta area_{leakageArea,baselineScenario}(t,i) \end{array} \right) \\
 & \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt))
 \end{aligned}$$

Table 3.31. Leakage area in baseline and current monitoring scenario.

Year	$\Delta area_{leakageArea,projectScenario}^{(t)}$ Hectares in transition within the leakage area, in the project scenario during year t	$\Delta area_{leakageArea,baselineScenario}^{(t)}$ Hectares in transition within the leakage area, in the baseline scenario during year t
2022	456.57	1,670.13

Table 3.32. Emission Factor

Land	Aboveground	Belowground	Total
CS1 (Forestland)	147.705	38.64	186.34
CS2 (Pasture)	2.75095	30.4865	33.24
Emission Factor (tCO ₂ /ha)	-531.50	-2.99	-534.49

As the project scenario (monitoring data) represents a lower deforestation scenario than the baseline estimations, the difference between them is positive. Given that Leakage cannot be positive, the avoided emissions in the leakage belt are rounded to zero.

Table 3.33. Emissions in the leakage area (tCO₂e)

Year	{2}	If {2} > 0, then {2} is 0
2022	614,037.36	0

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 VM0006 methodology v.2.2.

Table 3.34. Sources of emissions

[EQ105]: Net Emission Reductions (NERs)	=
ΔGHG from avoided deforestation excluding ANR and harvest areas	01 +
+ ΔGHG from deforestation due to leakage	02 +
+ ΔGHG from avoided degradation	03 +
+ ΔGHG from degradation due to leakage	04 +
+ΔGHG from leakage by unconstrained geographic drivers	05 +
+ ΔGHG from assisted natural regeneration	06 +
+ ΔGHG from changes in long-lived wood products	07 +
+ ΔGHG from improved cook stoves	08 +
+ ΔGHG from other and secondary sources	09 +
+ΔGHG from avoided deforestation from areas under harvest	10

ΔGHG from avoided deforestation:

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

Table 3.35. ΔGHG from avoided deforestation excluding ANR and harvest areas

Year	Baseline Emissions/Removals	Project Emissions/Removals	1
2022	523,280.2	8,014	515,265.50

$$\textcircled{2} = \sum_{i=1}^{nrFNFtransitions} \sum_{tt=1}^t u_{classification} \cdot u_{transition}(i) \cdot \left(\begin{array}{l} +\Delta area_{leakageArea,projectScenario}(t,i) \\ -\Delta area_{leakageArea,baselineScenario}(t,i) \end{array} \right) \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt))$$

Table 3.36. ΔGHG from deforestation due to leakage

Year	2	If, is > 0, is = 0
2022	0.00	614,037.36

ΔGHG from avoided degradation:

$$\textcircled{3} = \sum_{i=1}^{nrStrataTransitions} \sum_{tt=1}^t u_{stratification} \cdot u_{transition}(i) \cdot \left(\begin{array}{l} +\Delta area_{projectAreaEAH,projectScenario}(t,i) \\ -\Delta area_{projectAreaEAH,baselineScenario}(t,i) \end{array} \right) \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \quad [\text{EQ109}]$$

It is equivalent to 0.00.

ΔGHG from degradation due to leakage: [EQ110]

$$\textcircled{4} = \sum_{i=1}^{nrStrataTransitions} \sum_{tt=1}^t u_{stratification} \cdot u_{transition}(i) \cdot \left(\begin{array}{l} +\Delta area_{leakageArea,projectScenario}(t,i) \\ -\Delta area_{leakageArea,baselineScenario}(t,i) \end{array} \right) \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt))$$

It is equivalent to 0.00.

ΔGHG from leakage by unconstrained geographic drivers:

$$\textcircled{5} = -GHG_{otherLeakageSources}(t) - GHG_{marketLeakage}(t) \quad [\text{EQ111}]$$

It is equivalent to 0.00.

ΔGHG from assisted natural regeneration:

$$\textcircled{6} = C_{ANR}(t) \quad [\text{EQ112}]$$

It is equivalent to 0.00.

Δ GHG from changes in long-lived wood products:

$$\textcircled{7} = \frac{44}{12} \cdot (C_{LWP,project}(t) - C_{LWP,baseline}(t)) \quad [\text{EQ113}]$$

Table 3.37. Δ GHG from changes in long-lived wood products

Year	7	Carbon in long-lived wood products within project scenario [Mg C]	Carbon in long-lived wood products within baseline scenario [Mg C]
2022	0.00	1,847.44	1,847.44

Δ GHG from GHG Emissions Reduction from Cookstove and Fuel Efficiency (CFE):

$$\textcircled{8} = ER_{CFE}(t) \quad [\text{EQ114}]$$

It is 0.00.

Δ GHG from other and secondary sources:

$$\textcircled{9} = -GHG_{fireBreaks}(t) - GHG_{sources,leakagePrevention}(t) - GHG_{sources,ANR}(t) \quad [\text{EQ115}]$$

It is 0.00.

Δ GHG from avoided deforestation and degradation from areas under harvest

In case:

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

$$\textcircled{10} = 0$$

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

With a minimal time period for estimating long term average (T) of 40 years, the $LTAC_{harvest}$ is updated to 730.54 tCO₂e/ha.

For this reason, according to EQ80, as $area_{projectAreaWithHarvest,projectScenario}(t,i) \cdot LTAC_{harvest}$, is greater than $\Delta C_{areaWithHarvest}(t)$, Δ GHG from avoided deforestation from areas under harvest (10) is equal to $\Delta C_{areaWithHarvest}(t)$.

Table 3.38. Long-term average carbon stock density contained in harvested areas

Year	Baseline Emissions/Removals	Project Emissions/Removals	$\Delta C_{areaWithHarvest}$: Density of carbon stocks in harvested areas in stratum ii in year t [tCO ₂ /ha]
2022	48,452.13	-25,182.68	73,634.81

The NERs generated during this monitoring period are the following:

Table 3.39. Net GHG emissions reductions

Year	Net Emission Reductions (NERs) [tCO ₂]	1	2	7	10
2022	588,900	515,265.50	0.00	0.00	73,634.81
TOTAL	588,900				

The following table presents the summary results for the 2022 monitoring 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).	N.A.
Has the LTA been updated based on monitored data, if applicable?	☒ Yes ☐ No N.A.
State, in tCO ₂ e, the expected total GHG benefit to date.	588,900
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 VCU (tCO ₂ e)	Removals VCU (tCO ₂ e)
01-Jan-2022 to 31-Dec-2022	564,958.4	-23,941.9	0.00	61,832	527,068	-
Total	564,958.4	-23,941.9	0.00	61,832	527,068	-

For all projects, state the estimated ex-ante GHG emission reductions and carbon dioxide removals and the achieved reductions and removals for the monitoring period. Report the percentage difference and explain any difference. The quantities of reductions and removals are the total quantities before any deductions for buffer credits.

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-Jan-2022 to 31-Dec-2022	435,295	545,986.7	25.43%	In the current monitoring period, there were no deductions for leakage because the monitored deforestation in the leakage area was less than the estimated amount in the project scenario of the PDD.

3.3 Optional Criterion: Climate Change Adaptation Benefits

This section is not applicable.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CCB, CM2.1)

Table 4.1. Crop productivity: No impacts were recorded for the period

Community group	Local farmers
Impact	Improvement in crop productivity
Type of benefit/cost/risk	Improving local agricultural productivity will improve the economic income and well-being of local families.
Change in well-being	For the year 2022 there are no changes recorded since the implementation of projects and actions for this impact will be executed after the carbon revenues (2023). The proponent of the project establishes the bases of the PPAMA project competition in 2022 disseminated in the communities and stakeholders of the region of activities.

Table 4.2. Stabilization of the agricultural frontier: No impacts were recorded for the period

Community group	Local families
Impact	Agrarian frontier stabilization
Type of benefit/cost/risk	The improvement of productive practices should imply a stabilization of agrarian frontier. The expansion of agrarian frontier is a necessity because productivity decreases as a consequence of inappropriate production techniques and land use, but the new areas are further away implying more costs than previous ones. For this reason, if the project may help them to maintain their actual incomes without need to expand to new areas, this will be a net benefit for local families.
Change in well-being	For the year 2022 there are no changes recorded since the implementation of projects and actions for this impact will be executed after the carbon revenues (2023).

	The proponent of the project establishes the bases of the PPAMA project competition in 2022 disseminated in the communities and stakeholders of the region of activities.
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Table 4.3. Educational and Health support for the Belgica Native Community

Community group	Belgica Native Community
Impact	Improved quality and access to education and health services.
Type of benefit/cost/risk	The country has a high gap existing in education and health public services, mainly in vulnerable population as native communities; therefore, the project proponent prioritizes both axes for its development. The following benefit actions were carried out for the period 2022: EDUCATION The project proponent and Belgica Native Community sign an agreement¹⁰⁹ which aims to support the community in what corresponds to the primary and initial level education sector through the delivery of extra bonuses to the remuneration received by teachers from the Ministry of Education during the school period, so, the project proponent undertakes to deliver the sum of 400 nuevos soles (103 US\$) per month that will be distributed among the 02 teachers in order to complement the hours and education services within the community to those who need it. The total sum of what was delivered in 2022 has been 4000 nuevos soles¹¹⁰ (1,025 US\$) and the students benefited by the activities for initial education totaled 12 children¹¹¹ and primary education a total of 17 children¹¹¹, adding up to a total of 29 children benefited. The project proponent, CEBA Dos de Mayo and Belgica Native Community sign an agreement¹¹² which aims to carry out activities that allow the operation of the CEBA Dos de Mayo peripheral for alternative basic education for the benefit of Belgica Native Community inhabitants, so as to, the project proponent undertakes to support the monitoring of community students' attendance, support in general coordination that the registration process need¹¹³, cover the necessary fuel for the programmed admissions to the community with an amount of 200 nuevos soles (52 US\$), support in transport tickets with a total sum of 90 soles (24 US\$)

¹⁰⁹ Convenio de Educación Comunidad Nativa Belgica - MRA

¹¹⁰ Minutes of delivery of bonuses to teachers in the Belgian Native Community

¹¹¹ Website: <https://escale.minedu.gob.pe/padron-de-iiie>

¹¹² Education Agreement CEBA Dos de Mayo - Native Community Belgium - MRA

¹¹³ CEBA Banner - Iñapari and Native Community Belgium

	and the delivery of 500 nuevos soles (129 US\$) per month as a bonus to 01 teacher for the contribution to the commitment for the attention to CEBA institution. The total sum of what was delivered in 2022 has been 4410 nuevos soles¹¹⁴ (1131 US\$) and the students benefited by the achievement of activities executed totaled 32 enrolled (19 women)¹¹⁵, being only 21 people who completed their school year¹¹⁶. HEALTH The project proponent and Belgica Native Community sign an agreement¹¹⁷ which aims to support the community in what corresponds to the health sector, for which the project proponent undertakes to deliver monthly the sum of 300 nuevos soles (77 US\$) as a bonus to nursing technician selected and hired by the Ministry of Health in order to complete the health services that can be provided to people in the community, in addition, the proponent makes the purchase of medicines with a total value of 200 nuevos soles (52 US\$) per month for the community health post. The total sum of what was delivered in 2022 has been 3000 nuevos soles (770 US\$) to the nursing¹¹⁸ and medicine technician with a total value of 2400 nuevos soles¹¹⁹ (616 US\$). There are not cost and risk to the native community by the implementation of these activities.
Change in well-being	Enhanced quality in education and health for 130 beneficiaries (number of community members of Belgica Native Community registered in its 2023-2025 Life Plan ¹²⁰), registering 72 women benefited.

Table 4.4. Educational and Health support for Iñapari and Iberia district

Community group	Iñapari district (Nueva esperanza, Villa Primavera, San Isidro de Chilina and Noaya), population from Iñapari and Iberia center
Impact	Improved quality and access to education and health services.
Type of benefit/cost/risk	The country has a high gap existing in education and health public services; therefore, the project proponent prioritizes both axes for its

¹¹⁴ Minutes of delivery of bonus and transport to CEBA teachers Native Community of Belgium

¹¹⁵ Report 05_2022. Report on the start of activities at CEBA Iñapari – Native Community Belgium

¹¹⁶ Report 79_2022. CEBA Iñapari Monitoring Report - Native Community Belgium

¹¹⁷ Native Community Health Agreement Belgium - MRA

¹¹⁸ Minutes of delivery of bonus to nurses in the Native Community of Belgium

¹¹⁹ Records of delivery of medicines to the Belgian Native Community

¹²⁰ Belgium Native Community Life Plan 2022

development. The following **benefit** actions were carried out for the period 2022:

EDUCATION

The **project proponent and CEBA dos de Mayo** sign an agreement¹²¹ which aims to carry out activities that allow the operation of the CEBA Dos de Mayo peripheral for alternative basic **education** for the population of Iñapari benefit, in order to, the project proponent undertakes to support with the monitoring student's attendance, general coordination about registration process, support for Director transport sum a total of 30 nuevos soles (8 US\$) every two months, cover the transport tickets of four teachers for a total sum of 120 nuevos soles (31 US\$) per month and support in food during face-to-face classes with an amount of 15 nuevos soles (3.9 US\$) for each one. The total sum of what was delivered in the year 2022 has been 1670 nuevos soles¹²² (429 US\$) and the students benefited by the achievement of the activities executed totaled 16 enrolled (06 women)¹¹⁵, being only 10 people who completed their school year¹¹⁶.

The **project proponent** supports all forms of investment in **education**, therefore, as part of its commitment to the well-being and development of children and adolescents in schools and higher institutions, it subsidizes any request for support that responds to this component. The requests attended are the following: (1) delivery of sports materials to the students¹²³ ¹²⁴, (2) transfer of materials for infrastructure improvements¹²⁵, (3) delivery of cash as an incentive for the participation of students in the mural newspaper contest¹²⁶, (4) delivery of materials for infrastructure school renovation¹²⁷ and (5) delivery of materials for nursery maintenance, which is intended for educational activities¹²⁸.

The **project proponent and Iberia Tahuamanu Institute of Higher Education** sign an agreement¹²⁹ which aims to grant facilities to students of the programs "Studies in Forest Resources Management" and "Agricultural Production" who work in the company Maderacre S.A.C., in order to, the project proponent agrees to appoint a coordinator for the enrolled students, dissemination of agreement benefit, coordinate certain registration processes, facilitate monitoring work by the competent authorities, allocation of educational spaces, facilitation of pre-

¹²¹ CEBA Dos de Mayo Education Agreement - MRA

¹²² Minutes of delivery of transport and food to CEBA Iñapari teachers

¹²³ Certificate of delivery of support Education - Sports materials to students (1)

¹²⁴ Certificate of delivery of support Education - Sports materials to students (2)

¹²⁵ Certificate of delivery of support Education - Transfer of materials for infrastructure implementation

¹²⁶ Certificate of delivery of support Education - Murals newspaper contest

¹²⁷ Certificate of delivery of support Education - Improvement of infrastructure of schools

¹²⁸ Certificate of delivery of support Education - Nursery maintenance

¹²⁹ Education Agreement Institute of Higher Education Iberia Tahuamanu - MRA

professional internships for students of the institute, contribute to the participation of students in cultural events, and the conservation of the institute educational area that is adjacent to the project area, through periodic surveillance and patrolling. The enrollees and participants of the Institute classes for the year 2022 add up to a total of 10 students (01 female)¹³⁰, which satisfactorily completed only 04 students¹³¹.

