

REDUCTION OF DEFORESTATION AND DEGRADATION IN TAMBOPATA NATIONAL RESERVE AND BAHUAJA- SONENE NATIONAL PARK WITHIN THE AREA OF MADRE DE DIOS REGION – PERU: MONITORING REPORT



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Validation/Verification Body	ICONTEC
GHG Accounting/Crediting Period	July 1, 2010 – June 30, 2030; 20 years
Monitoring Period of this Report	July 1, 2017 – December 31, 2018
History of CCB Status	CCB/VCS Verification statement: 9-abril-2019
Gold Level Criteria	Climate and Biodiversity The project Reduction of deforestation and degradation in the Tambopata National Reserve and the Bahuaja Sonene National Park of the Madre de Dios region - Peru has exceptional benefits to biodiversity by including, in the project area, sites with high priority for its conservation, as is the case of the Pampas of the Heath, which present globally significant source populations of the Crinose Wolf (<i>Chrysocyon brachyurus</i>) and the deer of the marshes (<i>Blastocerus dichotomus</i>). Presence that has been confirmed for the current verification period. In addition, the project generates benefits at the level of adaptation through the implementation of agroforestry systems in areas of reduced risk, using species that provide organic matter, prevent erosion, favor the labeling of the soil, etc. so that they are less susceptible to being affected by phenomena related to climate change and are viable alternatives for sustainability for the population. To the end of this period we have 1304.85 ha of agroforestry systems and a total of 339 beneficiaries.

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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) Estimated net emissions reductions in the project area, measured with respect to the scenario without project.	1,009,486 tCO ₂ -e generated by the project (period 2017-2018).		3,449,862 tCO ₂ -e generated by the project (period 2010-2018).
2) Hectares of reduced forest loss in the project area, compared to the scenario without a project.	2,260.68 hectares avoided from deforestation (period 2017-2018).		8,145.68 hectares avoided from deforestation (period 2010-2018).
3) Critically endangered species worldwide or in danger of extinction that benefit from reduced threats as a result of project activities, compared to the scenario without a project	Any	-	The species/objects of conservation for monitoring are not under the category of "critical danger" or "danger of extinction"
4)			
5)			

1.2 Standardized Benefit Metrics

Category	Metric	Achievements during Monitoring Period		Section Reference	Achievements during the Project Lifetime	
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	Not applicable		-	Not applicable	
	Net estimated emission reductions in the project area, measured against the without-project scenario	Period	Ex post net anthropogenic GHG emission reductions	3.2.4	Period	Ex post net anthropogenic GHG emission reductions
			annual			annual
			□REDD _t			□REDD _t
			tCO ₂ -e			tCO ₂ -e
			2010-2011			165992
		July – December 2017	300,030		2011-2012	270079
		January – June 2018	300,030		2012-2013	270079
		July – December 2018	409,425		2013-2014	370903
		Total	1,009,486		2014-2015	418096
					2015-2016	765062
					2016-2017	180165
					07-12/2017	300,030
					01-06/2018	300,030
					07-12/2018	409,425
		Total	3´449,861			
Forest ¹ cover	For REDD ² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	Period	Surface (ha)	3.2	Period	Surface (ha)
		July – December 2017	670.73		2010-2011	424.3
		January – June 2018	670.73		2011-2012	573.5
					2012-2013	788.1
		Total	1,341.46		2013-2014	907.8
					2014-2015	1036.6
					2015-2016	827.2

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)

Category	Metric	Achievements during Monitoring Period		Section Reference	Achievements during the Project Lifetime	
		July – December 2018	919.22		2016-2017	1327.1
					07-12/2017	670.73
					01-06/2018	670.73
					07-12/2018	919.22
		Total	2260.68		Total	8415.28
	For ARR ³ projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	Not applicable		-	Not applicable	
Improved land management	Number of hectares of existing production forest land in which IFM ⁴ practices have occurred as a result of the project's activities, measured against the without-project scenario	Not applicable		-	Not applicable	
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	Not applicable		-	Not applicable	
Training	Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities	339		4.3.2	339 families benefited from the agroforestry project, as part of the project's REDD strategy.	
	Number of female community members who have improved skills and/or knowledge resulting	93		4.3.2	93 women trained in issues of Agroforestry Systems with Cocoa, members of	

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*)

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	from training provided as part of project activities of project activities			COOPASER.
Employment	Total number of people employed in of project activities, ⁵ expressed as number of full time employees ⁶	Not applicable	-	Not applicable
	Number of women employed in project activities, expressed as number of full time employees	Not applicable	-	Not applicable
Livelihoods	Total number of people with improved livelihoods ⁷ or income generated as a result of project activities	339	4.3.2	339 families, family's members of COOPASER, as well as the population of the native communities of Palma Real and sonene
	Number of women with improved livelihoods or income generated as a result of project activities	93	3.4.2	93 women members of COOPASER
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable
	Number of women for whom health services were improved as a result of project activities, measured against the without-	Not applicable	-	Not applicable

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.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	project scenario			
Education	Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable
	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	Not applicable	-	Not applicable
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not applicable	-	Not applicable
Well-being	Total number of community members whose well-being ⁸ was improved as a result of project activities	339	4.3	339 families, partners of the COOPASER
	Number of women whose well-being was improved as a result	Not applicable	-	Not applicable

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.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	of project activities			
Biodiversity conservation	Change in the number of hectares significantly better managed by the project for biodiversity conservation, ⁹ measured against the without-project scenario	Not applicable	-	Not applicable
	Number of globally Critically Endangered or Endangered species ¹⁰ benefiting from reduced threats as a result of project activities, ¹¹ measured against the without-project scenario	Not applicable	-	Not applicable

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 GENERAL

2.1 Project Description

2.1.1 Implementation Description

The REDD project is implemented in the area comprised by Tambopata National Reserve and Bahuaja-Sonene National Park sector within Madre de Dios region, corresponding to the Partial Administration Contract of TAMBPNR and BSNP – Madre de Dios, signed between the Peruvian government and the Association for Research and Integrated Development - AIDER. The area of project have an extension of 541,620. 14 hectares and aim is conserve forests in both Protected Natural Area - NPA from the imminent advance of deforestation.

In order to implement effective measures to avoid deforestation and forest degradation for the period July 1, 2017 - December 31, 2018; activities have been developed in accordance with the type of actors and threats. These activities come from the established components in the REDD + strategy, which have been improving and aligning with the reality of the area. These activities come from the established components in the REDD + strategy, which have been improving and aligning with the reality of the area. The components are: i) Integral Biological Monitoring System that feeds the REDD + monitoring, ii) Promotion of research as a strategic activity for channeling resources in favor of conservation, iii) Agroforestry plots installed for cocoa production in sectors 3 and 4 of the buffer zone, preventing the advance of the agricultural frontier, iv) Strengthening of organizations in the buffer zone, v) Control and surveillance mechanisms in the RNTAMB and the PNBS expanded and strengthened, vi) Promotion of sustainable mining in sector 2 of the buffer zone, vii) Promotion of community rural tourism in sector 6 of the buffer zone, viii) Environmental education and communication, and ix) Management.

The verification period runs from July 1, 2017 to December 31, 2018, and it has managed to avoid 1'009,486 tCO₂-e

2.1.2 Project Category and Activity Type

Sectoral scope 14 – Agriculture, Forestry and Other Land Use

AFOLU project category: Reduced Emissions from Deforestation and Degradation (REDD)

Activity type: Avoiding Unplanned Deforestation and Degradation (AUDD)

Project activity type was defined according to a decision tree located in the methodology (REDD-MF, see 5 step 0). Forest areas are expected to be converted into non-forest areas in the “without-project” scenario, with the project area lacking legal authorization for a non-forest conversion.

Project is individual, not grouped.

2.1.3 Project Proponent(s)

Table 1. Description of the project proponent

Organization name	Asociación para la Investigación y Desarrollo Integral - AIDER
Contact person	Jaime Nalvarte Armas
Title	Chief Executive Officer
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2.1.4 Other Entities Involved in the Project

Table 2. Description the SERNANP

Organization name	National Service of Protected Natural Areas - SERNANP
Role in the project	The National Service of Protected Natural Areas (SERNANP) is in charge of leading the management of the National System of Natural Protected Areas. Consequently, they are responsible of headship of the Tambopata National Reserve and Bahuaja-Sonene National Park. Their purpose is provide political support, monitoring and supervision of the taken commitments for the implementation of the project, in their capacity as the State entity responsible for the management of the NPA.
Contact person	Pedro Gamboa Moquillaza
Title	Chief of SERNANP
Address	Diecisiete Street N° 355 - El Palomar - San Isidro. Lima, Perú.
Telephone	(51 1) 225-2803
Email	sernanp@sernanp.gob.pe

Table 3. Description the Pontifical Catholic University of Peru

Organization name	Pontifical Catholic University of Peru - PCUP
Role in the project	PCUP complements AIDER's efforts as executor of the Administration Contract providing its extensive research experience in TAMBONR, through the participation of its professionals in the development of academic and research activities. Likewise, PUCP advises AIDER on the administration of the research component of the contract, specifically promoting further research and improving researching conditions. An example of this collective effort is the construction and implementation of a 45m high tower for continuous CO ₂ measurements over the forest, within the TAMBONR.

Contact person	Luis Guzman Barron Sobrevilla
Title	Rector of PCUP
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Email	www.pucp.edu.pe

2.1.5 Project Start Date (G3.4)

The project start date is July 1, 2010.

2.1.6 Project Crediting Period (G3.4)

Project crediting period: 20 years (July 01, 2010 – June 30, 2030).

First period of quantified GHG emissions reduction: 10 years (July 01, 2010 – June 30, 2020).

2.1.7 Project Location (G3.3)

The project area politically belongs to the Tambopata and Inambari districts, Tambopata province, Madre de Dios region, Peru. It occupies the southeast end of the region, reaching the international border with the Republic of Bolivia. Figure 1 shows the location map of project area.