HEALTH

The **project proponent and Iñapari Health Post** sign an agreement¹³² which aims to ensure the quality of medical care in favor of company Maderacre S.A.C. workers and the community from district of Iñapari, so that, the project proponent commits, upon request, to support with the delivery of fuel for the maintenance of its green areas and fumigation of facilities, support with material for the improvement of their infrastructure, payments to use the ambulance for emergencies and/or work accidents, extra monetary compensation to health personnel for care outside working hours, delivery of eight paint buckets for use in the infrastructure, support in the health campaign and transport of health personnel for dissemination of disease prevention talks, vaccination campaigns, etc. The project proponent, under agreement terms and conditions, has granted (1) delivery of fuel for emergency care¹³³ and (2) promotion of disease prevention campaigns^{134 135}. In addition, vaccination campaigns are promoted for the prevention of diseases of the workers who are part of the project, this in collaboration with the Iñapari Post Office on two occasions for the continuation of the vaccines of: Yellow Fever, Hepatitis B, Diphtheria Tetanus Toxoid (dT), Influenza and Measles, adding a total of 93 vaccinated in the first intervention¹³⁶ and 89 in the second one¹³⁷, adding a total of 182 workers benefited by the campaign. Finally, the population benefited by the start-up of the Iñapari post has scope for the care of 2,391 inhabitants of the district of Iñapari, including 1,002 women¹³⁸.

The **project proponent** supports all forms of investment in **health** through the promotion of sports activities, therefore, as part of its commitment to local well-being and development, it subsidizes any request for support

¹³⁰ Report 04_2022. IESTP

¹³¹ Report 83_2022. IESTP Cycle Closure Monitoring

¹³² Health Agreement Iñapari Health Post - MRA

¹³³ Certificate of delivery of support Health - Emergency care

¹³⁴ Health - Disease Prevention Support Certificate (1)

¹³⁵ Health - Disease Prevention Support Certificate (2)

¹³⁶ Report 30_2022. Vaccines for MF employees

¹³⁷ Report 54_2022. Vaccines for MF employees

¹³⁸ INEI Census 2017 Madre de Dios

	that responds to this component. The requests attended are the following: (1) transport district's soccer team for its participation in the local league ¹³⁹ benefiting a total of 18 players, and (2) transportation, food and lodging for teams that participated in the Iñapari district tournament ¹⁴⁰ supporting a total of 60 soccer players.
Change in well-being	Enhanced quality in education and health for Iñapari and Iberia population.

Table 4.5. Infrastructure improvements and vulnerable population support for community groups

Community group	Iñapari and Iberia district: Belgica Native Community, population district of Iñapari, Provincial Municipality of Tahuamanu, Iberia military unit
Impact	Improved vulnerable population livelihood and infrastructure to well-being population.
Type of benefit/cost/risk	The project proponent supports all forms of investment in improving infrastructure and living conditions of vulnerable population in the community's part of the project, therefore, as part of its commitment to well-being, improvements of livelihoods and local development, it subsidizes any request for support that responds to these components. The requests attended are the following: (1) to cover part of the construction expenses of the entrance bridge to Belgica Native Community ¹⁴¹ , (2) contribution with fuel for urban development in the district of Iñapari ¹⁴⁰ , (3) donation of wood for structural improvements of the Military Unit located in the district of Iberia ¹⁴² , (4) contribution with pallets to improve the maintenance of supplies and goods ¹⁴³ , (5) donation for urban development in Iñapari ¹⁴⁴ and (6) donation of toys at Christmas time for a total of 21 girls and 17 boys, adding up to 38 toys delivered ¹⁴⁵ .
Change in well-being	Enhanced quality in infrastructure and vulnerable population livelihood

¹³⁹ Certificate of delivery of health support - Transfer of soccer team

¹⁴⁰ Certificate of delivery of Health support - Travel expenses of soccer team

¹⁴¹ Infrastructure for Welfare Support Delivery Act - Contribution to the Construction of Entrance Bridge

¹⁴² Certificate of delivery of support Infrastructure for welfare - Improvement in infrastructure of the Military Unit

¹⁴³ Certificate of delivery of support Infrastructure for welfare - Infrastructure Municipality TAH

¹⁴⁴ Certificate of delivery of support Infrastructure for welfare – Donation for urban development in Iñapari

¹⁴⁵ Certificate of delivery of support for Vulnerable Population - Donation of toys

Table 4.6. Water access contribution for community groups

Community group	Iñapari and Iberia district: Iñapari, Belgica Native Community, Nueva Esperanza, Villa Primavera, San Isidro de Chilina, Noaya, Iberia, Pacahuara Flor de Acre, Chilina Vieja, La República, San Antonio Abad, San Francisco de Asis and Oceania
Impact	Contribution to sustaining environmental conditions for access to water.
Type of benefit/cost/risk	The project area covers a large proportion of the upper and middle reaches of the watersheds that serve to supply water for downstream populations in the project's area of influence. The conservation of forest cover, low-impact management practices, and environmental safety contribute to maintaining the quantity and quality of surface and groundwater.
Change in well-being	Contribute to the conservation of water resources used by the communities in the project's area of influence to obtain drinking water.

On the other hand, there is another indigenous group that, although not part of the surrounding communities, are present in the upper parts of the watersheds adjacent to the project area and remain in voluntary isolation; in this sense, the project area plays a key role as a buffer zone that contributes to safeguarding the territory and the indigenous populations in voluntary isolation and initial contact (PIACI). The impacts of the project's actions on the PIACI and their territory are described below.

Table 4.7. Impacts of project actions on PIACIs and their territory

Community group	PIACI
Impact	Improved living conditions for indigenous groups in isolation.
Type of benefit/cost/risk	The project proponent plans, implements and monitors actions that benefit and ensure the improvement of livelihood of the PIACI located at basis head of the project area. The following actions have been executed in the present period: The project proponent, Alto Purús National Park administration and Zoological Society of Frankfurt, sign an agreement¹⁴⁶ which aims to establish mechanisms for coordination, planning and participation in the actions executed that allow the construction of a common strategy for adequate conservation of biodiversity, management of natural resources, and the provision and regulation of ecosystem services, as well as promoting awareness-raising actions through formal, non-formal and

¹⁴⁶ Tripartite Agreement Alto Purús National Park (PNAP) - Frankfurt Zoological Society (SZF) - MRA

	community environmental education, so that, the project proponent undertakes to participate in surveillance and control activities, generate early warnings through communication between Alto Purús National Park (PNAP) park rangers and Maderacre S.A.C. forest custodians, among others in relation to the established commitments. (1) The participants of the agreement hold a coordination meeting¹⁴⁷ for planning and implementation activities and actions to be considered for year 2022 against the commitments and agreements established, resulting in a Work Plan of the present vintage. (2) The actions of collection and re-nesting of taricaya eggs, care of young and release of 145 individuals in the Tahuamanu River¹⁴⁸, together with the strengthening of capacities through training of forest custodians¹⁴⁹, contribute to the survival of these species due to high incidence of illegal collectors in the province that market the eggs for local consumption, putting at risk the food source and their food security of PIACI populations that move along the beaches of Tahuamanu River upper part during the incubation season of the turtles to collect the eggs. (3) Elaboration of the anthropological contingency plan to face risk situations in case of evidence or encounters with indigenous population in isolation or initial contact (PIACI)¹⁵⁰. (4) The project proponent trains the workers who work in logging operation and forest custodians to establish preventive behaviors and procedures to help guarantee the respect and protection of PIACI populations that may move in the project area and, in turn, guarantee the safety of the company's workers¹⁵¹. The trainings were described in section 2.3.15. Error! No se encuentra el origen de la referencia.. In addition, (5) dissemination to 09 stakeholders of the Anthropological Contingency Plan for dealing with risk situations in the event of evidence or encounters with PIACI¹⁵². Last action, (6) vaccinations to forestry workers in coordination with the Iñapari Health Post, activity with the objective of complying with the Anthropological Contingency Plan to face risk situations in case of evidence or encounters with PIACI (details about vaccination in Table 4.4).
Change in well-being	Improved protection conditions for PIACI peoples through 06 activities implemented.

¹⁴⁷ Report 03_2022. Coordination meeting Alto Purús National Park - Frankfurt Zoo - MRA

¹⁴⁸ Report 68_2022. Handling of taricaya turtle

¹⁴⁹ Report 34_2022. Training on management and conservation of the taricaya turtle

¹⁵⁰ Plan de Contingencia Antropológica PIACI Maderacre 2022

¹⁵¹ PIACI Training Material

¹⁵² Informe 061_2022. Difusion del Plan de contingencia antropológica PIACI

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

Regarding the impact on the well-being of community groups related to the high HCV conservation values according to the PD, no possible risks are identified.

Although no latent risks have been identified, the project monitors possible risks, such as:

- Advance of deforestation due to agricultural or other activities near areas that supply resources to meet the needs of local or indigenous communities and areas of virgin biodiversity.
- Degradation with cultural, natural, economic, or socio-cultural value in the area of influence of the project and surrounding communities.

In this regard, the main activities are as follows:

- **Diagnosis of the potential for deforestation and forest degradation (DPDD):**¹⁷ Carried out every two years, it is a qualitative study to assess the potential for forestry degradation and the future deforestation actions by anthropogenic action through surveys aimed at the inhabitants residing in the project activity region. Therefore, it was identified that 91.8% of families are linked to agriculture, in addition, 46.6% maintain primary forests within their property and that can be used for agricultural activities and/or forest extraction, and 50.7% have pastures for activities related to extensive livestock. The composition of the crops is mainly based on the cultivation of hard yellow corn that represents 74% of families linked to this activity, followed by banana, rice, cassava and other related crops, in addition to this, it is known that 17.8% of families increased their production in the last 5 years, and that 68.5% of families plan to increase their production in the next 5 years. The composition of cattle represents 27.4% of the families dedicated to the activity, in addition to this, it is known that 8.2% of families increased their production in the last 5 years, and that 28.8% of families plan to increase their production in the next 5 years. In relation to the above, a total of 23.3% of families mention that they do not have enough land to develop their activities, and there is the possibility they invade lands in the project activity region.

Families are supplied with firewood represent 87% and wood for other purposes 67.5%, mainly used for self-consumption, whose extraction responds to the use outside their private lands, which represents 2.9% for firewood and 1.7% for wood. None case, the wood extraction outside its property for firewood and other uses is obtained from the project area. When inquiring about the land from which the wood is extracted, people were able to give reference to the location, roads used and distances.

- **Promotional actions for the protection of PIACI territory:** The project area is part of the forest concessions that protect the area of influence of the PIACI territorial reserve; therefore, surveillance and custody activities, biodiversity protection and monitoring actions, PIACI training, PIACI response protocol, the agreements signed, and the presence of the REDD Project generate protection measures for the possible risk of invasion or increase of agricultural areas in these sectors. See Table 4.7.
- **Environmental awareness** of the importance of forest resources and forests: Has been carried out through citizen participation workshops, advisory committee meetings, and the development and dissemination of information materials, among others. The project proponent continued to share information regarding sustainable forest management and the importance of forests through the following events:
 - ✓ 2022 Participatory Workshops (See Section 2.3.4)
 - ✓ 2022 Advisory Committees (See Section 2.3.4)
 - ✓ Informative material for 2022 (See Section 2.3.4)
 - ✓ Training for 2022: Project collaborators (See Section 2.3.15)
 - ✓ Talks to educational institutions in Iñapari aimed at young people and children within the framework of the Education Agreement with the town of Iñapari (See Table 5.3)

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

As described in the PD, the project plans to invest 2% of revenues in the promotion of environmentally friendly initiatives that contribute to the reduction of deforestation and capacity building. The impact in terms of productivity, recovery of degraded areas and conservation will be part of the follow-up plan. These actions will be initiated from the revenues obtained from the sale of carbon credits. In addition, the project invests and will invest in reducing gaps in health and education and will contribute to the maintenance of water quality in the watersheds where the project area is located.

The net impacts of the project with respect to the community indicators are presented below:

Table 4.8. Net impacts of the project on community indicators

Community Group	Indicators						
	Crop productivity	Stabilization of the agricultural frontier	Health support	Educational support	Infrastructure and vulnerable population support	Water access	Environmental awareness
Iñapari	No activities during this period (In 2022, the rules for PPAMA contest are prepared)	No activities during this period (In 2022, the rules for PPAMA contest are prepared)	Described in Table 4.4	Described in Table 4.4	Described in Table 4.5	Described in Table 4.6	Described in Table 5.3 and Section Summary of Project Benefits2.3.4
Iberia			Described in Table 4.4	Described in Table 4.4	Described in Table 4.5		Described in Table 5.3 and Section Summary of Project Benefits; Error! No se encuentra el origen de la referencia. 2.3.4; Error! No se encuentra el origen de la referencia.
San Francisco Asís			-	Described in Table 4.4	-		-
Flor de acre			-	Described in Table 4.4	-		-
Oceania			-	Described in Table 4.4	-		-
La República			-	Described in Table 4.4	--		-
Chilina Vieja			-	Described in Table 4.4	-		-
San Antonio de Abad			-	Described in Table 4.4	-		-
San Isidro de Chilina			Described in Table 4.4	Described in Table 4.4	-		Described in Table 5.3 and Section Summary of Project Benefits2.3.4

Community Group	Indicators						
	Crop productivity	Stabilization of the agricultural frontier	Health support	Educational support	Infrastructure and vulnerable population support	Water access	Environmental awareness
Arca Pacahuara			-	Described in Table 4.4	-		-
Noaya			Described in Table 4.4	Described in Table 4.4	-		Described in Table 5.3 and Section Summary of Project Benefits 2.3.4
Villa Primavera			Described in Table 4.4	Described in Table 4.4	-		-
Nueva Esperanza			Described in Table 4.4	Described in Table 4.4	-		Described in Table 5.3 and Section Summary of Project Benefits 2.3.4
Belgica Native Community			Described in Table 4.3	Described in Table 4.3	Described in Table 4.5		Described in Table 5.3 and Section Summary of Project Benefits 2.3.4
Impact	Zero	Zero	Positive	Positive	Positive	Positive	Positive

On balance, the net impact is positive due to activities associated with support for education, health, water maintenance and others.

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

The HCVs identified in the PD are presented below.

Table 4.9. HCVs determined in the PD (1)

High Conservation Value	Community needs. Areas and resources that are key to satisfy basic needs of local communities or indigenous people (subsistence, health, nutrition, water, etc.)
Qualifying Attribute	Improved access to basic needs
Focal Area	Lands belonging to surrounding communities

Table 4.10. HCVs determined in the PD (2)

High Conservation Value	Cultural values. Areas, resources, habitats and landscapes cultural, archeological or historically significant, at the national or global scope and/or of key importance (economic, ecological, cultural or religiously for local communities or indigenous people)
Qualifying Attribute	Effective protection of PIACI lands Enhanced well-being of indigenous communities
Focal Area	PIACI territory

Community groups are not affected in 2022 period by project activities, due to the following conditions:

- **Community needs:** As described in many sections, the project is already providing support for the basic needs of the community in terms of education, health, training, among others, where specific activities have already been listed. The project does not develop activities on areas that are used by the surrounding communities to meet some of their needs, as evidenced by the DPDD's study where it is evident that the population obtains forest resources from their own land (DPDD's study 2021). Another indicator is that during the 2022 period, the project has not registered any social conflicts due to project occupation, environmental or cultural impacts, or illegal use of community resources (See Section 2.3.14).

- **Cultural values:** As described in many sections, the measures and actions carried out promote the protection of indigenous peoples, and thus, their culture and cultural, environmental, and social diversity (See Table 4.7). Likewise, it has been indicated that the project implements protection actions (agreements, custody, staff training, among others) in favor of PIACI peoples as it constitutes an affective buffer zone for a large part of their territory (Madre de Dios Territorial Reserve). During the 2022 period, there have been no findings or presence of PIACI in the project area.

4.2 Other Stakeholder Impacts

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

The project does not generate negative impacts on other stakeholders. Regarding the well-being of other stakeholders in relation to the actions of the project, neighboring concessions and forest authority would benefit indirectly from the activities of the project, which has already been observed in this period and is expected to become more relevant in subsequent periods with the activities to be implemented with incomes from the sale of carbon credits.