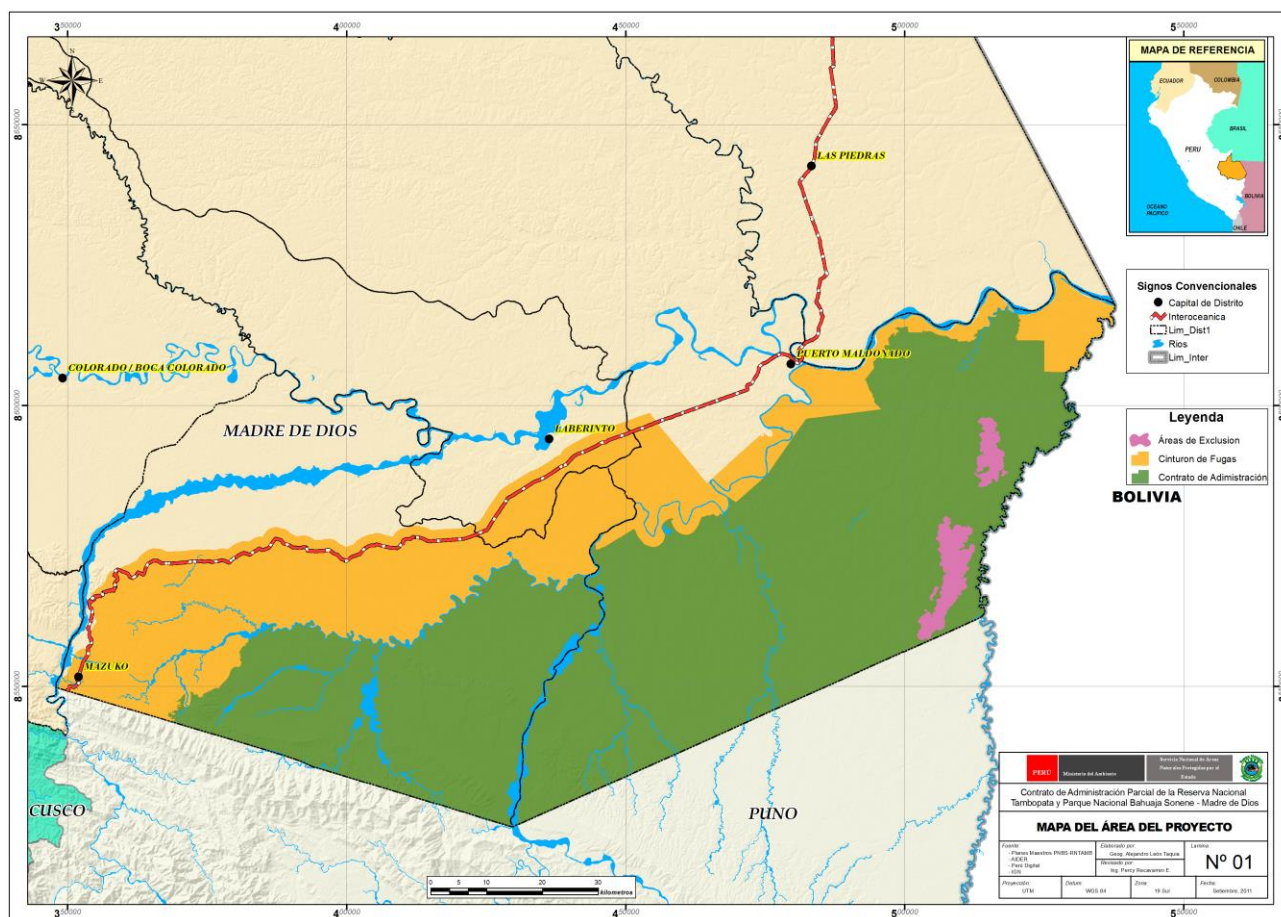


Figure 1. Location map of the project area

2.1.8 Title and Reference of Methodology

Approved VCS Methodology VM0007, REDD Methodology Modules (REDD-MF) version 1.4, developed by Avoided Deforestation Partners. The modules used for monitoring were the following:

- Module VCS VMD0015 “Methods for Greenhouse Gasses emissions and removals monitoring” (M-MON); noting that the PD was validated using version 1.0 of this module and that the monitoring period 2014-2015 used version 2.1, which was approved on November 20, 2012.
- Module VCS VMD0010 “Emissions estimate for activity displacement due to avoided unplanned deforestation” (LK-ASU), version 1.0.
- Module VCS VMD0013 “Greenhouse gases emissions estimate for burning biomass” (E-BB), version 1.0.

2.1.9 Other Programs (CL1.5)

- **Emission Trading Programs and Other Binding Limits:**

The project is not included in an emissions trading program; this program does not exist in Peru to date.

- **Other Forms of Environmental Credit:**

Does not apply.

- **Participation under Other GHG Programs: Indicate whether the project is registered under any other GHG programs and, where this is the case, provide the registration number and details. Provide details of any GHG credits claimed under such programs:**

The project has only applied to the VCS carbon standard.

2.1.10 Sustainable Development

The established baseline for the REDD+ project is 10 years and will be revised in 2020.

It should be noted that to date it does not yet have a regional baseline, at the national or jurisdictional level. But, the country has been working to fulfill the commitments established for the United Nations Framework Commission for Climate Change; it is so, that in June 2016 Perú send its proposed for Forest Reference Emissions Level for reducing emissions from deforestation in the Peruvian Amazon, and continue working to establish the national reference emissions level (Appendix 13). As part of this, for the pre-nesting process, last June 24th the Environmental Ministry established that initiatives that are developed in Natural Protected Areas can continue with their REDD+ initiatives on the use of non-nested baselines at the reference level of forest emissions in the Amazon; with this, the projects validated until this date, can: a) use until December 31st 2020 the base lines; b) Carry out and finalize until December 31, 2025 the verification process of the emission reduction until December 31, 2020; and c) Sell verified emission reductions until December 31, 2025 until December 31, 2020. After this, the project proponents, will need to start the nesting – permanent alignment to all mitigation measures related to REDD+ (Appendix 14).

The project proponent will revise and update the baseline again. Also be considered in the review of the baseline the following tasks:

- Adjustment the component of change in land use and land cover baseline.
- Adjust the carbon component of the baseline

About the contribution to the achievement of sustainable development of the population of the region, environmentally with the development of the project contributes to the mitigation and adaptation of the effects of climate change; With the agroforestry activities, in addition to contributing to the capture of carbon, a source of income for the farmers has been generated, which will help to diminish the poverty of these, improving their income and living conditions, as well as strengthening the capacities of these. As well as working for the conservation of forests and the biodiversity of flora and fauna in these forests. Likewise, the work that has been developed with the native communities, also seeks to improve the living conditions of these, respecting their customs and culture, supporting the conservation of their forests and the generation of income for their communities, as is the case of support for the ecotourism activities of the Palma Real native community.

The project is being developed transversally, taking into account both women and men, who have been supported in the strengthening of their capacities, as the case may be. For example, as part of the agroforestry activities, there are partners both men and women, who participate directly in the activities that are carried out.

2.2 Project Implementation Status

2.2.1 Implementation Schedule (G3.4)

Table 4. Implementation schedule

Date	Milestone(s) in the project's development and implementation
January 1, 2009	Start of the Partial Administration Contract of the RNTAMB and the PNBS - Madre de Dios area (initially only for 7 years).
October 26, 2010	Extension of the Administration Contract for a period of 20 years.
July 1, 2010	Validation of the REDD + project under VCS and CCB standards.
April 9, 2013	First verification VCS (verification deed of representation).
May 29, 2015	First verification CCB (verification statement).
July 27, 2016	Last verified VCS verification (verification deed of representation).
July 27, 2016	Last CCB verification (verification statement).
March 8, 2019	Last verification VCS / CCB performed, according to the new format (verification statement).

2.2.2 Methodology Deviations

No methodology deviations have been made during this monitoring period

2.2.3 Minor Changes to Project Description (Rules 3.5.6)

No change has been reported.

2.2.4 Project Description Deviations (Rules 3.5.7 – 3.5.10)

For the present monitoring period was not made any project description deviation.

After the validation of the project, changes were made regarding the activities of the REDD + Strategy (First version of 2008 - Second version of 2012 – Third version of 2014).

This Deviations were added to the deviations made from the first verification period (July 1, 2010 through June 30, 2011).

- **Discarding of Claslite software use to support delimitation of the area potentially impacted by degradation process**

During the verification period 2013-2014, CLASLite software version 2.2 had not been updated for non-governmental users; this prevented to use it to support monitoring of degradation in this period, because the software requires updates every three months based on atmospheric data, which were not provided by the software creator.

The delimitation of the potentially affected area by degradation processes was worked according to the provisions of the VCS VMD0015 module "Methods for monitoring greenhouse gas emissions and removals" (M-MON) v2.1, complying with the provisions of the methodological framework.

- **Monthly monitoring of hotspots**

For verification period 2014-2015, monthly monitoring of hotspots was not performed because little information was available. The data source selected for this monitoring and indicated at Project Description, the University of Maryland in agreement with Conservation International Peru, was not available because the reports of hotspots in the Amazon region of Peru were not continuous.

Likewise, the available information, provided by INPE from Brazil through their web data base¹², had errors at hotspot location; these errors were detected when info was contrasted between satellite imagery and field. Therefore, using this data source was dismissed.

More trustable sources were sought, choosing data from National Aeronautics and Space Administration (NASA), which were available from user record in 2011. Nevertheless, monitoring of burned areas was performed according to specified in module E-BB.

- **Tambopata - Bahuaja REDD+ Strategy**

Tambopata Bahuaja REDD+ Strategy has been updated by AIDER staff in order to be more effective and efficient in the activities realization for reduce emissions of greenhouse gases from deforestation and forest degradation in the Tambopata National Reserve (RNTAMB) and Bahuaja Sonene (PNBS).

This strategy includes the components of previous strategy and it includes biological monitoring and research activities since these actions also contributed to control and reduce the threat of deforestation and forest degradation in both ANP. Also there has been included environmental education and communication considering the importance of promote forest valuation for their conservation.

The zoning of activities has also been updated considering the reality of the area.