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

No net negative impacts on the well-being of other stakeholders have been generated during the period.

4.3 Community Impact Monitoring

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

The monitoring plan was designed to measure the variables and targets that need to be monitored in the community component, the types of measurements and sampling methods, and the frequency of monitoring and reporting for each type and method. The monitoring activities and indicators are developed by strategic lines of the project.

Table 4.11. Project diffusion 2022: Project activities visible and with social license

Objective	Indicator	Indicator type	Data collection Method	Result	Who?	When?	Where?	Cost to project
By April 2022, implement the first Citizen Participation Workshop (TPC) in order to disseminate the project's activities, programs, and achievements.	Number of participants knowledgeable about the project	Outcome	-Report (See Table 2.9)	13	-Community population -Stakeholders	2 times per year	Iñapari district	Low
	Number of women participants aware of the project	Outcome	-Report (See Table 2.9)	03	-Community population -Stakeholders	2 times per year	Iñapari district	Low
By December 2022, implement the second TPC in order to disseminate the activities developed during the year.	Number of participants knowledgeable about the project	Outcome	-Report (See Table 2.10)	12	-Community population -Stakeholders	2 times per year	Iñapari district	Low
	Number of women participants aware of the project	Outcome	-Report (See Table 2.10)	03	-Community population -Stakeholders	2 times per year	Iñapari district	Low
By April 2022, implement the first Community Relations Advisory Committee (CCRC) in order to propose actions and investments in the priority axes of the committee.	Participating members of the CCRC decision-makers	Impact	-Report (See Table 2.11)	07	-Community representatives	2 times per year	Iñapari district	Low
	Participating female decision-making members	Impact	-Report (See Table 2.11)	01	-Community representatives	2 times per year	Iñapari district	Low
By December 2022, implement the first Community Relations Advisory Committee (CCRC) in order to propose actions and investments in the priority axes of the committee.	Participating members of the CCRC decision-makers	Impact	-Report (See Table 2.12)	05	-Community representatives	2 times per year	Iñapari district	Low
	Participating female decision-making members	Impact	-Report (See Table 2.12)	01	-Community representatives	2 times per year	Iñapari district	Low

Table 4.12. Number of sustainable productive initiatives of the surrounding communities: Reduction of local pressure over the Project area environment

Objective	Indicator	Indicator type	Data collection Method	Result	Who?	When?	Where?	Cost to project
By the end of 2022, prepare the bases for the PPAMA contest participation.	Elaborate working mechanisms	Output	-Contest rules ¹⁵³	01	-Community population -Stakeholders	1 time per year	-	Low
Support for pilot sustainable production initiatives in neighboring communities to help reduce the expansion of the agricultural frontier and improve the quality of life.	Number of beneficiaries	Output	-	No report data	-Community population -Stakeholders	1 time per each income carbon	Project activity region	High

Support pilot sustainable productive initiatives in the surrounding communities, reducing the expansion of the agricultural frontier and improving living conditions with 2% of the project's income.

Table 4.13. Number of sustainable productive initiatives of the surrounding communities: Stakeholders are convinced and loyal with the Project and are allies to share the benefits of the project and the benefits to manage forests sustainably

Objective	Indicator	Indicator type	Data collection Method	Result	Who?	When?	Where?	Cost to project
Meetings and training sessions held with the community	Number of beneficiaries	Output	-	No report data	-Community population -Stakeholders	1 time per each income carbon	Project activity region	High

Strengthen/develop skills and capacities in the members of the families that are part of the selected projects, including the company's local workers with 2% of the project's income.

¹⁵³ Bases PPAMA TAH REDD 2023

Table 4.14. Promote activities with entities whose goals are addressed to protect ANP and PIACI territory with 1% of annual project incomes.

Objective	Indicator	Indicator type	Data collection Method	Result	Who?	When?	Where?	Cost to project
By the end of 2022, maintain agreements in place between the project proponent, PNAP and SZF administration for the development of mechanisms that protect PNAP and PIACI territories, where the project area functions as a type of buffer zone.	Engineered Development Program	Output	-Covenant -Report (See Table 4.7)	01	-SERNAP park rangers and administration -SZF representative	1 time per year	-Project area -PNAP area	Low
By August 2022, manage taricaya turtle populations that are a source of food for PIACI populations, ensuring their food security.	Activities in favor of taricayas production in the Tahuamanu River as a livelihood for the PIACI population	Outcome	-Report (See Table 4.7)	01	-Forest Custodians	1 time per year	-Project area	Medium
During the whole 2022, carry out training for 100% of forest management and forest custodians' workers on PIACI action protocol.	Workers trained to deal with situations in face encounters with PIACI populations	Impact	-Report (See Table 4.7 and Section 2.3.15)	257	-Forest management workers and forest custodians	1 time per year	-Project area	Medium
By October, disseminate the PIACI Anthropological Contingency Plan to all stakeholders in related to the protection of their territory.	Stakeholders informed about action mechanisms	Output	-Report (See Table 4.7)	09	-Stakeholders	1 time per year	-Iñapari and Iberia district	Low
By June and October, carry out vaccination campaigns to project workers for fulfillment the Anthropological Contingency Plan	Immunized workers avoiding contagion to the PIACI population	Outcome	-Report (See Table 4.7)	182	-Project workers	1 time per year	-Project area	Low

Notwithstanding the project has not received carbon credit sales until the end of 2022, the project proponent implements actions, in conjunction with other institutions, for the protection of PIACI and PNAP territories.

Table 4.15. Promote activities with partners whose goals are focused on contributing to the sustainable development of the population (according to the prioritization of the Community Relations Advisory Committee).

Objective	Indicator	Indicator type	Data collection Method	Result	Who?	When?	Where?	Cost to project
By the end of 2022, maintain current education agreements with basic and higher education institutions, and peripheral CEBA in benefit of several community groups.	Engineered Development Program	Output	-Agreements (See Table 4.3 and Table 4.4)	04	-Community members of the Belgica Native Community -Community groups in Iñapari and Iberia	1 time per year	-Belgica Native Community -Iñapari and Iberia district	Low
By the end of 2022, students who complete the school year of basic secondary education through the peripheral CEBA.	Students who complete the school year in Belgica Native Community	Ouput	-Report (See Table 4.3)	21	-Community members of the Belgica Native Community	1 time per year	-Belgica Native Community	Medium
	Students who complete the school year in the district of Iñapari	Ouput	-Report (See Table 4.4)	10	-Community groups in Iñapari	1 time per year	-Iñapari district	Medium
At the beginning of 2022, students enrolled in basic and higher education schools.	Number of kindergarten children enrolled	Output	-Report (See Table 4.3)	12	-Community members of the Belgica Native Community	1 time per year	-Belgica Native Community	Medium
	Number of primary school youth enrolled	Output	-Report (See Table 4.3)	17	-Community members of the Belgica Native Community	1 time per year	-Belgica Native Community	Medium
	Number of students who complete the study year in higher education	Outcome	-Report (See Table 4.4)	04	-Community groups in Iñapari and Iberia	1 time per year	-Iñapari and Iberia district	Medium

Objective	Indicator	Indicator type	Data collection Method	Result	Who?	When?	Where?	Cost to project
During the whole 2022, provide support in education lines for community's benefits.	Support on activities developed for education benefits	Output	-Report (See Table 4.4)	06	-Basic and higher education students	Several times per year	-Basic education schools -Institutes of Higher Education -PNAP recreation site	Low
During 2022, maintain current health agreements with public institutions in the district of Iñapari and Belgica Native Community.	-Engineered Development Program	Output	-Convenios (See Table 4.3 and Table 4.4)	02	-Community members of the Belgica Native Community -Community groups in Iñapari	1 time per year	-Belgica Native Community -Iñapari district	Low
During the whole 2022, community members of Belgica Native Community and residents in the district of Iñapari attended by health personnel.	-Community members with access to basic health care at the first level in Belgica Native Community	-Outcome	-Report (See Table 4.3)	130	-Community members of the Belgica Native Community	Several times per year	-Belgica Native Community	Medium
	-Residents benefited from the health post operation	-Output	-Report (See Table 4.4)	2,391	-Community groups in Iñapari	Several times per year	-Iñapari district	Medium
	-Women benefited by the health post operation	-Output	-Report (See Table 4.4)	1,002	-Community groups in Iñapari	Several times per year	-Iñapari district	Medium
During the whole 2022, provide support in health lines for community benefits	-Support on activities developed for health benefits	Output	-Report (See Table 4.4)	02	-Residents in the district of Iñapari	1 time per year	Iñapari district	Low
During the whole 2022, to support lines of infrastructure	-Support on activities carried out	Output	-Report (See Table 4.5)	05	-Residents in the district of Iñapari and Iberia	Several times per year	Iñapari and Iberia district	Low

Objective	Indicator	Indicator type	Data collection Method	Result	Who?	When?	Where?	Cost to project
improvements and support for vulnerable populations.								

Although the project has not received carbon credit sales until the end of 2022, the project proponent implements actions to contribute with the improvement of population health, and children, young and adults' people, maintenance of infrastructures and support for vulnerable populations.

4.3.2 Monitoring Plan Dissemination (CCB, CM4.3)

The results of the social monitoring, with management indicators until 2022, have been disseminated through a letter sent to each community group and interest group (See Section 2.3.2).

4.4 Optional Criterion: Exceptional Community Benefits

The project does not plan to apply to Community Gold Level.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

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

Table 5.1. Positive biodiversity impacts (1)

Change in Biodiversity	Tracking the quantity and quality of forest in the project area and frequency of biodiversity threats
Monitored Change	<u>Quantity of forest:</u> The forested extensions of the project area, measured with satellite images, have not undergone changes in their composition, due to the implementation of a robust custody and surveillance system of the project area, as well as the good practices of reduced impact logging implemented. <u>Quality of forest:</u> The diversity, composition and structure of the forest is monitored through the installation and revaluation of Permanent Monitoring Plots (PPM) in the Forest Management Unit (FMU) of Maderacre company. The results show the forest dynamic compared to forest harvesting operations, have maintained their variables and indicators according to forests without intervention of the Peruvian tropical forest.
Justification of Change	<u>Quantity of forest:</u> CUSTODY AND SURVEILLANCE Satellite images from the Global Forest Watch (GFW) platform are studied and evaluated, which allows verifying the loss of forests over the years and integrates deforestation alert systems, with a certain degree of confidence, from the last six months, and the platform of the National Forest and Wildlife Information System (SNIFFS) that records the loss of forests in the Peruvian Amazon and the alerts of heat sources and forest fires at the national level. All of this has allowed the project proponent prevent the loss of forest cover by carrying out patrols in critical areas. The project proponent implements a robust custody and surveillance system that reduces the intervention of external agents in the project area. A Custody and Surveillance Plan has been developed¹⁵⁴ that identifies activities aimed at the implementation of a patrol system, operation of the

¹⁵⁴ CMRA Stewardship Plan 2022

Surveillance Posts (PV), early warning mechanisms and identification of higher risk areas adjacent to the FMU.

The project proponent, through the Annual Report of Custody and Surveillance of the FMU¹⁵⁵, shows efforts to comply with the provisions of the Custody and Surveillance Plan. A comparison of efforts before and after the start of the project is foreseen.

Prior the project start date	Monitoring period 2022
02 Surveillance posts with basic implementation	Maintenance of the 03 Surveillance Posts implemented with solar panels, hygienic services of noble material, improved kitchens, communication radio, septic tank, among others.
04 forest custodians with basic salary and no visits from health personnel	06 forest custodians with a 50% salary increase and recurrent visits by health personnel in each Surveillance Posts, in addition to the delivery of medicines and vademecum.
There was no forest stewardship and surveillance system or relevant training for forest custodians	The implementation of Maderacre Custody and Surveillance Plan continues: ✓ Biweekly and monthly frequency of land and river patrols, respectively. ✓ Record of patrols in control notebooks. ✓ Control of entrances and exits in the FMU. ✓ Training in custody and surveillance, forest management and first aid. ✓ Placement of informative posters in surveillance post and conservation areas, in addition to road and river entrances, which aim to promote forest conservation, generate knowledge of the FMU zoning, control zones and forest camps. Results:

¹⁵⁵ Inf.tecnico 005-2023-J. Del Río-Custodia y Vigilancia CMRA

	✓ 42 patrols have been carried out (27 river and 15 land). ✓ 646.85 km have been patrolled on Tahuamanu River and the boundaries of 98.58 km have been maintained in the areas with the highest risk of deforestation. ✓ No illegal activities have been recorded in the project area. ✓ 81 information posters were established in the FMU.
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Patrols and, the establishment and maintenance of signage, are important in forest management areas because they help ensure the protection of biodiversity and prevent deforestation for several reasons:

- **Biodiversity protection:** Regular patrolling of forest areas can help detect and stop any illegal or harmful activities that may affect the area's biodiversity, such as poaching, illegal logging, extraction of vulnerable species, among others.
- **Prevention of deforestation:** Clear and visible signage in forest areas can deter those responsible for illegal deforestation and can help to easily identify protected areas.
- **Monitoring and control:** Patrolling allows forest managers to highlight critical areas and take corrective measures to strengthen the Custody and Surveillance Plan, in order to better safeguard the integrity of biodiversity and the project area.

The custody and surveillance efforts in the project area have made it possible to reduce the incidence of illegal activities since the start date of the project (2017) with only one incident occurring in 2021 in which illegal logging was reported in the project area, where the necessary measures were taken for its intervention and stoppage of activities. This made it possible to maintain biodiversity with healthy and viable populations, and the maintenance of the forest ecosystems that are hosted.

MONITORING FORESTRY OPERATIONS (MOF)

The **monitoring of forestry operations** is an important component to know the impact generated by forest harvesting activities on the forest, so that, it

seeks to infer the quality of operations executed based on the level of forest degradation and the environmental impact that it generates¹⁵⁶.

To estimate forest degradation, the area affected by forest harvesting operations is measured, where roads and skidding roads are opened, trees are felled, landing and camps are opened. This implies the partial loss of forest cover and a certain degree of negative impact on the forest, generating information that will allow better decision-making for immediate action and future precautionary actions. The evaluation results¹⁵⁷ are detailed according to Cut Plots (CP) evaluated:

CP	Degraded area (%)
18	4.46
19	2.56
20	0.001

It can be seen in CP 18, after the execution of forest harvesting tasks, the forest affectation corresponds to 4.46% of the CP area used in the current harvest; CP 19 shows an affectation of 2.56 %; CP 20, where only forest census work was carried out during the harvest, only 0.0011% of said CP was affected.

CMRA Total Area (ha)	220,844.56
% Affected Annually	0.19

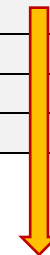
In terms of the FMU consolidated total area (220,844.56 hectares), the degraded area in the CPs intervened in 2022, harvest represents 0.19% of the FMU total area, this being an extremely low impact level.

Since the project start date (2017), the project proponent evaluates the impact generated by forest harvesting operations during the operational year as a decision-making mechanism that allows planning and executing activities in the best way. The evaluations have made it possible to know the areas affected by each tree cut down over the years as a result of practices executed:

Year	Number of trees felled	Degraded area (ha)	Area degraded by tree felled
2017	CP 12: 421	CP 12: 77.04	CP 12: 0.183
	CP 15: 8133	CP 15: 687.844	CP 15: 0.085
2018	CP 16: 8302	CP 16: 670.39	CP 16: 0.081
2019	CP 17: 8894	CP 17: 593.251	CP 17: 0.067
2020	No felling operation implemented because of COVID 19		

¹⁵⁶ MOF Methodological Guide 2022

¹⁵⁷ Technical Information 001-2023-CCR-MonitoringForestryOperations



2021	CP 18: 4273 CP 14: 700	CP 18: 308.72 CP 14: 48.48	CP 18: 0.072 CP 14: 0.069
2022	CP 18: 2187 CP 19: 5128	CP 18: 137.54 CP 19: 290.9	CP 18: 0.063 CP 19: 0.057

The summary results presented allow us to know the progressive decrease in the degraded area for each tree that has been cut down in the CP harvested from 2017 to 2022, inferring that the improvements application in planning, training and awareness creation focused on sustainable forest management to workers, and the monitoring of forestry operations, it has achieved positive impacts on the forest by reducing the degradation of the project area due to good forestry practices executed. The information compiled is provided from all forestry operations monitoring reports since 2017.