¹² <http://www.dpi.inpe.br/proarco/bdqueimadas/>

2.2.5 Risks to the Project (G3.5)

In the PDD, the potential risks were identified and classified into five categories. For this period, the following mitigation measures have been taken:

Table 5. Mitigation Measures

Categories	Risk Description	Mitigation Measures
Climate	Alteration of agroforestry production cycles; decreased productivity of agroforestry and chestnut systems; alteration of reproduction patterns of fish and game fauna; decrease in food available for wildlife; all this, as a consequence of climate change.	The implementation of cocoa agroforestry systems continued to be promoted, in land degraded by agriculture and livestock, located in the buffer zone of the RNTAMB, as the main strategy to avoid deforestation in the ANP (REDD+ Tambopata-Bahuaja project). The fishing carried out by the native communities in the two protected natural areas was monitored, as well as the chestnut use reported for the Bahuaja Sonene National Park.
Lands and resources	Invasion of land by migrants	The State has been implementing strict measures to stop the invasion of land for illegal activities.
	Superposition of concessions or rights of different land uses and possible disputes for this cause and for doubtful possession of the land in the buffer zone.	The State has been implementing strict measures to stop the invasion of land for illegal activities (mining).

Source: AIDER.

It should be noted that the risk analysis presented in the PDD will continue to be taken into account for the execution of the project and the measures to be carried out.

The following preventive tools, identified in previous reports, will continue to be used:

- ✓ Information provided by INDECI through its SINPAD platform (National Information System for the prevention of Disasters), as a source of information for making decisions regarding the occurrence of possible natural disasters that affect the project.
- ✓ Information provided by SENASA -MDD on the occurrence of pests and diseases in the region.
- ✓ Communal Burning Plan prepared by AIDER for six native communities (Palma Real, Infierno, Sonene, Tres Islas, Puerto Arturo and Boca Paríamanu) with the objective of preventing fires coming from burning in agricultural activities, and others in which use the fire, fixing the measures considered appropriate from a communal perspective.

2.2.6 Enhancement of High Conservation Values (G3.6)

The project will give technical and operational support to the staff and members of the management committees of the Tambopata National Reserve and the Bahuaja-Sonene National Park (chiefs, specialists, park rangers, presidents and committee members), regarding the research priorities for the management (promotion of research oriented to the management of the NPA, granting facilities in terms of procedures for authorizations of research and logistic support), and monitoring of biological diversity and human activities, for the adequate management of resources under management such as tourism, chestnut harvesting, hunting fauna, fishing and gathering other non-timber products such as "misa" (*Couratari* sp.) or lianas such as "tamishi" (*Thoracocarpus* sp and *Heteropsis* sp).

The Management Contract activities propose joint strategies for the control, monitoring and adequate management of biodiversity values through the implementation of a research promotion strategy (based on alliances with researchers and institutions that carry out research, conformation of an Advisory Committee that helps to guide the development of research, development of "anchor" or "magnet" projects that, due to their importance, attract other related projects, infrastructure implementation such as scientific stations in the sector of San Antonio, La Torre, among others) , which positions the ANP as places for the realization of both national and international research, which contribute to the knowledge of diversity, conservation status and management of non-timber resources and wildlife.

Table 6. Strategic allies for the implementation of the biological monitoring and research strategy

INSTITUTION	OBJECTIVE/TOPIC
Pontifical Catholic University of Peru (PUCP)	Develop and promote research and biological monitoring in the Natural Protected Areas (ANP) in an orderly and planned manner with a view to converting them into internationally recognized research centers.
Frankfurt Zoological Society (SZF)	Monitoring of river wolves (<i>Pteronura brasiliensis</i>) and bodies of water in the Tambopata National Reserve and the Bahuaja-Sonene National Park
Forever Fauna Association (AFF)	Monitoring of endangered wildlife (mammals, birds, amphibians, reptiles, coprophagous beetles, butterflies and mosquitoes) in the RNTAMB and the PNBS
University of Texas	Monitoring of Collpas: Mapping of clay licks to determine the relative abundance of clay licks in different sectors of the reserve and the park for the prioritization of studies and management of these; and clay palms determining their current status in the RNTAMB and the PNBS
National Amazonic University of Madre de Dios (UNAMAD)	Promote cooperation and collaboration to execute activities and projects of biological monitoring, scientific and technological research.
Wildlife Conservation Society (WCS)	Formulate a system that analyzes, complements and interprets the actions of biological monitoring and impacts of anthropic activities in the ANPs
Peruvian Safaris S.A.	Implementation of activities oriented to develop research and biological monitoring in the Tambopata National Reserve.

Local, national and international participation will be promoted through a volunteer program for the monitoring activities of biological diversity and human activities and research in the NPA, together with activities and specific support in logistics and coordination to the management committees of the ANP, which is a space for the participation of local actors and public and private institutions directly and indirectly involved in the management.

Likewise, for the maintenance of the High Conservation Values, the activities described below are contemplated.

G1.8.1. Significant concentrations of biodiversity values: a. protected areas, b. threatened species, c. endemic species, d. areas with significant concentrations of a species during any period of its life cycle (migrations, feeding or mating areas).

The maintenance of this High Conservation Value will be achieved through the consolidation of an Integral Monitoring Plan, which considers the conservation objects:

1. Forest types (remote monitoring through satellite images executed by AIDER, which is corroborated in the field).
2. Castaños (monitoring initiated with the project Fauna Forever has a work and research plan)
3. Pampas del Heath (monitoring initiated with the Zoological Society of Frankfurt-SZF, there are preliminary reports and wildlife registration through trap cameras)
4. Wetlands, rivers, lakes and aguajales (initiated and baseline monitoring in main water bodies with the SZF for work with river wolf and biologist Julio Araujo, fish specialist, who elaborates an ictiofauna diagnosis of the RNTAMB and the PNBS, with preliminary reports).
5. Collpas (work started with the Guacamayo project, mapping the main collpas of the RNTAMB and the PNBS, there are preliminary reports).
6. Jaguar (Panther onca)
7. Endangered major mammals Ateles chamek and Pteronura brasiliensis. (there are reports of the Fauna Forever project in the case of maquisapa, and in the case of the river wolf, the wolves of the RNTAMB and the PNBS were surveyed in coordination with the Zoological Society of Frankfurt, with preliminary reports for the year 2010).
8. Threatened birds (Harpyia harpyja and Primolius couloni)

Human activities:

1. Hunting (hunting registers were collected from the RNTAMB control posts, which are being systematized for analysis, and there is also a proposal for a registration form for the development of a management plan) .
2. Fishing (the fishing logbooks were collected from the RNTAMB control posts, which are being systematized for analysis, and there is also a proposal for a registration form for the development of a management plan) .
3. Tourism (there is a register of tourists entering the RNTAMB, and the impact of the same is being evaluated on fauna through the Fauna Forever project, the information is in preliminary reports).
4. Mining (there is an specific diagnosis document of the ANP and the buffer zone prepared this year (Díaz Revoredo 2010), which specifies the critical areas, type of mining, location of the same and proposes measures to be taken for the control, formalization of the activity in terms of implementation of management plans, among others).
5. Selective extraction of wood (this activity, although registered on a smaller scale, is prioritized by the ANPs in the sector of the RNTAMB cat and the area adjacent to the Kotsimba Native Community in the PNBS, through patrols and continuous operations).
6. Farming (there is a diagnostic document for the activity (AAE, 2010) with a sample of 125 people surveyed in the RNTAMB and on the Interoceanic Highway, having identified production sectors, cultivated products, costs thereof, markets to which is accessed and place of origin of the farmers. Additionally, data from the Regional Government of Madre de Dios and the NGO Asociación Agricultura Ecológica were used).

These indicators of the biological and human landscape contribute to have a perception of the conservation status of the project area and provide early warnings, feeding an information system

implemented with the personnel of the ANP, allied institutions (public and private), favoring the inclusion of park rangers in the analysis and dissemination of results.

The development of research also includes its dissemination as a contribution to environmental education. The dissemination of the qualities of the ANP (research projects and monitoring programs) will be strengthened through an institutionalized event since 2009 (Biological monitoring and research symposium in the Tambopata National Reserve and the Madre de Dios area of the National Park Bahuaja-Sonene), in which the different actors involved as researchers and directors of monitoring projects expose their knowledge and advances to the general public (university students, public and private institutions), an event organized by the heads of the ANP, AIDER and the National Amazonic University of Madre de Dios.

G1.8.2. Extensive areas at the landscape level with global, regional or national significance

This comprehensive monitoring system also aims to integrate it with the analysis and monitoring work carried out by WCS in the Madidi-Tambopata Great Landscape, which includes the nucleus of the Vilcabamba-Amoró Conservation Corridor (Peru - Bolivia). This will allow a broad understanding of the status of the species whose distribution area coincides with the project area (of the 07 selected by WCS, which are: river wolf, jaguar or otorongo, Andean condor, Andean bear, horsehair wolf, military macaw, vicuna, the Andean condor and vicuna are excluded because they are outside the project area). In this regard, the integrated monitoring plan of the RNTAMB and the PNBS with WCS is being prepared and workshops and interviews have been carried out to define indicators, methods and periodicity of monitoring.

In November of this year, AIDER staff participated in the Binational Training Course on Monitoring of Species and Human Activities at the Landscape level: "A contribution to the comprehensive monitoring systems of the protected areas and indigenous territories of the Great Madidi Landscape - Tambopata", Organized by the National Service of Protected Areas of Bolivia-SERNAP, the National Service of Natural Protected Areas by the State of Peru-SERNANP, and the Association for the Conservation of Wildlife-WCS, held in Rurrenabaque-Bolivia.

G1.8.3. Threatened or rare ecosystems

In this case the tropical savanna ecosystem ("pampas del Heath"), the two pampas areas in Peru (Juliaca and Picoplancha) are being monitored through a system complemented by the personnel of the ANP, AIDER and SZF with diverse strategies:

- Control and surveillance from the San Antonio control post located on the Heath River with personnel from the RNTAMB.
- Remote monitoring through satellite images, to obtain early warnings of unplanned burning, with a total extension of 6480 ha in 2008 and an extension of 6548 ha in 2010.
- Monitoring of species and design of a control plan, through the experiences of the present year 2010, prioritizing future development of activities with the involvement of the Native Communities Palma Real and Sonene, in a management plan for burning, hunting, fishing, among others.