To evaluate the environmental impact¹⁵⁷ generated by forest harvesting operations, indicators are generated that allow us to know the status of wildlife and soil, water and air conditions due to direct or cross-contamination.

- Dead animals: 0
- Affection of importance sites for wild fauna: 0
- Alteration and/or obstruction of watercourses: 0
- Fuel and/or lubricant spillage: not registered
- Emission of gases: within the permitted levels
- Muffler condition: in good condition

Finally, the project proponent, represented by its specialized team, implements a quality study¹⁵⁸ of all evaluations and forestry operations carried out during harvest, in order to know the effectiveness degree of the training, follow-up and monitoring of each collaborator. Finally, similarity evaluations are recorded in the recorded data and qualitative evaluation criteria and, this is why, it has been defined the quality of the forestry operations carried out in the year 2022 is "Moderately Effective", presenting a value of 87.46%. Activities within the forestry operations were carried out properly.

Quality of forest:

FOREST DYNAMICS

The annual evaluations of Permanent Monitoring Plots (PPM) have made it possible to know the forest evolution, which has been subjected at a certain

¹⁵⁸ Technical Information 004-2023-J. Del Rio-Quality of Op. Forestales

logging operation. The results obtained through the PPM 007 and PPM 008 evaluated in 2022¹⁵⁹ register values similar to studies carried out in region protected primary forests (mortality rate: $2.12\% \pm 0.52$ and recruitment rate $1.92\% \pm 0.49$ ¹⁶⁰; average annual increase: 0.38 cm/year ¹⁶¹). The resulting values are as follows:

Indicator	PPM 007	PPM 008
Mortality rate	$1.5\% \pm 6.31$	$3.36\% \pm 4.96$
Recruitment rate	$2.40\% \pm 2.90$	$2.43\% \pm 6.29$
Average annual increase	$0.44 \text{ cm/year} \pm 0.22$	$0.50 \text{ cm/year} \pm 0.31$

Good forest management practices have allowed conserve its natural state and the species of wild flora and fauna associated with it, keeping the normal functioning of the ecosystem. The conservation of large project areas, in conjunction with forest concessions and neighboring native communities certified with VCS, CCB and/or FSC standards, contribute to the formation of large landscape-level forests, important on a national scale, which maintain viable populations of the species of wild flora and fauna present.

Table 5.2. Positive biodiversity impacts (2)

Change in Biodiversity	Status of Species of Interest, and representative areas, especially sites of ecological importance, are protected and appropriately managed.
Monitored Change	The project proponent, through wild fauna studies and assessments carried out in the project area has recorded the maintenance of biological diversity values for species registered on the IUCN Red List with some threat degree, as well as umbrella species and indicators of good ecosystem health due to their presence in the assessed sites, and species threatened by the indirect consumption of the species in the Tahuamanu River. Maderacre S.A.C. executes its silviculture activities with reduced impact selective harvesting methods, which implies that only some trees of some species with commercial potential are felled within a cutting cycle (CC) and under silvicultural parameters, such as diameter at breast height (DBH), harvesting intensity (IC) and the proportion of seed trees that seek to guarantee a sustainable harvest over time, ensuring future harvests, but above all, the species continue to fulfill their ecological roles in the forest (seed production, food for other species, symbiotic relationships, etc.). In addition, operations must be carried out to minimizing impacts on the forest

¹⁵⁹ Technical Information 003-2023-J.Del Río-Permanent Monitoring Plots

¹⁶⁰ Website: http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1727-99332014000300006

¹⁶¹ Website: <https://repositorio.unas.edu.pe/server/api/core/bitstreams/0bef7a63-4076-4f24-bcbd-c37f10c00935/content>

Justification of Change

(water, soil, biodiversity). It complies with the Principles and Criteria established by the Forest Stewardship Council (FSC), whose purpose is to evaluate the environmental, economic, and social performance of the proponent's forest management, considering the conservation of timber and non-timber interest species, as well as those categorized in the IUCN Red List and CITES.

WILD FAUNA MONITORING

The wild fauna studies implemented in the project area have focused on diversifying methodologies to know in greater detail the impact generated through logging operation applied by the company. The resulting indicators have made it possible to know the status of the project area according to biological diversity it hosts.

Wild fauna assessments and conservation actions should focus on priority and practical issues that allow for long-term monitoring. Then, the ecological relevance and conservation status of the species must be taken into account, focusing the monitoring on endangered species, umbrella and representative species capable of giving us information about the ecosystem health, its resources and critical habitats.

The project proponent has implemented a post logging operation wild fauna study in 2022¹⁶², which has made it possible to evaluate species registered in CP 18. As part of the process, the International Union for Conservation of Nature (IUCN) Red List of Threatened Species platform is mainly used¹⁶³ to determine the contribution generated by the project for the conservation of identified species faces a high risk of extinction in the wild. Similarly, as a support mechanism, the classification of species in appendices I, II and III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)¹⁶⁴ is carried out, which aims to ensure the survival of species threatened by international trade.

Scientific name	Common name	UICN	CITES
<i>Tayassu pecari</i>	Huangana	VU	II
<i>Tapirus terrestris</i>	Sachavaca	VU	II
<i>Ara militaris</i>	Loro maracana	VU	I
<i>Tinamus tao</i>	Panguana	VU	-
<i>Chelonoidis denticulata</i>	Tortuga motelo	VU	II
<i>Ateles chamek</i>	Maquisapa	EN	II

Appendix I: Prohibition of international trade in specimens; Appendix II: Strict control of trade in the species; Near Threatened (NT): Inclined to be threatened with extinction but not yet qualified as vulnerable; Vulnerable (VU): A species considered

¹⁶² Technical information 002-2023-JRTM-FaunaSilvestre

¹⁶³ Website: <https://www.iucnredlist.org/>

¹⁶⁴ Website: <https://checklist.cites.org/#/en>

to be facing a high risk of extinction in the wild; Endangered (EN): A species considered to be facing a very high risk of extinction in the wild.

The number of species in the Vulnerable (VU) category is 5 (2 mammals, 2 birds, 1 reptile); Endangered category (EN) is 1 mammal. In addition, the project proponent makes a second classification under CITES standards, where most species are found in Appendix II and only the species *Ara militaris* in Appendix I.

The project has identified priority species for identification and registration, which are categorized as "umbrella" species due to the use of large and ecologically diverse areas and have significant impacts on the structure and function of natural ecosystems; and "representative" species associated with levels of hunting, habitat destruction and loss. In summary, 26 species of wild fauna suggested for monitoring have been identified, where 23 are recorded by the baseline studies of 2017¹⁶⁵ and 03 individuals added in the evaluation of 2021¹⁶⁶, therefore, the results of the evaluations carried out are show¹⁶⁵:

Scientific name	Year				Total Records
	2018	2019	2021	2022	
<i>Alouatta seniculus</i>	x	x	x	x	4
<i>Ateles chamek</i>	x	x	x	x	
<i>Cebus albifrons</i>	x	x	x	x	
<i>Chelonoidis denticulata</i>	x	x	x	x	
<i>Mitu tuberosum</i>	x	x	x	x	
<i>Panthera onca</i>	x	x	x	x	
<i>Penelope jacquacu</i>	x	x	x	x	
<i>Pipile cumanensis</i>	x	x	x	x	
<i>Ramphastos cuvieri</i>	x	x	x	x	
<i>Sapajus apella</i>	x	x	x	x	
<i>Celeus flavescens</i>	x	x	x	x	
<i>Tapirus terrestris</i>	x	x	x	x	
<i>Ara macao</i>	x	x	x	x	
<i>Ara militaris</i>			x	x	2
<i>Caiman crocodilus</i>			x	x	
<i>Campephilus melanoleucos</i>			x	x	
<i>Harpia harpyja</i>		x	x		
<i>Ortalis guttata</i>			x	x	
<i>Paleosuchus</i> sp.		x	x		
<i>Pteroglossus castanotis</i>			x	x	

¹⁶⁵ Wildlife Report 2017 J.Loja

¹⁶⁶ Study of Ecosystem Health by Bird Composition. F.Angulo

<i>Puma concolor</i>			x		1
<i>Ameerega trivittata</i>			x		
TOTAL	12	14	22	18	

The identification of 18 from 26 species indicate the ecosystem health reveals that the forest is in adequate and optimal conditions that guarantee the perpetuity of wild fauna, housing a large number of "umbrella species" and the reflection that human practices are developed in a controlled manner under an adequate logging plan, which translates into a minimal degree of affectation to terrestrial ecosystems of wild fauna and is evidenced through abundance of medium and large primates, such as *Alouatta seniculus* "coto mono", *Ateles chamek* "maquisapa" y *Cebus albifrons* "mono blanco". In addition, the daily and abundant sighting of birds belonging to the families Psittacidae, Ramphastidae and Picidae highlights a healthy terrestrial ecosystem and guarantees the dispersal of seeds, which means forest dynamic is developing with total normality while the logging operation is executed. The aquatic ecosystems have not been altered, since the project proponent includes intangible buffer areas of 25m on each side of the permanent water bank (rivers and streams) during forest harvesting activities, guaranteeing the presence and sighting of *Caiman crocodilus* "lagarto blanco", which is an indicator of the adequate state of these ecosystems and whose monitoring is recommended. The hunting of species within the project area is non-existent, and it is thanks to constant terrestrial and fluvial monitoring, which is proven by the daily and abundant sighting of *Penelope jacquacu* "pucacunga", this one being an indicator of healthy forest. The absence of other species couldn't be possible because of the assessment season (summer).

Currently, the irrational collection of *Podocnemis unifilis* "taricaya" eggs and its uncontrolled trade are illicit activities that threaten the survival of the species, in addition to the fact that climate change has had an impact on the natural cycle of river ecosystems by altering water patterns that affect environmental conditions, such as water levels and formation of beaches suitable for the species, reducing nesting rates and the ecological balance with interdependent species, in addition, the impact on turtle populations impacts the ecology of their natural predators that fail to obtain the necessary food source for their development, causing the destabilization of food chain and biodiversity components of the mega-diverse forest ecosystems of the region. The project proponent, in conjunction with PNAP administration, developed management activities of *Podocnemis unifilis* ("taricaya")¹⁴⁸ through the collection of taricaya eggs in the Tahuamanu River and its streams to be incubated in artificial sandbanks, their care in the first days of life and their subsequent release into their natural habitat in better survival conditions to ensure the conservation of species and contribute to food security of indigenous populations in voluntary isolation in both basins, because species is in Vulnerable state according to the IUCN

and is listed in Appendix II of the International Convention on Trafficking in Endangered Species (CITES), due to meat and eggs illegal trade.

FOREST CENSUS

To generate information on timber and non-timber forest species to be conserved within the project area, the project proponent plans, executes and monitors forest census activities in designated Cutting Plot (CP). The information collected, based on forest census manual¹⁶⁷, includes registering individuals of commercial size, future harvest and seed trees, their registration mechanisms, tree codification, dasometric measurements and stem quality. The number of seed trees, which corresponds to 20% of total number of individuals inventoried, plus the trees of future harvest identified, allows us to ensure mature individuals capable of providing genetic material to the forest without affecting their ecological functions that species fulfill to maintain the functioning of the ecosystem in balance. The seed trees identified in CP 20, whose species are categorized in the IUCN Red List and CITES, a forest census carried out in 2022, are detailed:

Common name	Scientific name	Number of seed trees
Ishpingo	<i>Amburana cearensis</i>	225
Tahuari	<i>Handroanthus capitatus</i>	49
Shihuahuaco	<i>Dipteryx micrantha</i>	587
Cedro	<i>Cedrela odorata</i>	6
Caoba	<i>Swietenia macrophylla</i>	10
TOTAL		877

In the same way, importance sites for wild fauna are identified¹⁶⁸, registering 01 aguajal, 01 tree with a *Harpia harpyja* ("harpy eagle") species nest, 01 mammal bath, 05 cochas, 07 mammal clay licks, 01 lake and 15 springs of water bodies, adding up to 31 places of importance for their protection during forest harvesting activities.

Liana cutting activities are implemented at the trunk base as a silvicultural treatment in seed trees and future harvest, which allows reducing the number of lianas to promote adequate growth, in addition to favoring the formation of good quality wood, facilitating felling, reducing the risk of accidents during its execution, avoid wood losses due to cracks and minimise the impact on natural regeneration, fauna and watercourses. During forest census of CP 20, lianas was cut in a total of 106 seed trees

¹⁶⁷ Direct Georeferencing Census Manual 2022

¹⁶⁸ Report 006-2022 AVC PC 20 2022

and 218 future harvests, adding a total of 324 trees with the silvicultural treatment carried out¹⁶⁹.

LOGGING

Once all potential species to be exploited have been identified, the Operational Plan (OP) is prepared, during this period, CP 18 and 19 have been harvest, which corresponds to two Operational Plans^{100 101}, these are short-term plans, ideally to be implemented during one year, and defines the area where it is going to be cut, it quantifies in detail the amount of wood that is going to be extracted, as well as those trees that will be reserved for future harvest and seed trees, they contain maps^{170 171} that indicate in detail the location of timber resource, and works to be implemented and other aspects, which complement the sustainable forest management, such as the social aspect, the environmental issue and forestry.

Forest harvest planning operation will mainly contribute to defining parameters such as **minimum diameter at breast height** (DBH) based on the diameter structure and growth capacity of each species in a cutting cycle, harvest intensity (IC) which is the proportion of individuals of a given species that can be harvested in a unit area (CP), and **seed trees** excluded from harvesting selected for sufficient production that guarantee the natural regeneration of each species, better criteria to define the felling trees direction used to minimize the impact on valuable individuals and the biomass in understory, reduce the routes of the skidding roads so not to cause greater damage to forest soil and undergrowth, it guarantees the functionality of the forest roads during the roundwood transport period, avoiding unstable and/or uneven soils, and the strategic location for landing in relation to the terrain physiography; according to described, the forest conservation tree species is ensured, especially those categorized in the ICUN Red List and CITES:

Scientific name	Common name	IUCN	CITES
<i>Cedrela odorata</i>	Cedro	VU	II
<i>Swietenia macrophylla</i>	Caoba	EN	II
<i>Handroanthus capitatus</i>	Tahuari	VU	II
<i>Amburana cearensis</i>	Ishpingo	EN	-
<i>Dipteryx micrantha</i>	Shihuahuaco	DD	II

¹⁶⁹ Silvicultural treatment of cutting lianas PC 20

¹⁷⁰ Map of Forest Harvesting Re-entry PC 18

¹⁷¹ Forest Harvesting Map PC 19

In the same way, the state of the watercourses¹⁷² during and after the forest harvesting operations is evaluated to identify incidences of disturbances on water sources, mainly permanent streams and rivers, monitoring the state of the bridges and culverts in their entirety, in contrast, the water flows are in good condition and infrastructures state in the same way. In other matters, maintenance and conservation status of importance sites¹⁷³ located in CP 18 and 19 during and after forest harvesting is evaluated, in contrast, 19 importance sites evaluated are not altered in their structure and nature with any disturbance by forestry operations, in addition, they are correctly signposted.