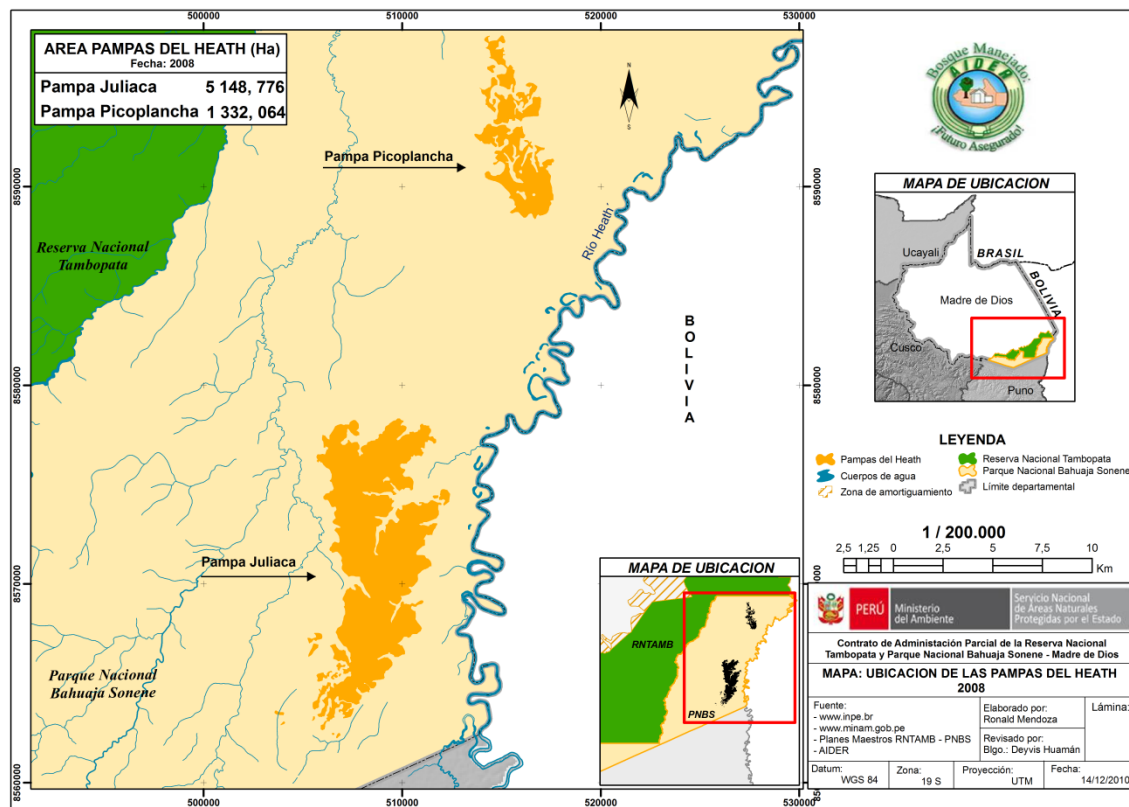


Figure 2. Location of “Pampas del Heath” – 2008
Source: Own elaboration

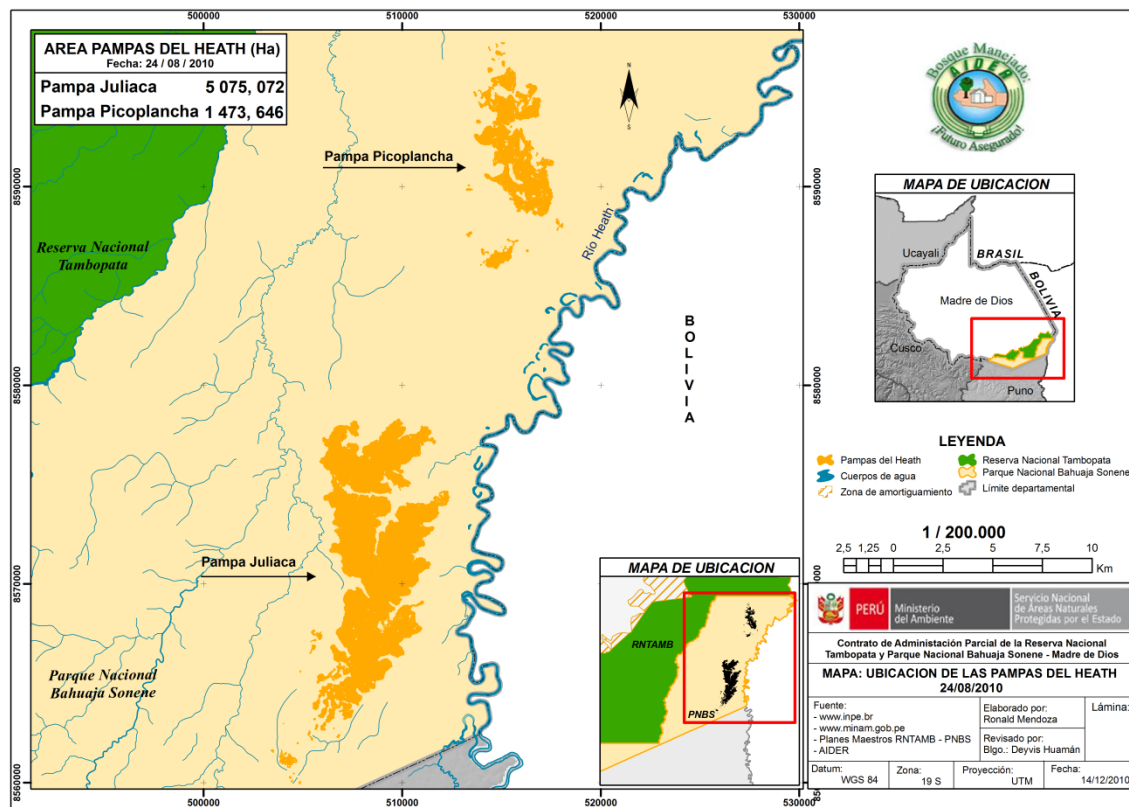


Figure 3. Location of “Pampas del Heath” – 2010
Source: Own elaboration

G1.8.4. Areas that provide critical ecosystem services

The project currently promotes mining initiatives with social responsibility and low mercury use, having started work with the association APAYLOM, in a first stage formalizing their mining claims and contributing to the preparation of the Environmental Impact Assessments, to later promote the development of mining with techniques that reduce the use of mercury as the retort. In this way, it will contribute to maintaining the quality of the water resource for human consumption.

Regarding the fires, a continuous remote monitoring will be carried out through satellite images (images from the INPE - Brazil), to obtain early warnings of burns inside the RNTAMB and the PNBS; With this information, field work will be carried out to determine the causes of the burnings. This information will be used to prepare maps of priority zones of protection and work with populations.

METHODOLOGY USED: Information is collected from the satellites that Brazil has, through the INPE (free images), offering these not only information about heat sources, but also LANDSAT, CBERS images, among others, that are available on their website www.inpe.br.

The data obtained from the web are reviewed to confirm that the places where the heat source is observed correspond effectively to burning, since, in many cases, they do not correspond to the exact place due to the scale. Then we proceed to correct the data using the ArcGIS software, overlapping the data obtained on the hot spots with the vector data (shapefile of

districts) obtained from the Ministry of Environment (MINAM) that are available on its website <http://geoservidor.minam.gob.pe/intro/> and database of the NPA.

The term 'heat source' is generally used to define an area that has an anomalous surface temperature. In most cases the presence of a focus is associated with the potential existence of a fire or fire.

According to the temperatures reached by the fires (between 300° C and 1500° C depending on the type of vegetation, accumulated fuel, environmental conditions, among others) the thresholds are established to identify heat sources.

Table 7. Number of burns in the last 12 years in Pampas del Heath

YEAR	PAMPAS DEL HEATH	
	JULIACA	PICOPLANCHA
1999	3	0
2000	0	0
2001	1	0
2002	35	0
2003	0	0
2004	8	4
2005	9	0
2006	23	0
2007	18	0
2008	0	0
2009	2	0
2010	38	0

Source: firms@hermes.geog.umd.edu

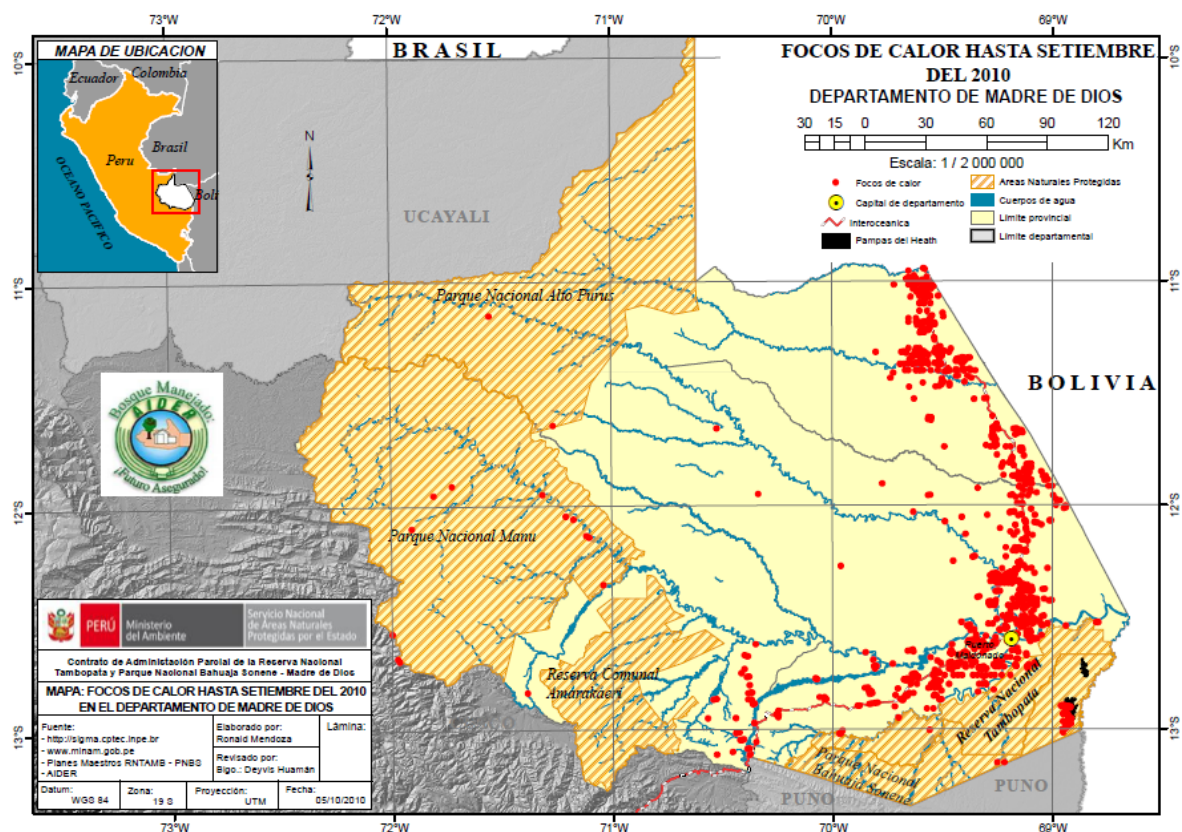


Figure 4. Map of Map of heat hot spots in Madre de Dios until September 2010
Source: Own elaboration

G1.8.5. Key areas to meet the basic needs of local communities

It is promoting the systematization of hunting, fishing and non-timber resource collection records in the RNTAMB, in order to determine priority areas and the subsequent elaboration of resource management plans, which assure the populations a sustainable use.

As a second point, participatory rural diagnoses are being developed in the Palma Real and Sonene Native Communities, which contribute to understanding the socio-economic and cultural dynamics of the population, in order to generate an approach, intervention strategies and participation.

G1.8.6. Critical areas for the traditional cultural identity of the communities

The maintenance of the traditional territory of the Ese'eja ethnic group will be achieved through continuity in the protection of areas of ancestral importance; in addition, an approach and understanding of the cultural identity of the communities with the personnel of the NPA and AIDER will be promoted.

Control posts are being implemented in the sectors of Jorge Chávez, La Torre (infrastructure completed in 2010) and Farfán Creek (to be built next year with the support of the Zoological Society of Frankfurt, with an elaborated technical file).

2.2.7 Benefit Permanence (G3.7)

At the end of the life cycle of the project, the surface of the ANP (RNTAMB and PNBS - Madre de Dios area) will be duly physically and legally sanitized, which will facilitate its management as well as the resolution of possible possession conflicts.

Through the work of communication and awareness of the project, the role of the ANP will be properly understood by the population, conceptualizing them as a reserve of resources; in the same way, they will have an adequate knowledge of the property of the State over the ANP.

The ANP will have an improved control and surveillance system. It will also have a biological monitoring system already implemented that will help the management of the ANP.

The project, through the Management Committee, will participate in the Territorial Organization of Madre de Dios, which will serve as an instrument for an adequate management of the territory inside and outside the project area and will transcend its life cycle.

By building and strengthening the capacities of the Management Committee, producer associations and inter-institutional relations, the benefits of climate, community and biodiversity of the project will be able to continue once the life cycle has concluded. Through the strengthening of the institutional framework, better control of economic activities and compliance with environmental standards will be carried out, as is the case of the current mining exclusion zone. The productive chain, for its part, will be established by the project and, with the appropriate capacity building, may continue after its end.

During the project activity, agroforestry systems appropriate to the specific reality of the project area will be tested and validated. Likewise, through the development of the low impact gold production experience with APAYLOM, the feasibility of carrying it out in compliance with environmental standards will be demonstrate.

2.3 Stakeholder engagement

2.3.1 Community Consultation (G3.8)

Work continues with the Management Committee of the Tambopata National Reserve as a space for consultation and presentation of the project, since, as mentioned above, they are made up of representatives of the different populations surrounding the ANP.

The document of internal communication strategies for the communities of Palma Real, Sonene and Infierno, prepared and previously reported, continues to be a consultation document to support the management of communities for community decision making, under agreed agreements.

2.3.2 Public Comment Period Publicity (G3.9)

The publication of this report is done according to the information protocols of the VCS and CCB standards, as it has been doing to date.

The document has been uploaded in a webpage for public inspection for a month in an internet platform and no comments, queries or observations were made.

2.3.3 Distribution of Project Information (G3.9)

The dissemination of the results of this report, as in the case of the previous reports, is carried out in a timely manner with the populations and key actors participating in the project, guaranteeing an informative process that gathers the opinions of all the actors involved.

The results of the project have been available to the actors interested in different meetings maintained with them, the SERNANP know this information as we prepare quarterly reports with the advances of the activities in the project..(See appendix 1)

2.3.4 Conflicts and Grievances (G3.10)

In order to continue supporting the management and resolution of conflicts in communities and/or surrounding populations, has been trained in the subject of "Biological monitoring, human activities and management of socio - environmental conflicts for good management of the protected natural area" , with the participation of park rangers from the Tambopata National Reserve and specialists from AIDER.

2.4 Management Capacity and Best Practices

2.4.1 Required Technical Skills and Expertise (G4.2)

AIDER has more than 30 years of experience in project management of conservation of natural resources in the Amazon, which has developed capacities to interact with different types of actors, as a result of which has established cooperation agreements with local governments, research institutions, companies private organizations, producer organizations and native communities. It has also developed a PM & E system applicable to environmental projects, which has effective tools and methodologies to have effective control over the interventions carried out.

As a result of the experience in the execution of development projects with rural populations, mainly indigenous, AIDER has developed capacities in the management of participatory natural resource management tools and in the application of the principles of interculturality and gender approach, the same which are recognized nationally and internationally and have allowed, among other achievements, the validation of a proposal for the management of communal forests and the voluntary forest certification of native communities, under FSC standards.

Regarding the issue of carbon and environmental services, AIDER has capacities for the formulation of CDM and REDD forestry projects, thanks to the participation of its professional staff in training courses run by the Tropical Agricultural Research and Higher Education Center - CATIE , Winrock International and the National Environment Fund.

In 2010, has implemented the first reforestation project in the country, with the purpose of carbon sequestration that already has financing and an assured market, in the Ucayali Region. He has also managed to design a reforestation project in a rural community, endorsed by the national environmental authority, with the aim of becoming the first MDL forest project in Peru and the second in the world. Both projects are in the validation phase.

In terms of REDD projects, AIDER has been developing a PD for Native Communities with FSC forest certification, under the VCS standards, a project that already has the interest of companies that purchase carbon credits, such as Ecoresources.

As a result of the experiences described above, AIDER has established contact with various specialists at an international level, so that the institution keeps updated on the advances in international protocols and tendencies within the framework of the Kyoto Protocol, post-Kyoto agreements and REDD.

AIDER professionals permanently working on the development of the project, made up of forestry engineers, geographers, biologists, agronomists, economists, social and administrative specialists, which are shown in Table 8.

Table 8. Project Staff

Components	Name	Profession	Responsability	Skills
Management and Monitoring	Jaime Nalvarte Armas	Ing. Forestal Mg. Sc. (Management of Forest Resources)	AIDER Management	With training in politics, legislation and forest administration. Extensive professional experience in the management of the design and management processes of conservation projects, management and sustainable use of forest resources, with special emphasis on Forest Management with a participatory approach. Active participation in the design and implementation of REDD projects and national policies.
	Marioldy Sánchez Santivañez	Forestry Engineer with a Master's Degree in Social Management	Monitor the activities of the REDD project within the framework of the administration contract	Specialized in the formulation, planning and monitoring of development projects in the environmental field, with extensive experience working in the Amazon. With experience in the design of carbon forestry projects (REDD), with participation in two validation processes under the VCS and CCB standards.
Climate, Carbon and Community	Percy Recavarren Estares	Ing. In Renewable Natural Resources (Forestry mention) with a Master's degree in Forestry and Forest Resources Management.	Direct and assist technically in the formulation and implementation and monitoring of the project	Experience in community zoning and zoning processes considering social, economic and environmental factors, with the use of GIS tools, as well as in the preparation and monitoring of environmental impact studies (EIA) in natural resource exploitation operations. With experience in the design and implementation of carbon forestry projects (REDD), with participation in a CDM and three validation processes under the VCS and CCB standards.

	Sylvia Mayta D'Ugard	Bachelor of Forestry Science	Technical coordination of the implementation of the REDD + project and methodological support VCS	Professional experience, in the topics of forest management, forest inventory and knowledge of Verified Carbon Standards Standard (VCS).
	Sofia Molero Denegri	Sociologist	Responsible CCB for REDD + projects	Experience in the execution of forest conservation projects in the Peruvian Amazon with indigenous populations and settlers. Experience in PDD design, validation and verification processes under the CCB standard.
	Sandra Anccasi Lazo	Bachelor in Forestry	Biomass evaluation of the project area, leakage belt	Experience in biomass assessment following the requirements of the IPCC, inventories of forest degradation and field validation of deforestation maps.
Geographic information system	Luis Campos Carrera	Geographer Engineer	SIG responsible	Advanced knowledge in the management, analysis and interpretation of Remote Sensing and Geographic Information Systems.
Biodiversity	Juan Carlos Lara Rivas	Forestry Engineer	Responsible for monitoring biodiversity and HCV	Work experience in research in zoology and ecology in Protected Areas, with topics related to the implementation of research plans, management documents, monitoring, wildlife management.
	Vanessa Hilares	Forestry Engineer	Monitoring of biodiversity and research	Experience in biological studies, entomology, wildlife monitoring and management, management of statistical programs and SIG.
Social	Rosalía Castro	Social specialist	Social support and Development of DRP, Social baseline, Guide for conflict management	Experience in social project management and conflict management. Experience in the application of a gender and intercultural approach. Management of participatory tools for the realization of diagnoses.
Economic financial	Berenice Brizuela	Engineer in Business Management	Commercial and financial support of the project	Experience in conducting business plans, market studies of forest products and economic feasibility analysis of projects.
Productive	Gilberto Vera	Agricultural engineer	REDD+ Strategy	Experience in forest management,

				scientific data collection, monitoring, logistics and technical assistance.
	Paola Coronado Werner	Forestry Engineer	REDD+ Strategy	Experience in field work with local populations and native communities, inventories of forest degradation and field validation of deforestation maps.