Forestry operations under the reduced impact logging framework are important because they allow the extraction of forest resources in a sustainable and responsible manner, minimizing negative impacts on the ecosystem and ensuring the conservation of biodiversity. These practices seek to maximize the efficiency of extraction processes and minimize soil disturbance, reduce the felling of trees of high ecological value, and conserve natural forests.

Table 5.3. Positive biodiversity impacts (3)

Change in Biodiversity	Sensitization and awareness-raising of environmental education
Monitored Change	The project proponent sensitizes and raises awareness among the local community about their role in protecting the environment. They also have an informative function in restricting activities, such as illegal logging and hunting within the project area.
Justification of Change	The project proponent maintains 02 environmental education agreements with I.E.B.R. Elena Bertha ¹⁷⁴ and I.E.B.R. Secundaria Iñapari ¹⁷⁵ basic education schools, which has made it possible to strengthen in students the importance of responsible forest management, forest conservation and biological diversity they host, generating sensitization and awareness about the care of local forests for the benefit of the community. There have been 53 students registered in the first training ¹⁷⁶ and 45 in the second ¹⁷⁷ , adding up to a total of 98 students trained, registering 16 women. In the

¹⁷² Report 010-2022 Evaluation of watercourses in PC 18-19

¹⁷³ Report 009-2022 Monitoring of HCV in PC 18-19

¹⁷⁴ Agreement I.E.B.R. Elena Bertha - Maderacre

¹⁷⁵ I.E.B.R. Secondary Iñapari - Maderacre Agreement

¹⁷⁶ Environmental Education Training 052_2022_Primer Report

¹⁷⁷ Environmental Education Training 053_2022_Segunda Report

	same way, the agreement promotes the orderly use of forest resources within the environmental education program. The project proponent has generated recreational educational spaces with basic education schools in the province of Tahuamanu, visiting interpretation centers and forest nurseries that allow students to generate knowledge about the importance of wild flora and fauna present in the forest ecosystems of the region, in addition, actions which help to lead to reduce negative impacts on forests. The visit of 30 students has been registered¹⁷⁸. The project contemplates the contribution in donations to promote and reward the student's effort in the participation of contests that promote and encourage cultural development, and the importance and care of forests. 04 donations have been registered^{179 180 181 182}
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Table 5.4. Positive biodiversity impacts (4)

Change in Biodiversity	Priority actions for the conservation benefit of biodiversity and ecosystem services, identified and agreed upon by different actors.
Monitored Change	The project proponent actively participates in spaces for dialogue that promote sustainable development based on the conservation of biodiversity and ecosystem services in circumscribed spaces in the region of project activities. In addition, it promotes actions with other institutions to generate knowledge of key species for the ecosystem and actions that benefit the ecological diversity of the forest.
Justification of Change	Alto Purus National Park // Frankfurt Zoological Society (PNAP and SZF) In relation to the Tripartite Agreement¹⁴⁶ signed with the PNAP and SZF administration, the project proponent participates in the first coordination meeting¹⁴⁷, which aims to establish the main activities for 2022 period in partnership with the three institutions, which includes the strengthening of surveillance and custody in the Tahuamanu River basin through the implementation of surveillance system, river patrols and posters for environmental awareness, conservation and promotion of natural resources through the management of taricayas in Tahuamanu River basin,

¹⁷⁸ Guided 72_2022_Visita report to the Forest Interpretation Centre and Nursery

¹⁷⁹ Report 020_2022_Donación 001

¹⁸⁰ Report 017_2022_Donación 002

¹⁸¹ Report 075_2022_Donación 003

¹⁸² Certificate of delivery of support Environmental Education - Bicycle donation

and participatory management and environmental education with basic education schools.

The project proponent participates in the Sectoral Assembly of the Management Committee of the Alto Purús National Park¹⁸³, which proponent is a member¹⁸⁴, in order to (1) analyze the progress of work plan activities from previous year and restructuring what was not attended, (2) election of coordinators, where the representative of the company Maderacre S.A.C. is appointed as alternate holder of the Board of Directors of Acre Sector, and (3) a work plan is prepared for year 2022 about actions to be carried out in Acre sector, which concern the surveillance, control and protection PIACI, conservation and promotion of natural resources, and participatory management and environmental education.

Participation in validation and dissemination meeting of the project called "Prepare a diagnosis and proposals to promote sustainable development based on the conservation of biodiversity and ecosystem services of Purus Landscape"¹⁸⁵, in order to identify possible effects on PNAP and PIACI territory, and propose strategies to counteract such damages, through the intervention of international cooperation in the implementation of productive projects that promote development, and mitigate these pressures. In addition, it is recommended to add the forest concessions area in Purus landscape maps in action plan, including the project area, since these form a type of PNAP and RT PIACI buffer area due to their proximity, mentioning within these areas there are surveillance posts that operate under an integrated custody and surveillance system, managed exclusively by the private sector.

San Diego Zoo (SDZ)

In 2021, and as part of the project activities, the project proponent and the SDZ signed a Memorandum of Understanding (MOU)¹⁸⁶, which have potential benefits include:

- Benefit from the research capacity that SDZ has to offer for collaborative projects and training.
- Data collected by SDZ will help the project proponent to improve its sustainable forest management strategies.
- Data generated through this research will help with certification for FSC and REDD+.

¹⁸³ Report 021_2022. I Assembly of the Alto Purús Management Committee

¹⁸⁴ Letter No. 009_2019. Representatives for participation in the Alto Purús CoG

¹⁸⁵ Report 055_2022. Promotion of sustainable development of conservation and ecosystem services in the Purús landscape

¹⁸⁶ Memorandum of Understanding (MOU) between San Diego Zoo - Maderacre

- The work with SDZ will help promote the logging concessions as a research site for other NGOs, universities and government entities.

According MOU activities, the project proponent undertakes to provide logistical support to achieve the objectives, contribute technically in the investigations that are developed within the framework of the agreement, disseminate the results from research by this project, contribute financially to the development of the research, and safeguard the research area against any risk of invasion, poaching, and habitat destruction.

The project proponent, in conjunction with San Diego Zoo, carries out activities that have allowed to know the behavior of *Panthera onca* "jaguar" and its prey, in realization of its distribution and movement patterns in the FMU of Maderacre, which is part of the project area. The annual studies carried out have revealed that the FMU is home of the highest density population of jaguars in Peru with 4.50 individuals/100km² (Section 3.1.1 of the attached link)¹⁸⁷, represented by 76 jaguars within the project area, including adult males and females, adolescents and cubs, in addition, it has the second population with the highest density in the world after the Pantanal in Brazil. The progress of camera trap evaluations records a total of 41 species of medium and large mammals, 2 reptile and 23 land birds¹⁸⁸:

Scientific name	Common name	Group	IUCN	CITES	Events
<i>Leopardus pardalis</i>	Ocelote	M	LC	I	1397
<i>Tapirus terrestris</i>	Sachavaca	M	VU	II	874
<i>Sytilagus brasiliensis</i>	Liebre amazónica	M	EN	-	628
<i>Panthera onca</i>	Jaguar	M	NT	I	550
<i>Mazama americana</i>	Venado colorado	M	DD	-	548
<i>Mitu tuberosum</i>	Paujil	B	NT	-	385
<i>Dicotyles tajacu</i>	Sajino	M	LC	II	231
<i>Dasypus variegatus</i>	Añuje	M	DD	-	155
<i>Ortalis guttata</i>	Manacaraco	B	LC	-	152
<i>Puma concolor</i>	Puma	M	LC	II	146
<i>Leptotila rufaxilla</i>	Paloma montañaz frentiblanca	M	LC	-	141
<i>Proechimys</i> sp.	Rata espinosa	M	-	-	127
<i>Penelope jacquacu</i>	Pucacunga	B	LC	-	115
<i>Didelphis marsupialis</i>	Intuto	M	LC	-	76
<i>Pipile cumanensis</i>	Pava campanilla	B	LC	-	64
<i>Sciurus spadiceus</i>	Ardilla	M	LC	-	64
<i>Cuniculus paca</i>	Majás	M	LC	III	62
<i>Eira barbara</i>	Manco	M	LC	-	57
<i>Sapajus macrocephalus</i>	Mono negro	M	LC	-	37

¹⁸⁷ Website: https://cdn.www.gob.pe/uploads/document/file/3593628/PLAN_NACIONAL_DE_CONSERVACION_DEL_JAGUAR-D000189-2022-MIDAGRI-SERFOR-DE.PDF.PDF

¹⁸⁸ Evaluación de mamíferos en concesiones forestales FSC. Caso Maderacre

<i>Crypturellus undulatus</i>	Tinamú ondeado	B	LC	-	35
<i>Patagioenas plumbea</i>	Paloma plumiza	B	LC	-	35
<i>Leopardus wiedii</i>	Margay	M	NT	I	33
<i>Priodontes maximus</i>	Armadillo gigante	M	VU	I	33
<i>Dasypus spp.</i>	Armadillo	M	-	-	27
<i>Alouatta seniculus</i>	Coto mono	M	LC	II	26
<i>Tayassu pecari</i>	Huangana	M	VU	II	24
<i>Claravis pretiosa</i>	Tortolita azulada	B	LC	-	23
Ateles chamek	Maquisapa	M	EN	II	17
<i>Puma yagouaroundi</i>	Jaguarundi	M	LC	-	16
<i>Cabassous unicinctus</i>	Armadillo de cola desnuda	M	LC	-	14
<i>Columbina talpacoti</i>	Columbina colorada	B	LC	-	13
<i>Mazama nemorivaga</i>	Venado cenizo	M	LC	-	12
<i>Nasua nasua</i>	Coati	M	LC	III	12
<i>Procyon cancrivorus</i>	Osito cangrejero	M	LC	-	10
<i>Nyctidromus albicollis</i>	Chotacabras pauraque	B	LC	-	8
<i>Tamandua tetradactyla</i>	Oso hormiguero	M	LC	-	8
<i>Hydrochoerus hydrochaeris</i>	Ronsoco	M	LC	-	7
<i>Momotus momota</i>	Momoto amazónico	B	LC	-	7
<i>Atelocynus microtis</i>	Perro de monte	M	NT	-	6
<i>Coendou prehensilis</i>	Cashacushillo	M	LC	-	6
<i>Monasa morphoeus</i>	Monja frentiblanca	B	LC	-	6
<i>Myrmecophaga tridactyla</i>	Oso bandera	M	VU	II	6
<i>Psophia leucoptera</i>	Trompetero	B	LC	-	6
<i>Speothos venaticus</i>	Perro de monte	M	NT	I	5
<i>Ameiva ameiva</i>	Ameiva	R	LC	-	4
<i>Buteogallus urubitinga</i>	Busardo urubitinga	B	LC	II	4
<i>Daptrius ater</i>	Caracara negro	B	LC	II	4
<i>Dinomys branickii</i>	Pacarana	M	LC	-	4
<i>Philander opossum</i>	Zarigüeyita negra	M	LC	-	4
<i>Tinamus major</i>	Perdiz	B	LC	-	4
<i>Chelonoidis denticulata</i>	Motelo	R	VU	II	3
<i>Galictis vittata</i>	Hurón grande	M	LC	-	3
<i>Cathartes melambrotus</i>	Aura selvática	B	LC	-	2
<i>Cebus apella</i>	Mono blanco	M	LC	II	2
<i>Micrastur semitorquatus</i>	Halcón montés collarejo	B	LC	II	2
<i>Rupornis magnirostris</i>	Busardo caminero	B	LC	II	2
<i>Saguinus fuscicollis</i>	Pichico	M	LC	II	2
<i>Campephilus melanoleucos</i>	Picamaderos barbinegro	B	LC	-	1
<i>Chelidoptera tenebrosa</i>	Buco golondrina	B	LC	-	1
<i>Ibycter americanus</i>	Caracara gorjirrojo	B	LC	II	1
<i>Monasa nigrifrons</i>	Monja unicolor	B	LC	-	1
<i>Myoprocta pratti</i>	Punchana	M	LC	-	1
<i>Myrmeciza hypertythra</i>	Hormiguero plumizo	M	LC	-	1

<i>Odontophorus stellatus</i>	Codorniz estrellada	B	LC	-	1
<i>Saimiri boliviensis</i>	Mono fraile	M	LC	II	1
<i>Sciurus ignitus</i>	Ardilla boliviana	M	LC	-	1

B: Birds; M: Mammals; R: Reptiles

Fieldwork and data systematization efforts have made it possible to generate the identification of variety species that travel on primary and secondary forest roads, currently used or in a natural regeneration process, where for the first time the species *Sylvilagus brasiliensis* "Liebre amazónica" was identified, which is categorized as Endangered (EN) by the IUCN Red List, and it represents the third highest record, indicating its high abundance. Cameras are installed on both road sides, in order to recognize individual jaguar spots pattern on the body. The information is still in process of construction; however, preliminary data show the important role of large-scale study to monitor the interested species and be able to know the state of wild fauna population health that develop in the project area.

The study presents the estimation of species occupancy, referring to the percentage of area occupied by a species, useful for evaluating patterns in species occupation or occurrence, contributing to identify spatial patterns related to habitat or anthropogenic effects, but also to understand and predict changes in occupation over time, which is particular importance for monitoring.

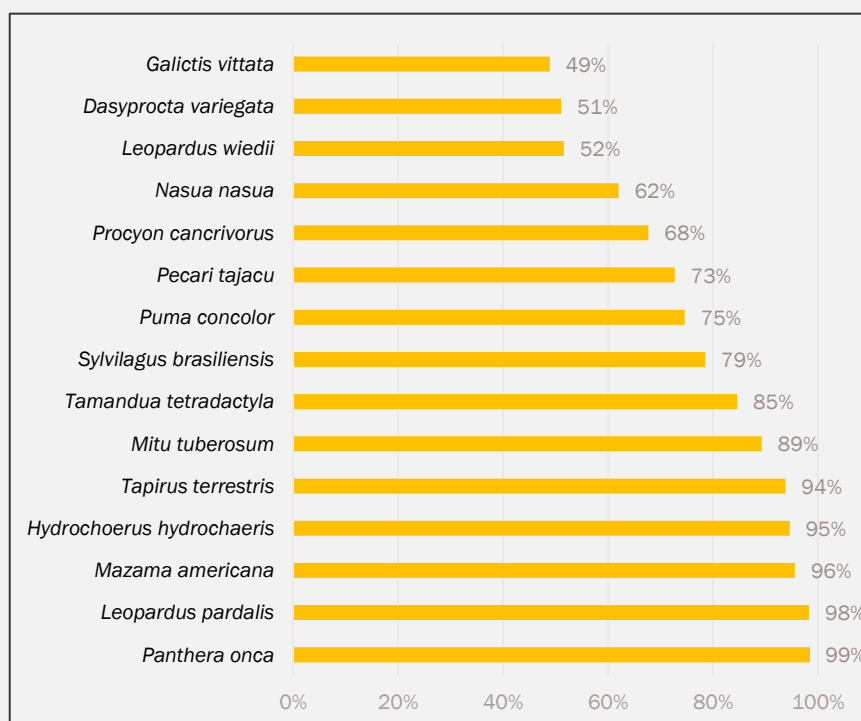


Figure 5.1. Estimated values of occupancy by species

The assessment shows species *Panthera onca* "jaguar" has almost 99% probability of occupying the assessed habitats, in addition, it is likely that

the species is abundant or has notable presence in the project area, and could be considered a keystone species in the ecosystem, since its high occupation can influence the ecological dynamics of the area. This can guide decisions on the management and protection of key habitats, since species with a high percentage of occupancy can be prioritized for conservation due to their ecological importance.

The diversity recorded suggests a healthy mammal community, including predators and prey. The large number of detections and the occupation of carnivores, especially jaguars, ocelots and pumas, are as expected for these species, especially due to their preference for using roads.