The social team of the headquarters of AIDER in Madre de Dios is currently made up of professionals with training in Social Sciences and experience working with settlers and indigenous people of the Peruvian Amazon, under the intercultural, participation and interdisciplinarity approaches. The team has a national trajectory in issues of organizational strengthening, conflict resolution at different levels such as federations, leaders and community leaders as well as organized groups within each native community and settler settlement.

The team is formed to work transversally to the proposal of the REDD project, mainly in relation to the strengthening of governance and the promotion of sustainable productive activities; this is already working, strengthening and being part of the inter-institutional collaboration spaces, such as the Multisectorial Group for the protection of the Tambopata National Reserve and its buffer zone, a platform that, through the Management Committee of the RNTAMB and the Management of Natural Resources of the Regional Government of Madre de Dios, links public and non-governmental entities that carry out actions and / or have competencies in the project area.

The conformation, participation and actions in the framework of these coordination spaces will allow the sum of technical efforts and budgets of different institutions that work in the scope of the project, thus ensuring a level of governance that generates conditions for sustainable development and the REDD mechanism .

2.4.2 Worker Training (G4.3)

During the current verification period, various training activities were carried out, of which the following stand out:

- Training for COOPASER partners in pruning, pest control, harvest, post-harvest, grafting.
- Training for COOPASER partners in strengthening the organic certification and fair trade programs.
- Training of COOPASER members in cooperativism as an alternative of participatory development, Grafting (Management of the pattern and grafts), Pruning (objective, type of pruning and time) and fertilization (forms and doses).
- Training of COOPASER partners in pest and disease control in cocoa production, cocoa harvesting and crop residue management, and storing, fermentation, drying, classification, storage and quality control in the beneficiation plant.
- Training of park rangers in topics of agroforestry, REDD + Project and biological monitoring, human activities and conflict management.
- Training course, aimed at volunteers: Evaluation of fauna in linear transects.
- Training in agroforestry systems with cacao, first aid and risks of snake bites and the impact of jaguars on livestock activity for good.
- Strengthening the capacities of park rangers for the management of visitors in the ANP.
- Training to park rangers of the two ANPs in the issue of conflicts with predatory carnivores of domestic animals, zoonotic diseases of importance, use and handling of Conflicts File: People - Wildlife.
- Training in nursery management in Madre de Dios, where park guards of the two ANPs were trained in the management and installation of chestnut nurseries and the proper propagation of the species, for a good management of the protected natural area and control posts Jorge Chávez and San Antonio, in the struggle for the conservation of the species.

2.4.3 Community Employment Opportunities (G4.4)

50% of the technical team lives in Madre de Dios since before the start of the project; some professionals are graduates of the National Amazonic University of Madre de Dios - UNAMAD. The selection of personnel is done through the elaboration of Terms of Reference, in which the knowledge, skills and experience required for each position are defined; on this basis, the evaluation of candidates is carried out, prioritizing the hiring of local personnel, as part of the institutional policy of professional skills development in the regions where AIDER executes its projects.

Although AIDER does not have an explicit policy of hiring women and other underrepresented groups, it does practice a transversal policy of gender equity and interculturality for all its interventions: its human team at the national level includes women, indigenous people and peasants.

The permanent team of the project will perform technical and administrative management tasks; however, activities to reduce deforestation emissions will be directly executed by the local population. From their participation as community park rangers, in the implementation of conservation agreements and sustainable economic activities, men and women will obtain significant economic, social and environmental benefits, including indigenous peoples.

2.4.4 Relevant Laws and Regulations Related to Worker's Rights (G4.5)

During the verification period, 9 relevant modifications have been made regarding the labor legislation in Peru:

- ✓ **Accuracy regarding the obligation to carry out occupational medical examinations at the beginning:** In accordance with the provisions of Supreme Decree No. 016-2016-TR, which modifies the Regulations of the Occupational Health and Safety Law, occupational medical examinations must be carried out every two years, counted from the entry of the worker (for new workers) or from the date of his last occupational medical examination performed by the employer (in the case of workers with a valid link). Therefore, as established by the Occupational Health and Safety Law, it will only be mandatory to carry out these examinations at the beginning of the employment relationship when the worker carries out a high-risk activity.
- ✓ **Use of technology in the signing of labor documents:** Legislative Decree No. 1310 establishes that, in all types of employment documents, the employer can substitute his signature or grapher and the manual seal by the following options: digital signature, electronic signature and micro shapes.
- ✓ **Implementation of virtual means for the delivery of tickets and proof of payment:** The same device provides that when the payment of economic labor obligations is deposited into an account through companies of the financial system, the employer can substitute the printing and physical delivery of the bills or proof of payment for the provision of said documents to the worker through the use of information and communication technologies. For this, it is required that the means used guarantee the proof of its issuance by the employer and an adequate and reasonable access by the worker. In this case, the worker's signature is not required.
- ✓ **Conservation of labor documents:** Legislative Decree No. 1310 provides that, for all legal purposes, employers are obliged to keep documents and proof of payment of economic labor obligations only up to five (5) years after the payment is made. This period must be observed in its actions by the administrative, inspecting, judicial and arbitration bodies. On the other hand, it prescribes that, in the case of the ONP, the employer may destroy the payroll information of periods prior to July 1999, after digitization with legal value or physically deliver it to the entity.
- ✓ **Delimitation of the intervening authority of the National Civil Service Authority due to effects on the principle of probity:** One of the attributions of the National Authority of the Civil Service is the intervenor, in case of detecting irregularities in the administration or management

of human resources in contest matter. Now, through Legislative Decree No. 1337, the National Authority of the Civil Service will exercise, exceptionally, this attribution in case of request of a holder of the entity of the Executive Power, in cases of serious damage to the principle of probity and public ethics. In this sense, an intervenor will be appointed who will act as the disciplinary administrative procedure organ that motivated the intervention.

- ✓ **Disqualification of the civil servant to provide services for five years:** The sanctions of dismissal or dismissal that remain firm or that have exhausted the administrative route, and have been duly notified, entail the automatic disqualification for the exercise of the public function and to provide services for five years. During this period, the civil servant will not be able to re-enter to provide services to the State, under any form or modality. It is mandatory the registration of the server in the National Registry of Sanctions against Civil Servants and in the Register of Disability, as provided for by Legislative Decree No. 1295.
- ✓ **Prohibition of providing services to the State for the commission of corruption offenses:** According to Legislative Decree No. 1295, persons with a convicted and / or enforceable conviction for any of the offenses set forth in articles 382, 383, 384, 387, 388, 389, 393, 393-A, 394, 395, 396, 397, 397-A, 398, 399, 400 and 401 of the Penal Code, cannot provide services in favor of the State, in any form or form.
- ✓ **Publicity of sanctions against civil servants:** Sanctions registered in the National Registry of Sanctions against Civil Servants are public access as long as they remain in force.

2.4.5 Occupational Safety Assessment (G4.6)

As mentioned in the previous report, there is a Security Plan for the project, which was later complemented by the Labor Security Policy of AIDER, as an institutional measure to ensure compliance with these documents. (See appendix 2)

Likewise, work has been done on the identification of occupational risks, according to the areas of project activities in the field. This work was carried out under the modality of workshops, for which matrices and formats were worked, according to information needs.

2.4.6 Financial Health of Implementing Organization(s) (G4.7)

AIDER has received technical cooperation funds since 1992 and has directed a US \$ 1,664,764 project called "Jemabaon Nii: Managing communal forests to alleviate poverty", funded by the Royal Netherlands Embassy from 2003 to 2005, and which was the continuation of the project "Conservation of communal forests in the Peruvian Amazon", developed between 1999 and 2003 with the support and funding of the Embassy itself. In the last two years, AIDER has reported a total income of US \$ 800,000 from the execution of projects, consulting and technical assistance, and is expected to receive a budget of US \$ 450,000 during 2009. The financial statements of AIDER of the last five years are attached to this document.

In 2008, AIDER signed a partial Administration Contract with the Peruvian State of the RNTAMB and the PNBS-area of Madre de Dios for seven years (with the possibility of renewing it for 20 years) that contemplate the financing of the World Bank, through the project GPAN, executed in Peru by PROFONANPE. This financing is US \$ 1 177 040 for the first two years of the Contract.

The Administration Contract considers the management of three components of the protected natural areas: Biological Monitoring, Research and Environmental Services. This last component will be fully financed by BAM S.A.C., a Peruvian company with British private capital, which has signed a financial

agreement with AIDER for US \$ 5 177 045, which are in the process of being transferred to AIDER for the design and execution of the REDD project.

In 2009, SFM-BAM S.A.C. transferred to AIDER US \$ 539 150 for the design of the project, baseline and preparation of the CCB PDD. In 2010, the amount transferred will be US \$ 191,700 and, from 2011 until 2015, financing will be US \$ 4,446,119 to guarantee activities to mitigate deforestation

AIDER is also establishing agreements to finance other activities that contribute to the sustainability of the REDD project, for example, international research entities, Peruvian universities and the Regional Government of Madre de Dios.

The cash flow of the project for the life cycle of the project (10 years) is attached to this document. This information is considered commercially sensitive.

2.5 Legal Status and Property Rights

2.5.1 National and Local Laws (G5.1)

Several of the laws and regulations mentioned here remain in force since the preparation of the PDD. Further; The amendments, updates and new laws that have been enacted since the beginning of the Project Verifications have been incorporated into the Project Implementation Reports - PIR, as indicated below:

- Laws and regulations indicated in the preparation of the PDD:

During the decade prior to the start of the project, laws and regulations have been approved that favor the establishment of compensation mechanisms for environmental services; however, they have been limited to expressing general purposes of the State, which have not been put into practice. This is the case of Law No. 28611, General Environmental Law (2005), which declares that the State establishes mechanisms to value, reward and maintain the provision of environmental services (among which it considers the mitigation of emissions of gases) greenhouse), seeking to achieve the conservation of ecosystems, biological diversity and other natural resources. This Law establishes that the Ministry of the Environment (MINAM), in its capacity as National Environmental Authority, promotes the creation of mechanisms for financing, payment and supervision of environmental services. Likewise, Law No. 27308, Forestry and Wildlife Law (2009), states in Article No. 35 - Compensation for environmental services of forests, that "the State will implement compensation mechanisms for the effects of pollution caused by the consumption of fossil fuels, which will be used to finance conservation activities, rehabilitation of natural areas, and forestry and wildlife research. "

On the other hand, the National Environmental Policy (approved by Supreme Decree No. 012-2009-MINAM) establishes, within its Policy Guidelines regarding the use of natural resources, to promote the design and implementation of economic and financial instruments, systems of compensation, economic retribution and distribution of payment for environmental services. Likewise, the policy guidelines regarding forests include giving priority to the integral use of forest resources, supporting initiatives regarding timber and non-timber resources, wildlife and environmental services.