NODO conservation (NODO)

Since 2022, and in partnership with NODO conservation, the use of eight artificial canopy bridges installed in the FMU of Maderacre¹⁸⁹ was implemented and monitored to mitigate fragmentation due to opening forest roads used for transit of forestry operations. Cameras were placed at both ends of each bridge that were activated by a motion sensor, which detected 315 use cases by 15 identified species, which are:

Scientific name	Common name	IUCN	CITES
<i>Alouatta seniculus</i>	Mono aullador	LC	II
<i>Saguinus imperator</i>	Pichico emperador	LC	II
<i>Leontocebus nigricollis</i>	Pichico común	LC	-
<i>Sapajus apella</i>	Mono machín negro	LC	-
<i>Cebus albifrons</i>	Mono machin blanco	LC	II
<i>Ateles chamek</i>	Maquisapa	EN	II
<i>Plecturocebus toppini</i>	Tocón	LC	-
<i>Potos flavus</i>	Kinkajú	LC	III
<i>Hadrosclurus spadiceus</i>	Ardilla roja	-	-
<i>Bradypus variegatus</i>	Perezoso de tres dedos	LC	II
<i>Aotus nigriceps</i>	Mono nocturno	LC	II
<i>Caluromys lanatus</i>	Zarigüeya lanuda	LC	-
<i>Didelphis marsupialis</i>	Zarigüeya común	LC	-
<i>Marmosa</i> sp.	Zarigüeya	-	-
<i>Mesomys</i> sp.	Rata arborícola	-	-

The results demonstrate the importance of canopy connectivity as a measure of resources access, as a means to connect with the different forest fragments, for purposes such as resource use, reproduction, etc., more easily reconnecting tree fauna despite the roads use for more than 15 years. It should be noted that the species *Ateles chamek*, categorized

¹⁸⁹ Preliminary report. Implementation and monitoring of the use of artificial canopy bridges in MRA



as endangered (EN) by the IUCN Red List, has been detected using the double bridge as a support, being the first record worldwide of use adapted to this model.

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

The project proponent summarizes actions to mitigate negative impacts on biodiversity inside and outside the project area, as well as the HCVs related to it.

INTERNAL THREATS

HCV 01: “Areas that contain significant concentrations of biodiversity values at the global, regional, or national level”. This is due to the fact that endangered species occur in the FMU.

- A. Prohibit the hunting of wild fauna and commercial fishing within the concession.
 - The Custody and Surveillance Plan¹⁵⁴, Forestry Operations Manual¹⁵⁶ and training provided to personnel (Section 2.3.15) describe the prohibition of wild fauna hunting activities within the FMU, and fishing for commercial purposes or through the use of dynamite, barbed-up or other toxic substances that affect aquatic ecosystems.
- B. Identification and protection of importance sites for wild fauna
 - The importance sites for wild fauna are identified during forest census activities of CP 20¹⁶⁸, which are georeferenced and demarcated for visual recognition in the field in order to avoid disturbances during the forest harvesting operations to be carried out in the following years.
 - During the planning process of CP 18 and 19 forest harvest, base maps¹⁹² are prepared showing the importance sites for wild fauna that have been identified and registered in previous forest census, being demarcated with a 25 m buffer excluded from the operation to avoid disturbance into the site, in addition, the efforts to digitize the GPS’ workers to reduce the risk.
 - The monitoring process of importance sites for wild fauna carried out during the forestry operations of CP 18 and 19¹⁷³ have made it possible to know during the activities of 2022 there have been no disturbances in sites, and the work planning and workers training have been carried out efficiently.
- C. Annual monitoring of species of importance and that are indicators of the health of the forest.

- The wild fauna annual monitoring in CP 18 has allowed records generation of indicator species that highlight the good state of ecosystem health¹⁶⁶ one year after the execution of forestry operations, which concluded that the reduced impact harvesting carried out during the 2021 has fully complied with the standards that certify it.

D. Sustainable management of endangered wild flora species

- Wild flora species categorized as vulnerable (VU) and endangered (EN) on the IUCN Red List and CITES appendices described in Table 5.2, are part of measures system implemented by the project proponent to guarantee healthy populations within the project area. The Silvicultural Plan¹⁹⁰ developed by the company, with a validity of 10 years, is a tool that allows us to define the main guidelines and variables of forest management, in order to, define the intensity of harvest and DBH, in relation to FMU cutting cycle. With respect to DBH established by the project proponent, they have a variation compared to those established by the Peruvian state:

Scientific name	Common name	DBH (Maderacre)	DBH (Peruvian State)
<i>Cedrela odorata</i>	Cedro	70	65
<i>Swietenia macrophylla</i>	Caoba	90	75
<i>Handroanthus capitatus</i>	Tahuari	60	46
<i>Amburana cearensis</i>	Ishpingo	70	56
<i>Dipteryx micrantha</i>	Shihuahuaco	70	51

Establishing a correct DBH greater than Peruvian legislation, allows species of wild flora and the relationship it has with the ecosystem, to be favored by a sustainable harvest of less impact on young individuals, which results in a greater number of standing individuals, beyond the project life, and with healthy and conserved populations of wild flora and fauna that will sustain future harvests, but above all, the fulfilment of the ecological roles of these species in the forests.

HCV 2: "Forested areas with large landscape-level forests that are globally, regionally, or nationally important". This is because the size of the FMU allows for the maintenance and completion of life cycles of flora and fauna population species.

A. Implementation of reduced impact logging techniques in forestry operations

¹⁹⁰ Plan Silvicultural MRA 2020

- The application of reduced impact logging techniques is the most important mechanism for mitigating negative impacts on biodiversity implemented by the company. The project proponent, using the Forestry Operations Manual¹⁹¹ as a guide, implements actions that allow planning the harvesting through an Operational Plan (OP), where the area to be exploited is defined and the volumes to be extracted are quantified, as well as the remaining individuals which will remain as a reserve for the next cutting cycle and the seed trees that will provide genetic material. Similarly, the manual allows planning the activities of (1) felling: criteria to define felling direction, cutting down techniques and control; (2) Skidding: skidding road planning, log skidding and control; (3) forest roads: planning, construction and drainage, bridges and culverts, and maintenance; (4) landing: planning, construction and logs handling; (6) Chain of custody: control procedures.

B. Exclude conservation areas from forest harvesting

- The project proponent identifies Conservation Areas (CA) that seek the integrity of forest types, landscape, and habitats, seeking to define conservation corridors. In addition, a wide range of habitats and landscapes are protected. The execution of forest harvesting operations is not allowed in CA. Within the FMU, 05 CA have been identified¹⁹², totalling 10,995.65 ha, representing 5% of total area.

C. Selection of phenotypically suitable seed trees with a healthy stem

- During the forest census activities, the project proponent selects 20% of individuals that should be classified as seed trees, with a good phenotype and without having rot within the stem. The selected are individuals developed with DBH higher than established by the Peruvian state. Consequently, seed trees network of 47,350 individuals is maintained into FMU¹⁹³, including the last census of CP 20.

D. Implementation of silvicultural criteria to maintain viable and healthy populations

¹⁹¹ Forestry Operations Manual

¹⁹² Map of Conservation Area (AC) FMU MRA

¹⁹³ Summary of forest censuses FMU Maderacre

- Accordance to described in HCV1 of the same section, the Silvicultural Plan¹⁹⁰ presents the strategy to ensure the regeneration and recovery of timber species population harvested during the implementation of PGMF and OP, proposing guidelines that will be progressively modified based on evaluation results and monitoring as part of adaptive forest management in application into FMU. The Silvicultural Plan establishes the Harvest Intensities (IC) of each species based on population abundance and the established DBH:

Species	Common name	DBH (MRA)	DBH (Peruvian State)	IC (%)
<i>Apuleia leiocarpa</i>	Ana caspi	70	41	100
<i>Hymenaea oblongifolia</i>	Azúcar huayo	75	51	100
<i>Myroxylon balsamun</i>	Estoraque	60	41	90
<i>Dipteryx micrantha</i>	Shihuahuaco	75	51	100
<i>Amburana cearensis</i>	Ishpingo	70	56	100

The 20-year cutting cycle established for the FMU regulates production based on an area divided into Cutting Plots (CP) that correspond to 1/20 of total area. The floristic richness of the total management area, the DBH and IC allow to maintain the healthy forest ecosystem, without breaking the balance, and viable population.

E. Waste management mechanisms

- The waste management carried out by the project proponent is based on the categorization of existing types, including common, contaminated and hazardous¹⁹⁴, which maintain different management mechanisms. (1) common waste, which correspond to cardboard, paper, organic, among other uncontaminated materials, are buried in wells no less than 1.5m deep and away from water sources, and are closed once the forestry operations are completed; burning of waste is prohibited; (2) contaminated waste, which are containers of fuel, lubricants, and contaminated containers; (3) hazardous waste, which includes batteries and medical waste, latter two categories are taken outside the FMU and discarded by companies specialized in waste processing. Human biological waste is accumulated in wells out of water sources, and closed at the end of operations, in addition, there are some septic tanks for water treatment in certain permanent surveillance posts. The detailed efforts minimize the impacts generated on the forest and its biodiversity, mainly in favor of water resources maintenance.

¹⁹⁴ Manual for the construction, use and closure of camps 2022

HCV 4: *"Forest areas that provide basic ecosystem services in critical situations"*. This is due to the fact that within the FMU there are streams and rivers that are important for the water network of Iñapari and Iberia district.

- A. Establish 25 m fiscal strips on each side of rivers or permanent watercourses or open streams.
 - The fiscal strips should be limited on the forest harvesting maps^{171 171} where the rivers and permanent streams have been identified through the processing of satellite images. Within the delimited area, forest harvesting will be excluded in order to maintain health and functionality aquatic and terrestrial ecosystems.
- B. Identify water sources, so as to, they are not affected by forestry operations.
 - Water sources are identified in forest census, and they were georeferenced for register, as explained above, which implies that they are considered in the forest use maps^{170 171} as a preventive measure for their disturbance.

EXTERNAL THREATS

- A. Custody and surveillance of access areas, navigable rivers and perimeters most vulnerable due to illegal activities incidence in the project area.
 - The project proponent implements a robust custody and surveillance system at project area limits, and land and river accesses to prevent the intrusion of illegal activities, such as poaching, illegal logging, illegal fruit collection, illegal settlement and land-use change, and prevention of forest fires. The 2022¹⁵⁵ Stewardship and Surveillance Report summarizes the activities carried out during the evaluated period and, where it appears, that no illegal activity has been recorded within the project area due to control efforts and constant presence of forest custodians. In conclusion, the habitats present in the project area are maintained without alterations or fragmentation, and therefore, the maintenance of the ecological balance.
- B. Maintenance of FMU milestones and establishment of information posters at land and river accesses.

The FMU milestones maintenance, in conjunction with the cleaning of the boundaries, allows a better visualization of project area limits as a deterrent measure to prevent the entry of outsiders into the area. In the same way, maintenance is given and informative and awareness posters placed in relation to forest conservation care. The aforementioned can be evidenced in 2022 Custody and Surveillance Report¹⁵⁵.

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

As mentioned in section 5.1.1 and 5.1.2, all project actions lead to positive biodiversity impacts, the negative impacts seen in the PD without project (deforestation and land use change) have been counteracted by project actions.

Table 5.5. Net impacts of the project on biodiversity indicators

Biodiversity protected	Indicators			
	Quantity and quality of forest protected and appropriately managed	Conservation mechanisms of species threats	Environmental awareness	Action mechanisms in conjunction with other entities
Species richness of wild flora and fauna	Described in Table 5.1 -Custody and Surveillance	Described in Table 5.1 - Custody and Surveillance -Monitoring of Forest Operations -Forest dynamics Described in Table 5.2 -Wild Fauna Monitoring -Forest Census -Logging	Described in Table 5.3	Described in Table 5.4
Threatened species on the IUCN Red List (HCV 1)	It is not applicable to this section	Described in Table 5.2 - Wild Fauna Monitoring -Logging	Described in Table 5.3	Described in Table 5.4
Species categorized by CITES	It is not applicable to this section	Described in Table 5.2 - Wild Fauna Monitoring -Logging	-	Described in Table 5.4
Umbrella species	It is not applicable to this section	Described in Table 5.2 - Wild Fauna Monitoring	-	Described in Table 5.4
Ecosystem Health Indicator Species	It is not applicable to this section	Described in Table 5.2 - Wild Fauna Monitoring	-	Described in Table 5.4
Importance species to the freshwater ecosystem	It is not applicable to this section	Described in Table 5.2 - Wild Fauna Monitoring	-	Described in Table 5.4
Importance sites for wild fauna	It is not applicable to this section	Described in Table 5.2 -Forest Census Monitoring -Logging	-	-
Terrestrial and aquatic ecosystems (HCV 2)	Described in Table 5.1 -Custody and Surveillance	Described in Table 5.2 -Logging	Described in Table 5.3	Described in Table 5.4

Biodiversity protected	Indicators			
	Quantity and quality of forest protected and appropriately managed	Conservation mechanisms of species threats	Environmental awareness	Action mechanisms in conjunction with other entities
	-Monitoring of Forest Operations -Forest dynamics			
Water Resources, Forest Soil, and Carbon Sink (HCV4)	Described in Table 5.1 -Custody and Surveillance -Monitoring of Forest Operations	Described in Table 5.2 -Logging	Described in Table 5.3	Described in Table 5.4
Impact	Positive	Positive	Positive	Positive

Species and habitat	
IUCN Red List - <i>Ateles chamek</i> - <i>Sylvilagus brasiliensis</i> - <i>Swietenia macrophylla</i> - <i>Amburana cearensis</i>	The location of species identified as endangered (EN) by the IUCN Red List, are distributed throughout the project area, this is supported by the forest censuses that are carried out annually, where the species <i>Swietenia macrophylla</i> and <i>Amburana cearensis</i> have been registered, in the same way, and under the same perspective it happens with wild fauna record of species <i>Sylvilagus brasiliensis</i> and <i>Ateles chamek</i> that registers family groups in many evaluations. The importance of adjoining other large areas of forest concessions and native communities forest allows healthy maintenance and viable populations over the time, since it ensures a high genetic exchange in individuals of species. According to Table 5.2, the project proponent implements actions in population benefit, which correspond to the forest surveillance and custody monitoring of the project area to reduce external threats, wild fauna monitoring actions registering ecologically important and threatened species, reduction of forest impact due to forest harvest, among others described in the reference.

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

In 2015, the project proponent identified High Conservation Values (HCV)¹⁹⁵, which are part of the FMU using the Peruvian guidelines, identifying the existing threats or risks to them, and the proposal of measures that allow their conservation. As a result, HCVs 1, 2 and 4 are identified, which are located throughout the FMU.

The high conservation values determined have not been negatively affected. The project activities, compared without-project land use scenario, help to maintain biodiversity values, and the annual impact, in terms of area degraded by the implementation of the forest management plan, has been minimal, thanks to the implementation of reduced impact logging techniques. This keeps the area environmentally healthy, with a healthy presence of flora and fauna.

There are no reports of third-party entry (unauthorized people, illegal loggers or invaders) thanks to the implementation of surveillance actions that were maintained during the year 2022. There was no deforestation according to portal GeoBosques data; and zero reported invasions, all reported in the successfully implemented integrated Custody and Surveillance system.

¹⁹⁵ BAVC CMRA 2015 Identification

High Conservation Value 1

The species were considered to be of high conservation value because they have a threatened status according to IUCN Red List of endangered species. The whole project area was considered as an HCV, because the species to be conserved, their habitats and the water network are randomly distributed throughout the FMU and the success of the flora and fauna populations requires the integrity and connectivity of the forest.

Directed and low-impact logging does not adversely affect any HCV, but sustainable harvesting favors the conservation of an almost intact forest cover, while ensuring the conservation of the species with high conservation values: *Ateles chamek* “maquisapa”, *Swietenia macrophylla* “caoba” and *Amburana cearensis* “Ishpingo”.

High Conservation Value 2 and 4

Tahuamanu Amazon REDD+ Project area has been determined to be of high conservation value due to its ecological and biological importance. This area harbors a high diversity of flora and fauna species. This biodiversity is a valuable source of genetic and ecosystem resources that are essential for the balance and resilience of natural ecosystems. The conservation of this area is also important for maintaining the ecosystem services they provide to humans, such as water purification, plant pollination, and climate regulation. In addition, it is an area of connectivity, avoiding fragmentation in a broad landscape that groups the project area with the Permanent Production Forests, the PNAP, the Madre de Dios Territorial Reserve (PIACI territory) and forests in native communities, forming a biological corridor of more than 4,586,188.66 ha.

The project area covers an area of 169,956.81 ha and is part of Acre, Tahuamanu, Muimano, and Manuripe basin. Although, the basin encompassed by the project area are quite large and include parts of some states in Brazil and Bolivia, the presence of important water sources and waterways for the districts of Iñapari and Iberia make responsible management of the FMU.

To maintain the integrity of the landscape, it is necessary to avoid forest fragmentation. In this sense, the measures to consider are:

- Establishing an adequate surveillance system for the access and boundaries of the project area.
- Implementing a reduced impact logging.

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

The project proponent develops a forest management plan for forest natural resources under a system of natural regeneration as a result of its dynamics, not including the activities of plantations or enrichment strips for a better valorization of the forest.

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

There are no invasive species within the project area.

5.1.7 GMO Exclusion (CCB, B2.7)

The forest management applied by the project proponent does not include the use of GMO in its activities.

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

The forest management applied by the project proponent does not include the use of any fertilizers, chemical pesticides, biological control agents and other inputs used for the project.

5.2 Offsite Biodiversity Impacts

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

The project's activities do not foresee negative impacts to biodiversity outside the site; however, illegal practices are displaced due to the prohibition of entry in the project area, so, the negative offsite biodiversity impact were mitigation by the following actions:

Negative Offsite Impact	Mitigation Measure(s)
Hunting pressure in remaining forests located in the leakage belt of the project area.	Dissemination of environmental education to children, adolescents and adults in the surrounding communities (See Table 5.3 and Section 2.3.4).
Illegal logging of commercially valuable timber species in the project activity region	Initiatives of the population with environmentally friendly projects that propose a responsible use of the land and reduction of the agricultural frontier (2% annual income of the project: determination of risk areas in the leakage belt due to the loss of forest and biodiversity was carried out (See Figure 5.2). The project proponent built the PPAMA's contest rules.

Negative Offsite Impact	Mitigation Measure(s)
Degradation of surrounding forests by wood collection for final use as firewood and/or charcoal for self-consumption, and use in structures. Land-use change from forest to corn crops and pastures in the leakage belt and project activity region.	• Contribution to the sustainable development of surrounding communities (1% annual income) in education and health, mainly: despite not having revenues from the sale of carbon. Activities were carried out in health and education (See Table 4.3 and Table 4.4). • Participation in dialogue spaces for the management and protection of protected areas and the Madre de Dios Territorial Reserve, searching for strategic partnerships focused on its biodiversity conservation: actions are presented in Table 5.8. • Promotion of activities with institutions with the objective of protecting PNAP and PIACI territory (1% of annual income): actions are presented in Table 4.7. • Promotion of activities with institutions whose objectives are oriented to the protection of wild flora and fauna (1% of annual income): actions were presented in Table 5.1 and Table 5.2.

As part of the proposals to mitigate negative impacts on biodiversity outside the project area, the project proponent has identified 03 areas within the leakage belt and project activity region where strong pressure is being exerted on forests, thus being able to carry out initiatives to reduce pressure on biodiversity through the implementation of PPAMA projects, environmental education and the promotion of activities with other institutions.

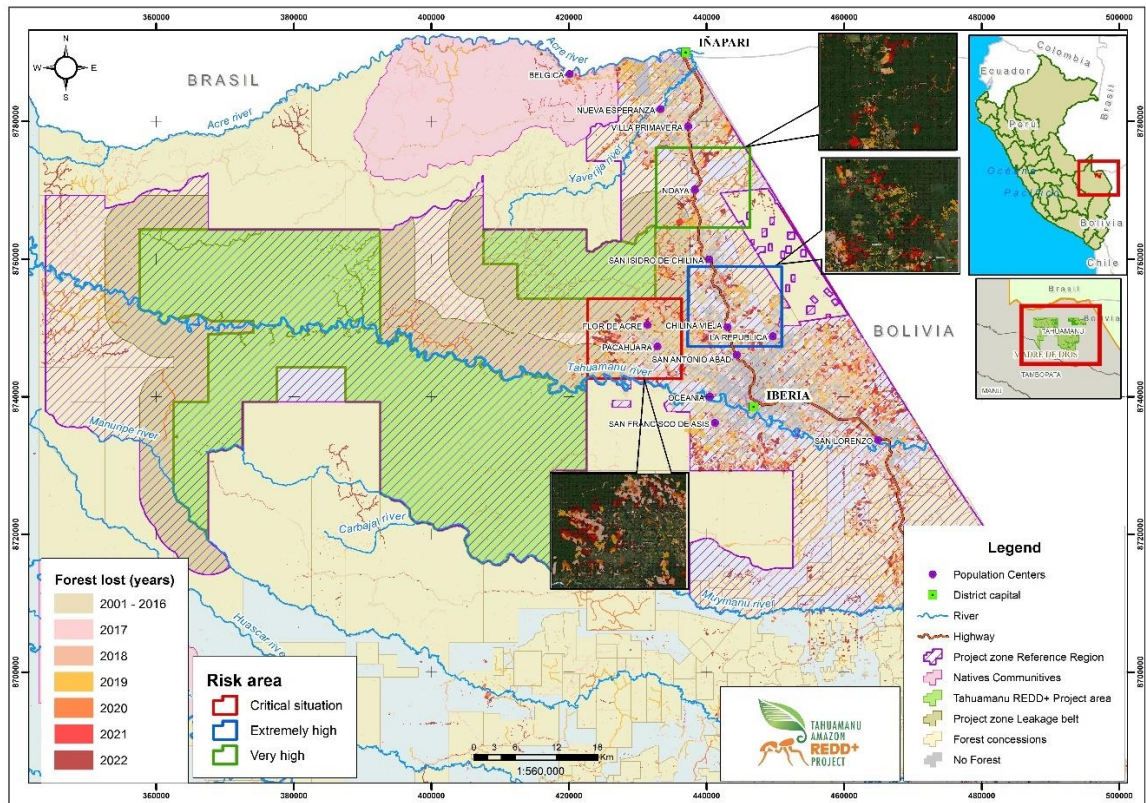


Figure 5.2. Map of risk Zones in the leakage belt.

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

The efforts to mitigate the negative impacts on biodiversity outside the project area by the project proponent allow to generate net positive changes in traditional activities taking place in the project activity region, improving agricultural and livestock production processes, as well as strengthening environmental awareness among stakeholders, communities and community groups, thus allowing the creation of work lines that improve the well-being and livelihood of inhabitants, and they do not the forest as a barrier, but as an engine of development.

5.3 Biodiversity Impact Monitoring

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

The monitoring plan was designed to measure the variables and targets need to be monitored in biodiversity component, types of measurements and sampling methods, and frequency of monitoring and reporting for each type and method. The monitoring activities and indicators are developed by strategic lines of the project.

Table 5.6. FMU protection: integral plan implementation

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
By the end of 2022, avoid entry of external agents who violate the forest heritage and its forest resources in the project area through the execution of illegal activities such as poaching, illegal logging, change of forest land use, and illegal settlements.	Operation and maintenance of the surveillance posts	Output	03	Annual report (See Table 5.1 - Custody and Surveillance)	The whole year	Project area	High
	Forest custodians equipped, trained and with laboral benefit	Output	06	Annual report (See Table 5.1 – Custody and Surveillance and Section 2.3.15)	The whole year	Project area	High
	Number of river and land patrols carried out	Output	42	Annual report (See Table 5.1 - Custody and Surveillance)	Biweekly and monthly	Project area	Medium
	Patrolled distances in medium and high-risk areas	Output	745.43 km	Annual report (See Table 5.1 - Custody and Surveillance)	Biweekly and monthly	Project area	Medium
	Number of illegal activities recorded	Output	0	Annual report (See Table 5.1 - Custody and Surveillance)	The whole year	Project area	Medium
	Establishment of information and awareness posters for forest conservation	Output	81	Annual report (See Table 5.1 - Custody and Surveillance)	One time per year	Project area	Medium
By the end 2022, wild flora monitoring evaluation are implemented to learn about forest dynamics and aboveground biomass growth.	Mortality rates of aboveground biomass	Output	-PPM 007: 1.5% -PPM 008: 3.36%	Annual report (See Table 5.1 – Forest dynamics)	One time per year	Project area	Medium
	Recruitment rate of aboveground biomass	Output	-PPM 007: 2.40% -PPM 008: 2.43%	Annual report (See Table 5.1 – Forest dynamics)	One time per year	Project area	Medium

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
	Average annual increase in aboveground biomass	Output	-PPM 007: 0.44 cm/year -PPM 008: 0.50 cm/year	Annual report (See Table 5.1 – Forest dynamics)	One time per year	Project area	Medium
By the end of 2022, maintain the initial conditions of forest landscape and ecosystem services it provides to the surrounding communities.	-Reduction of illegal activities incidence within the project area	Outcome	Reduction from 1 incident to 0 incidents in 2022	Annual report (See Table 5.1 - Custody and Surveillance)	The whole year	Project area	High
	-Reducing biodiversity loss and habitat degradation	Outcome	Biodiversity loss reduced to 0 in 2022	Annual report (See Table 5.1 - Custody and Surveillance)	The whole year	Project area	High
	-Inter-institutional agreements for management and surveillance in Tahuamanu and Acre basin	Outcome	01	Agreement (See Table 5.4 – PNAP and SZF)	One time per year	Project area	High
	Reduction of forest degradation in the project area as a result of responsible harvesting practices.	Outcome	Forest degradation reduced from 0.183 ha/tree felled in CP 12 to 0.063 ha/tree felled in CP 18	Annual report (See Table 5.1 - MOF)	One time per year	Project area	High
	Conservation of endangered species of wild flora and fauna	Impact	04	Report (See Table 5.2 – Wild Fauna Monitoring // Logging and Table 5.4 – ZSD)	The whole year	Project area	High
	Reducing carbon emissions, and contributing to climate change mitigation through	Impact	2,279,588 tCO ₂ e	Report (See Reference emissions in the project area Table 3.1)	The whole year	Project area	High

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
	the forest conservation and sustainable management						
	Contribution to scientific knowledge on forest dynamics following forest harvesting	Impact	-	Data collected, but not enough information to know ecological succession	Every 5 years	Project area	Medium

Table 5.7. Implementation of reduced impact logging (RIL) techniques in the FMU to ensure healthy flora and fauna population

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
By the end of 2022, silvicultural treatments implemented in forest management operations which conserve biodiversity and maintain ecosystem health.	Cutting of lianas in seed trees and future harvest during the forest census	Output	324	Excel Report (See Table 5.2 – Forest Census)	One time per year	Project area	Medium
	Selection of seed trees during the forest census excluded from forest harvesting	Output	877	Excel Report (See Table 5.2 – Forest Census)	One time per year	Project area	Medium
	Diameter at breast height (DBH) applied in species	Output	Varied	-Report (See Silvicultural Plan ¹⁹⁰ Section 6. Tasa de aprovechamiento de las especies de interés)	One time per year	Project area	Low
	Harvest intensity (IC) for a given harvested species	Output	Varied	-Report (See Silvicultural Plan ¹⁹⁰ Section 6. Tasa de aprovechamiento de las especies de interés)	One time per year	Project area	Low
	Define the Cutting Cycle (CC) to determine the administrative division of the FMU	Output	1	-Report (See Silvicultural Plan ¹⁹⁰ Section 6. Tasa de aprovechamiento de las especies de interés)	One time per year	Project area	Low

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
By the end of 2022, the project proponent executes, in a responsible and sustainable way, with the implementation of reduced impact logging techniques, the forest harvesting activities in CP 18 and 19 of the FMU.	Percentage of area degraded in relation to CP size under management in 2022 harvest	Output	-CP 18: 4.46 % -CP 19: 2.56 % -CP 20: 0.001 %	Annual report (See Table 5.1 - MOF)	One time per year	Project area	Medium
	Percentage of area degraded in relation to FMU dimension under management in 2022 harvest	Output	FMU: 0.19 %	Annual report (See Table 5.1 - MOF)	One time per year	Project area	Medium
	-Number of dead animals as a result of road opened, felling operations, skidding logs or opening landing	Output	0	Annual report (See Table 5.1 - MOF)	One time per year	Project area	Medium
	-Importance sites for wild fauna affected as a result of road opened, felling operations, skidding logs or opening landing	Output	0	Annual report (See Table 5.1 - MOF)	One time per year	Project area	Medium
	-Alteration and/or obstruction of watercourses because of bridge constructed or skidded logs	Output	0	Annual report (See Table 5.1 - MOF)	One time per year	Project area	Medium
	Soil affected due to fuel and lubricant spills	Output	0	Annual report (See Table 5.1 - MOF)	One time per year	Project area	Medium
	Training workers in reduced impact logging methods and sustainable practices	Output	Varied	Annual report (See Section 2.3.15)	One time per year	Project area	Low
By the end of 2022, implement wild fauna and flora conservation mechanisms to reduce the impact generated by forest harvesting operations.	Number of maps harvest that integrate importance sites for wild fauna and marginal strips of 25m in rivers and open streams	Output	02	Maps (See Section 5.1.2 sub-section HCV1- B)	One time per year	Project area	Low
	Number of importance sites for wild fauna monitored	Output	31	Report	One time per year	Project area	Low

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
	during the execution of forestry operations			(See Table 5.2 – Logging)			
	Number of species categorized as endangered by the IUCN Red List recorded during wild fauna evaluation one year after forest harvesting	Output	-VU: 06 -EN: 01	Report (See Table 5.2 – Wild Fauna Monitoring)	One time per year	Project area	Medium
	-Number of priority species for identification and registration, described as "umbrella" and "representative" by association with their movement patterns and habitat loss	Output	18	Report (See Table 5.2 – Wild Fauna Monitoring)	One time per year	Project area	Medium

Table 5.8. Participate in dialogue spaces and management of Protected Areas, including the Madre de Dios Territorial Reserve, searching for strategic partnerships focused on its conservation

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
By the end of 2022, participate in meetings with public and/or private institutions to coordinate actions in favor of protected areas in the province of Tahuamanu	Participation of the project proponent in a dialogue space with public and private institutions	Output	03	Report (SeeTable 5.4 – PNAP and SZF)	One time per year	Project area	Low
	Active participation in PNAP Management Committee to promote actions in favor of surveillance and control, PIACI protection and environmental education in the action area of the PNAP	Output	01	Report (SeeTable 5.4 – PNAP and SZF)	One time per year	Project area	Low

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
	Planning and coordination of actions in relation to the Tripartite Agreement promoted by the project proponent and its strategic allies	Output	01	Report (SeeTable 5.4 – PNAP and SZF)	One time per year	Project area	Low
	Participation in initiatives to conserve and protect the permanent production forests, protected natural areas, territorial reserves and native communities that are part of the project activity region	Output	01	Report (SeeTable 5.4 – PNAP and SZF)	One time per year	Project area	Low

Table 5.9. Promote activities with entities whose goals are addressed to protect emblematic fauna and flora species with 1% of annual project incomes

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
By the end of 2022, strengthening wild fauna planning and monitoring actions with public and/or private institutions	Formation of strategic alliances in benefit of forest biodiversity at landscape level	Output	-PNAP: 1 -ZSD: 1 -NODO: 1 -SZF: 1 Total: 4	Report (SeeTable 5.4 – PNAP and SZF)	One time per year	Project area	Low
	Registration of wild fauna species in the project area as part of the "The jaguar and its prey" program	Output	41	Report (SeeTable 5.4 – ZSD)	One time per year	Project area	High
	Registration of wild fauna species in the project area	Output	15	Report (SeeTable 5.4 – NODO)	One time per year	Project area	High

Objective	Indicator	Indicator type	Result	Data collection Method	When?	Where?	Cost to project
	as part of the "Canopy Bridges" program						
	Presence of endangered species categorized on the IUCN Red List registered under the program implementation	Outcome	02	Report (See Table 5.4 – ZSD and NOD0)	One time per year	Project area	High
	Carry out actions that benefit populations of <i>Podocnemis unifilis</i> "taricaya" threatened by the irrational collection eggs	Output	01	Report (See Table 5.2 – Wild fauna Monitoring)	One time per year	Project area	Medium

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

For the dissemination with the neighboring communities, it is carried out through the social manager, following a social dissemination plan, through informative workshops and meetings with stakeholders (See Section 2.3.2 and 2.3.4).