In this way, the activity of the project is in accordance with the purposes expressed by these regulatory frameworks regarding the establishment of payment mechanisms for environmental services.

Law No. 26834, Law of Natural Protected Areas (1997), establishes that the natural condition of such areas must be maintained in perpetuity, allowing the regulated use of the area and the use of resources, or determining the restriction of direct uses; the project complies with maintaining the natural condition of the NPAs that make up the project area. This Law establishes two categories of protected natural areas, in which certain activities are allowed or restricted; the activities of the project are in accordance with the permitted uses established for each of the categories of ANP, which are described below:

- a. Areas of indirect use, those that allow non-manipulative scientific research, recreation and tourism, in appropriately designated and managed areas; in these areas the extraction of natural resources is not allowed, as well as modifications and transformations of the natural environment. Within this category are the National Parks.
- b. Areas of direct use, those that allow the use or extraction of resources, primarily by local populations, in those areas and places and for those resources, defined by the management plan of the area; other uses and activities that are developed must be compatible with the objectives of the area. Within this category are the National Reserves, in which it allows the commercial exploitation of natural resources under management plans, approved, supervised and controlled by the competent national authority.

The figure of the Administration Contract is contemplated in the Law of ANP, which specifies that the State recognizes and promotes private participation in the management of Protected Natural Areas. The granting of rights to individuals obliges them to comply with the policies, plans and standards that the Competent National Authority, in this case SERNANP, determines for protected areas. Head Resolution No. 155-2002-INRENA approved the list of protected natural areas that may or may not be entrusted to third parties through administrative contracts, with the RNTAMB and the PNBS being among the first. Likewise, by means of Head Resolution No. 270-2001-INRENA, the Complementary Provisions to the Regulation of the Law of Protected Natural Areas for the granting of Administration Contracts were approved.

Below are detailed, in hierarchical order, the laws and regulations that regulate the permitted activities within the Natural Protected Areas and their Buffer Zones:

- Regulation of the Law of Protected Natural Areas (approved by DS N° 038-2001-AG)
- SINANPE 2009 Master Plan
- The Master Plan of the RNTAMB
- Law No. 27308, Forestry and Wildlife Law
- Resolution of Intendancy No. 53-2008 INRENA-IANP

With respect to relevant international treaties, Peru is a member of the United Nations Framework Convention on Climate Change and is a party to the Convention on Biological Diversity.

- Laws and regulations indicated in the verification of the period 2010-2013

The laws and regulations indicated in the PDD have remained in force since its preparation until the implementation of the project during the period 2010-2013.

It is worth mentioning that in 2011 the new Forestry and Wildlife Law was enacted (Law No. 29763), which regulates forest ecosystem services in a clearer and more detailed manner, indicating that the state recognizes the importance and necessity of conservation. and responsible and sustainable management of forest ecosystems to counteract the negative effects of climate change, promoting, through SERFOR and regional governments, research, practices and activities to mitigate climate change of forest ecosystems, including, as a priority, the activities of reduction of deforestation and degradation of forest ecosystems. However, at the date of the end of the period (2010-2013) there is still no corresponding regulation so it cannot be executed, following the enactment of Law N ° 27308

As of the date of the verification period, there are no new laws or regulations that could affect the project.

- Laws and regulations indicated in the verification of the period 2013-2014

The laws and regulations mentioned since the PDD until the present verification period have remained in force during the period 2013-2014.

In addition, in June 2014, Law N ° 30215, Law on Mechanisms for Compensation for Ecosystem Services, was enacted. This law defines as a taxpayer to ecosystem services that natural or legal person, public or private, recognized by the Ministry of the Environment, which through technically viable actions contributes to the conservation, recovery and sustainable use of the sources of ecosystem services. Identifying as possible contributors to the holders of contracts for the administration of protected natural areas and other mechanisms defined by the National Service of Natural Protected Areas by the State (SERNANP), regarding the sources of ecosystem services found in them. In this sense, AIDER, as the owner of the partial administration contract of the RNTAMB and the PNBS-MDD, is considered a contributor to ecosystem services. In addition, this law establishes the creation of the Single Registry of Mechanisms for Compensation for Ecosystem Services, which aims to validate, regulate and supervise the compensation mechanisms for ecosystem services derived from voluntary agreements that establish conservation, recovery and sustainable use actions.

On the other hand, in 2014 the Directive on the Commercialization of Rights Generated by Conservation Projects of Natural Ecosystems present within Natural Protected Areas of National Administration was approved by Presidential Resolution No. 262014-SERNANP. The purpose of this directive is to regulate the procedures for the authorization, development and implementation of projects that contribute to the conservation of natural ecosystems present in ANP that generate ecosystem services. The directive clearly indicates that the SERNANP is the authority in charge of the conservation of the ecosystems present within the Natural Protected Areas of National administration and therefore is the owner of any right that could be generated by the maintenance or recovery of natural ecosystems or ecosystem services that generate. In this sense, SERNANP is empowered, in its capacity as manager of the NPAs of national administration, to commission a part of the conservation tasks through a management contract to a private non-profit organization called Executor, who presents, as part of the adjudication process, a technical and financial proposal detailing its intervention strategy and the mechanisms for its financing.

In addition, this directive establishes the procedures for the implementation of projects aimed at obtaining tradable rights generated by the conservation of natural ecosystems present within ANP, as well as the procedures for the commercialization of rights generated by the conservation of the ecosystems.

It should be noted that Law No. 29763, Forestry and Wildlife Law, indicates that the State recognizes the importance and necessity of the conservation and responsible and sustainable management of forest ecosystems to counteract the negative effects of climate change, promoting, through SERFOR and regional governments, research, practices and activities to mitigate climate change of forest ecosystems, including, first and foremost, activities to reduce deforestation and degradation of forest ecosystems; it is not yet in force since its regulation has not yet been promulgated.

As mentioned, it can be said that at the date of the verification period (2013-2014) there are no new laws or regulations that could affect the project.

- Laws and regulations indicated in the verification of the period 2014-2015

An updated list was presented, in relation to what was described in the PDD and PIRs, of laws and regulations related to the project:

- Law on Mechanisms for Compensation for Ecosystem Services No. 30215.
- Directive on the Commercialization of the Rights generated by Conservation Projects of the Natural Ecosystems present within Protected Natural Areas of National Administration (approved by General Directive N ° 001-2014-SERNANP).
- General Environmental Law No. 28611.
- National Environmental Policy (approved by Supreme Decree No. 012-2009-MINAM)
- Procedure for the Evaluation and Authorization of Projects of Greenhouse Gas Emissions and Carbon Capture (approved by Directive N ° 002-2009MINAM).
- Forestry and Wildlife Law No. 29763.
- Law on Natural Protected Areas No. 26834.
- Regulation of the Law of Natural Protected Areas (approved by Supreme Decree No. 038-2001-AG).
- Supplementary Provisions to the Regulation of the Law of Protected Natural Areas for the Granting of Administration Contracts (approved by means of Head Resolution No. 270-2001-INRENA).
- Update of the Master Plan for Protected Natural Areas (approved by Supreme Decree No. 016-2009-MINAM).
- Modification of Article 116 of the Regulations of the Law on Natural Protected Areas "Issuance of Compatibility and Prior Favorable Technical Opinion" (approved by Supreme Decree No. 003-2011-MINAM)
- Update of the Master Plan, period 2011-2016, of the Tambopata National Reserve (approved by Presidential Resolution No. 158-2011-SERNANP).
- Update of the Master Plan, period 2015-2019, of the Bahuaja Sonene National Park (approved by Presidential Resolution No. 111-2015-SERNANP).

Several of the laws and regulations mentioned here remain in force since the preparation of the PDD. Further; The modifications, updates and new laws that have been enacted since the beginning of the Project Verifications (periods: 2010-2011, 2011-2013 and 2013-2014) have been incorporated into the Project Implementation Reports - PIR.

In 2009, Directive No. 002-2009-MINAM was promulgated, which describes the set of activities necessary for the evaluation of projects to reduce greenhouse gas emissions and carbon sequestration, such as: Clean Development Mechanism (CDM), forestry projects, projects for Reduction of Emissions from Deforestation and Degradation (REDD) and programmatic CDM. Whose scope of application is for all natural or legal persons, public or private who intend to carry out projects to reduce greenhouse gas emissions and carbon sequestration, in order to be evaluated by the Ministry of the Environment through its Vice Ministry of Strategic Development of Natural Resources in order to determine whether or not it contributes to the sustainable development of the Country

- Laws and regulations indicated in the verification of the period 2015-2017

In addition to the laws and regulations mentioned in the previous periods, in this period the regulation of Law 29763 - Forest and Wildlife Law was approved and the Law came into effect, nullifying the Wildlife and forest Law No. 27308.

The Forest Emissions Reference Level (FREL) has been working since 2012, the FREL proposal was sent to the United Nations Frame Commission for Climate Change (UNFCCC) June 2016¹³. FREL includes the entire Amazonian biome of Peru, with an extension of 78'308,801 ha (60.9% of the national territory), because it is important for Peru to highlight that this biome is being considered and that no territory is excluded.

¹³ https://redd.unfccc.int/files/frel_submission_peru_modified.pdf

- Laws and regulations indicated in the verification of the period 07-2017 to 12-2018

The following law was approved under the environmental theme: Law N° 30884 "Law that regulates the plastic of a single use and the containers or disposable containers". Promulgated on December 8, 2018.