The results of the biodiversity monitoring conducted have been disseminated in the social and environmental monitoring plan that includes biodiversity. This was done through a dissemination by letters to each community group and interest group. This document is called "Public summary of social and environmental monitoring" (See Section 2.3.3).

The documents are uploaded to the project proponent's official website¹⁹ for dissemination

FSC certifications have always been published¹⁹⁶, as part of its public announcements on its official page for Peru.

5.4 Optional Criterion: Exceptional Biodiversity Benefits

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

Table 5.10. Trigger specie: *Panthera onca* "jaguar"

Trigger Species	<i>Panthera onca</i> "jaguar"
With-project Scenario	The jaguar is an umbrella species that provides environmental services by helping to maintain a healthy ecosystem. If jaguar populations are reduced, their prey, which are typically large herbivores, increase significantly in abundance and consume plant species without control. This alters the composition and structure of the forest and soil, affecting river channels and, therefore, has a chain effect on other living beings. These impacts can escalate towards crop areas of populations near the forests and thus cause socio-economic impacts in the project's surroundings. The jaguar population has dramatically decreased in the past 150 years due to habitat destruction, trophy hunting, conflict with humans, and illegal trade and poaching. Currently, jaguars are listed as "Near Threatened" on the IUCN Red List of Threatened Species and have been protected under CITES since 1973. The species now only inhabits 40% of its original range, and there are only 15,000 jaguars estimated to be left in the wild. In addition, Peru, the second country with the largest number of jaguars after Brazil, has requested that CITES recognize the jaguar as a flag species of the American countries where it lives and adopt special measures to protect it. The threats to jaguar

¹⁹⁶ Website: <https://search.fsc.org/es/certificate/a0240000005sUhbAAE/?tab=address>

survival are increasing, and urgent action is needed to prevent the extinction of this species.

The project proponent implemented forestry operations under Reduced Impact logging techniques according to the Forestry Operations Manual of MADERACRE¹⁹¹, which allows the reduction of ecosystem disturbances. (See Table 5.2 – Logging) In addition, monitoring of forestry operations, Zafra 2022, aimed at determining whether forestry operations have impacted the wild fauna ecosystem, in this case, that of the jaguar (See Table 5.1 - MOF).

Control and surveillance system for poaching, hunting prohibition; in addition, control and surveillance of access and boundaries of the concession, under the Comprehensive Custody Plan for the years 2022 and report on the custody and surveillance activities implemented to safeguard the biological heritage of the forest management unit (FMU) and surrounding areas (See Table 5.1 – Custody and Surveillance)

Exclude from logging areas that harbor important wild fauna sites. The identification and signaling sites being georeferenced in forest harvesting maps, such as bathing places, bird and mammal clay licks, oxbow lakes, water springs, burrows and nests, pools or watering holes, among others (See Table 5.2 – Logging), whose function plays an important ecological role for the development of mammals preyed upon by jaguars, as well as, in CP 20 was carried out during the commercial forest census of the year 2022 (See Table 5.2 – Forest Census).

Under the action guidelines of the Tripartite Agreement, three important aspects were agreed upon: surveillance and control of protected areas and their influence zones, monitoring and management of natural resources of importance to the area, formal and non-formal environmental education, and as a transversal line of action the development of capacities of personnel involved in the main lines, all under an articulated work approach having as main purpose the conservation of the biological diversity of the territory (See Table 5.4 PNAP and SFZ).

Annual study of wild fauna in already harvested logging plots, since it is necessary to know the degree of impact that logging activities (construction of camps, roads, bridges, logging, skidding, etc.) are having on wild fauna populations and their habitats. Individuals of *Panthera onca* “jaguar” were recorded, which is special consideration because the conservation of this species is very important since it is an “umbrella specie” or “landscape specie” because it uses large and ecologically diverse areas and has significant impacts on the structure and function of natural ecosystems, this is why their habitat requirements in time and space make them particularly vulnerable to human practices of land use and resource harvesting, and this is how the monitoring of these species and their presence in the project area indicates the good health of their habitat (See Table 5.2 – Wild Fauna Monitoring).

The Jaguar Strategy 2020-2030 aims to strengthen the biological corridor of the species in 30 priority countries, including Peru, by promoting sustainable development and reducing human wild fauna conflicts. The project area, being a space free of hunting and with reduced impact logging techniques, allows for the maintenance of healthy jaguar populations that can naturally be considered part of the biological corridor, expanding its range. Additionally, the project area is adjacent to Jaguar REDD+ Project in the Tahuamanu province. In support of this, the San Diego Zoo Global is installing annual camera traps throughout the extent of the FMU for a study to determine the size of conservation areas in the Amazon required to ensure the species' maintenance, and the connectivity requirements of the areas to ensure their populations remain viable (See Table 5.4 ZSD).

Table 5.11. Trigger species: CITES and IUCN Red List species

Trigger Species	<i>Dipteryx micrantha</i> “shihuahuaco”																																																									
	<i>Handroanthus capitatus</i> “tahuari”																																																									
	<i>Amburana cearensis</i> “ishpingo”																																																									
	<i>Swietenia macrophylla</i> “caoba”																																																									
	<i>Cedrela odorata</i> “cedro”																																																									
With-project Scenario	Wild flora and fauna study were conducted to obtain FSC certification. The study identified the presence of <i>Amburana cearensis</i> "ishpingo" as the only commercially exploitable species classified as Endangered by the IUCN. Additionally, the species <i>Dipteryx micrantha</i> "shihuahuaco", <i>Handroanthus capitatus</i> "tahuari", <i>Swietenia macrophylla</i> "caoba" and <i>Cedrela odorata</i> ("cedro") are considered under CITES Appendix II. To ensure their sustainable management, the project proponent (MRA) has defined a diameter at breast height (DBH) for each species, which is higher than the values established by the Peruvian forestry authority, as shown below:																																																									
	<table><tr><th rowspan="2">Scientific name</th><th rowspan="2">IUCN</th><th rowspan="2">CITES</th><th rowspan="2">DBH MRA (cm)</th><th rowspan="2">DBH authority (cm)</th><th rowspan="2">Increase in DBH (cm)</th><th colspan="3">Number of seed trees</th></tr><tr><th>CP 18</th><th>CP 19</th><th>CP 20</th></tr><tr><td><i>Dipteryx micrantha</i></td><td>DD</td><td>II</td><td>75</td><td>51</td><td>24</td><td>793</td><td>571</td><td>587</td></tr><tr><td><i>Handroanthus capitatus</i></td><td>VU</td><td>II</td><td>60</td><td>46</td><td>14</td><td>59</td><td>64</td><td>49</td></tr><tr><td><i>Amburana cearensis</i></td><td>EN</td><td>-</td><td>70</td><td>56</td><td>14</td><td>265</td><td>150</td><td>225</td></tr><tr><td><i>Swietenia macrophylla</i></td><td>EN</td><td>II</td><td>90</td><td>75</td><td>15</td><td>14</td><td>9</td><td>10</td></tr><tr><td><i>Cedrela odorata</i></td><td>VU</td><td>II</td><td>70</td><td>65</td><td>5</td><td>26</td><td>19</td><td>6</td></tr></table>	Scientific name	IUCN	CITES	DBH MRA (cm)	DBH authority (cm)	Increase in DBH (cm)	Number of seed trees			CP 18	CP 19	CP 20	<i>Dipteryx micrantha</i>	DD	II	75	51	24	793	571	587	<i>Handroanthus capitatus</i>	VU	II	60	46	14	59	64	49	<i>Amburana cearensis</i>	EN	-	70	56	14	265	150	225	<i>Swietenia macrophylla</i>	EN	II	90	75	15	14	9	10	<i>Cedrela odorata</i>	VU	II	70	65	5	26	19	6
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The DBHs are higher than those defined in national regulations. Their purpose is to reduce the intensity of species harvesting and guarantee the presence of healthy populations to fulfill their ecological roles. For each of the exploited CP, the mentioned species have a network of seed trees that allow them to fulfill their ecological role in the forest.

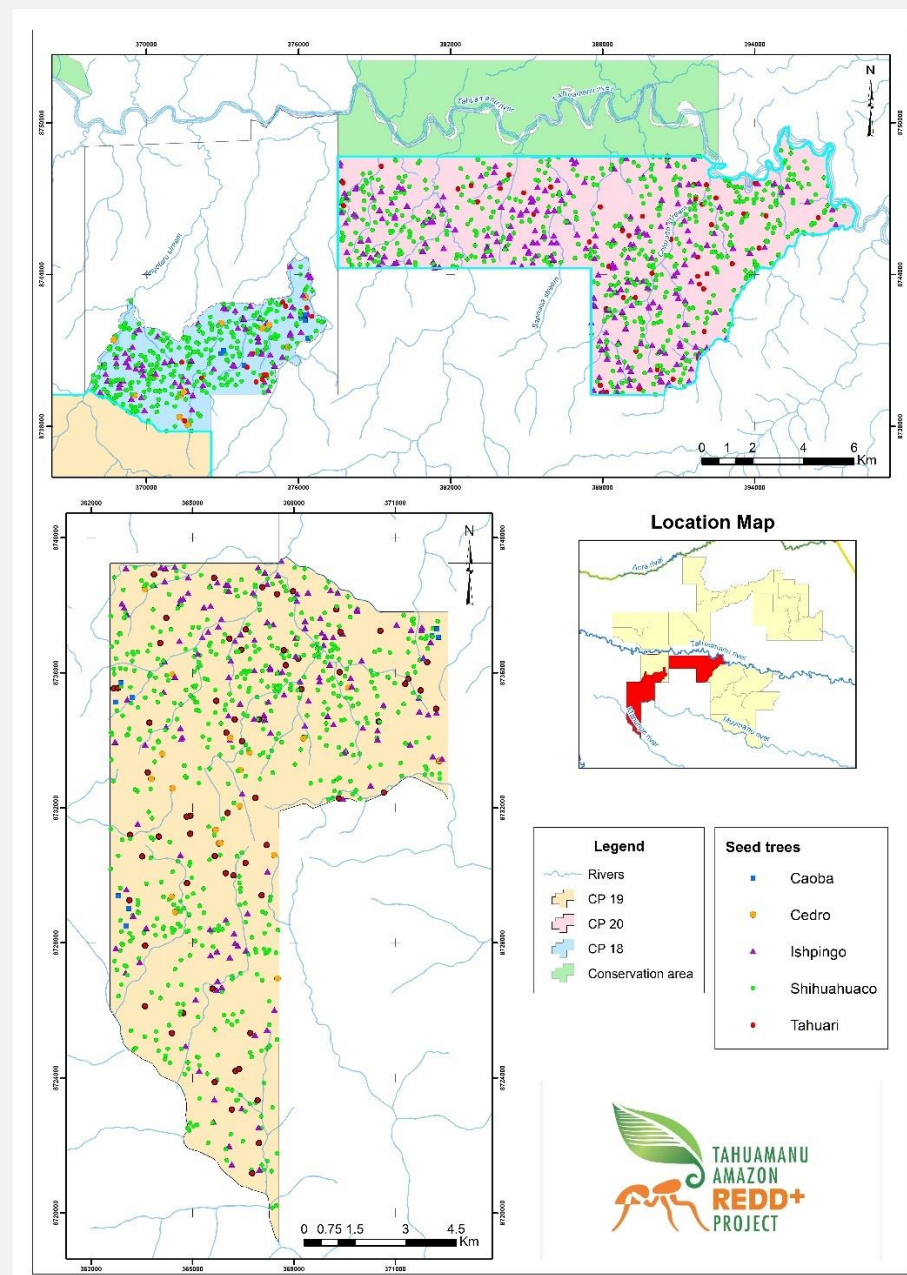


Figure 5.3. Dispersion map of seed trees in CP 18, 19 and 20.

The project proponent carries out sustainable forest management operations based on FSC principles and criteria to protect and conserve forests. Forest harvesting of selected species, including *Amburana cearensis*, *Dipteryx*

micrantha, *Swietenia macrophylla*, and *Handroanthus capitatus*, is managed through reduced impact logging (RIL) techniques, with the aim of reducing forest degradation throughout the entire process. The management of these species was carried out according to the Operational Plan^{100 101} for Forest Concession.

The greater presence of seed trees in this first stage, the increased light input generated by the creation of gaps, and the subsequent release of the ecosystem's carrying capacity is considered to be generating suitable conditions for increasing the number of recruited individuals in the sapling and pole classes in the future. The creation of gaps in the forest through forest harvesting creates environmental conditions that could improve the recruitment conditions of species from residual seed trees to higher classes, allowing the generation of a manageable stock available for future rotations. In addition, the maintenance of the overall good conservation status of the ecosystem in the Forest Management Unit has allowed for healthy populations of wild fauna responsible for pollination and genetic material dispersal, such as bat, macaw, and añuje populations, among others (evidenced by periodic wild fauna evaluation¹⁶⁵). These factors may be causing an increase in early natural regeneration above the values for the species compared to the unmanaged forest, improving conditions for maintaining a healthy population in the project area.

Permanent Monitoring Plots (PPM) are a tool for managing and researching the dynamics of natural forests such as those found in the project area. The studies conducted in 2022 have helped understand the forest dynamics and structural change, determining the levels of mortality and recruitment of species, as well as the development of saplings and pole-sized trees in the understory. The available information will support decision-making for improving silvicultural plans implemented in the FMU (See Table 5.1 – Forest dynamics).

In the framework of the Tripartite Agreement with the Alto Purus National Park (PNAP) and the Frankfurt Zoological Society (SZF), work on "Forest Management and Conservation" continues the Tahuamanu River, with support from the Surveillance Posts within the project area. Monitoring and management of the species *Podocnemis unifilis* "taricaya" was carried out to ensure the survival of the species due to the over-collection carried out by people dedicated to the activity and post-sale of its eggs. Therefore, within the framework of the activity, the possibilities of fulfilling the ecological role of the species are increased, as they are a basic food for the diet of the PIACI located in the Tahuamanu River basin (See Table 5.2 – Wild fauna Monitoring).

APPENDICES

Appendix 1: Monitoring_report_Net_carbon_y_VCU´s_Tahuamanu_2022

Appendix 2: Cashflow_Tahuamanu_2022

Appendix 3: VCS-Non-Permanence-Risk-Report-Tahuamanu Amazon REDD Project

Appendix 4: Definitions for terms used in the Report Monitoring document