2.5.2 Free, Prior and Informed Consent (G5.3)

Below is the information reported in the previous verification vintages:

- Vintage 2010 – 2013:

In each community in which we have worked, property rights have been respected and the solution of border conflicts that they could present has been promoted. The process of border control was facilitated in four native communities: Palma Real, Sonene, Infierno and Tres Islas; initiating cleaning activities of the boundaries of each community.

In addition, it has participated in the solution of the border conflict between the Native Communities of Tres Islas and San Jacinto, a situation that had not been solved for more than 18 years. It was possible to gather the parties, who for a long time refused to talk and began the conversations to reach an agreement, in addition a minutes of proposal for the solution of the conflict between both parties and an agreement of agreement between Three was drafted. Islands and San Jacinto in the sector called Chorrera. This process has involved the participation of different institutions such as AIDSEP, FENAMAD, Ombudsman office, AFIMAD, COINBAMAD, Rainforest Alliance and AIDER.

Also, conversations and coordination between the Tambopata National Reserve and the Native Community of Infierno began to resolve the conflict overlapping areas and reach the recognition of the community's territory.

In none of the areas where the project has been implemented has it been necessary to move some population to another sector, proof of which is that the Palma Real, Sonene, Infierno and Tres Islas communities have strengthened security over land tenure to through the zoning strategy of its areas that has forced legal physical sanitation.

- Vintage 2013 – 2014

In each community in which we have worked, property rights have been respected and the solution of border conflicts that they could present has been promoted. The process of seizure has been facilitated in the Palma Real and Sonene native communities; initiating cleaning activities of the boundaries of each community.

The conflict was resolved by overlapping areas between the Tambopata National Reserve and the Native Community of Infierno. Currently the community property title is registered in public registers.

In none of the areas in which the project has been implemented has it been necessary to move some population to another sector, proof of which is that the Palma Real, Sonene and Infierno communities have strengthened security over land tenure through the zoning strategy of its areas that has forced legal physical sanitation.

- Vintage 2014 – 2015

In each community and populated center with which we have worked, property rights have been respected and the solution of border conflicts that they could present has been promoted. As already mentioned in the previous PIRs, the process of seizure has been facilitated in the Palma Real and Sonene native communities. In addition, we have been very careful when incorporating beneficiaries to the project in the sense of reviewing their property titles, verifying that everything is in order and there is no conflict of overlapping rights of use.

Likewise, there is a procedure established for the incorporation of beneficiaries in the project activities, specifically in the agroforestry component, which consists of an admissibility format and an application for admission. In the admissibility format, the criteria considered to be part of the project are specified, which are:

In relation to the producer:

- The producer must live in the area of influence of the project.
- Agriculture should be your main family activity
- Must be a member or associate with the Cooperative that will collect the production of cocoa that generates
- Must have ownership documents of the land

In relation to the property

- The plot should be located between sectors III and IV of the REDD + strategy Tambopata Bahuaja Sonene
- The plot must have been intervened before 2012
- It must not be secondary forest for more than 5 years
- Must be in the buffer zone
- Must be in the buffer zone of the Tambopata National Reserve
- It must not be in a flood area due to river overflows
- Well drained area
- It must have infrastructure that allows road access to Puerto Maldonado.

In addition, this format specifies the location of the farm, the number of hectares it has and which is the main crop that the farmer grows in it.

Once the farmer is admitted to the project, in the event that he is not yet a member of the cooperative in charge of collecting the cocoa that will be produced, he sends the application for admission to the cooperative, in which he/she undertakes to comply with the statutes, internal regulations and with all dispositions required by the cooperative.

It should be noted that in none of the areas in which the project has been executed has it been necessary to move some population to another sector.

- Vintage 2015 – 2017,

In each community and populated center with which we have worked, property rights have been respected and the solution of border conflicts that they could present has been promoted. As already mentioned in the previous PIRs. In addition, we have been very careful when incorporating beneficiaries to the project in the sense of reviewing their property titles, verifying that everything is in order and there is no conflict of overlapping rights of use.

Likewise, there is a procedure established for the incorporation of beneficiaries in the project activities, specifically in the agroforestry component, which consists of an admissibility format and an

application for admission. In the admissibility format, the criteria considered to be part of the project are specified, which are the same reported in the previous verification period.

It should be noted that in none of the areas in which the project has been executed has it been necessary to move some population to another sector.

- Vintage 07-2017 to 12-2018:

AIDER now has a Participatory Consultation Plan to continue reinforcing this process with the native communities and other stakeholders involved in the project.

2.5.3 Property Rights Protection (G5.4)

As indicated in the PDD, there are two populations within the RNTAMB: Nueva América and Sandoval. Both population centers remain within the ANP and will not be relocated. It should be noted that the population of New America is willing to work on the activities of the project and has not increased its agricultural frontier within the ANP and so far there are beneficiaries of the project belonging to New America.

In the case of the communities and population centers located in the buffer zone, it has not been considered to relocate them, but rather to work with them in the promotion of sustainable productive activities, conservation agreements, control and surveillance, and forest governance, activities that are already being made. Under no circumstances has the project carried out activities within its territories without their authorization, before initiating any type of intervention, meetings were held with the respective boards of directors and information was given regarding the actions that were intended to be carried out. Subsequently the boards of directors informed their respective assemblies and it was the latter that authorized some type of intervention in their locality.

2.5.4 Identification of Illegal Activity (G5.5)

The identified activities that could affect or generate some type of impact to the Climate, Community and Biodiversity objectives of the project are those mentioned below:

- Illegal gold mining
- Illegal extraction of wood
- Burns
- Expansion of the agricultural frontier
- Agricultural invasion of areas with another type of land use (timber concessions, chestnut concessions, etc.)

As explained, the project will actively work in the promotion of productive alternatives to these activities, which help to generate equal or higher income to producers, through innovations that minimize environmental impact as well as through the promotion of new environmentally friendly activities.

In addition, the project will increase control and surveillance actions, not only by increasing the human, technical and financial resources available to the RNTAMB, but also by supporting the implementation of the Community Monitoring Plan. In this regard, special emphasis will be placed on the areas identified as critical because of the high threat of illegal activities.

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1 Data and Parameters Available at Validation

Data / Parameter	Forest / Non Forest Cover Regional Map
Data unit	-
Description	Map showing the location of forest areas within the reference region, project area and leakage belt at the Start of the crediting period.
Source of data	Landsat 5 images. GPS points taken in the case of field verifications.
Value applied	-
Justification of choice of data or description of measurement methods and procedures applied	Image interpretation done using ENVI 5.1 and Arc Gis 10.1 software. Minimum precision of the map will be of 90%, according to the specified in the M-MON module. The map will be validated on the field through a systematic unaligned sampling; precision calculation and commission and omission mistakes will be done through a confusion matrix.
Purpose of the data	Determination of baseline scenario (AFOLU projects only) • Calculation of baseline emissions. • Calculation of project emissions. • Calculation of leakage
Comments	-

Data / Parameter	$\Delta C_{BSL,unplanned}$
Data unit	t CO ₂ e
Description	Net greenhouse gas emissions in the baseline from unplanned deforestation.
Source of data	Landsat 5 TM and ETM satellite images INEI, MINAM, IGN, digital Peru, Master Plans of the RNTAMB and PNBS-MDD, DGFFS, SERNANP, MINAGRI, IIAP, experts with knowledge about the reality of agents of deforestation in the buffer zone adjacent to the Madre de Dios river area. All sources of data used are shown in Annex 23 "Estimation of unplanned deforestation in the baseline scenario", of Project Development Design (PDD).

Value applied	482,322.1
Justification of choice of data or description of measurement methods and procedures applied	Document "Estimation of unplanned deforestation in the baseline scenario" was developed based on Module: VMD0007 Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP) 2.0 version, as required the VCS VM0007 REDD Methodological Modules (REDD-MF) version 1.0, with which the project was approved. It was prepared by the technical team of the Project Executing and was completed in 2011. It also has a validity of 10 years, according to described in the VCS-PD.
Purpose of the data	Determination of baseline scenario (AFOLU projects only) • Calculation of baseline emissions. • Calculation of project emissions. • Calculation of leakage
Comments	-

Data / Parameter	A_i
Data unit	Ha
Description	Area of stratum i
Source of data	Landsat 5 satellite images IGN-MINEDU, Tambopata National Reserve master plan, Bahuaja Sonene National Park master plan, SERNANP. All data sources that were used are detailed in Annex 21 "Stratification of forests of Tambopata National Reserve and Bahuaja-Sonene National Park within the area of Madre de Dios region", of Project Development Design (PDD).
Value applied	The number of hectares per strata for project area and leakage belt are detailed in the "Database of calculation of carbon stock .xls" spreadsheet "Table 1" worksheet
Justification of choice of data or description of measurement methods and procedures applied	The document "Stratification of the forests of the Tambopata National Reserve and Bahuaja-Sonene National Park area of Madre de Dios region", was developed based on the module VCS VMD0016 Methods for stratification of the project area (X-STR) v 1.0 as required by the VCS VM0007 REDD Methodological Modules (REDD-MF) version 1.0, with which the project was approved. It was prepared by the technical team of the Project Executing and was concluded in 2011. It has a validity of 10 years, according to described in the VCS-PD.
Purpose of the data	Determination of baseline scenario (AFOLU projects only) • Calculation of baseline emissions. • Calculation of projects emissions.
Comments	Ex-ante will be assumed that the strata area remains constant

Data / Parameter	ARRD,unplanned,hrp
Data unit	Ha
Description	Total area deforested during the historical reference period in the RRD.
Source of data	Landsat 5 TM and ETM satellite images INEI, MINAM, IGN, digital Peru, Master Plans of the RNTAMB and PNBS-MDD, DGFFS, SERNANP, MINAGRI, IIAP, experts with knowledge about the reality of agents of deforestation in the buffer zone adjacent to the Madre de Dios river area. All sources of data used are shown in Annex 23 "Estimation of unplanned deforestation in the baseline scenario", of Project Development Design (PDD).
Value applied	The value applied is shown in Annex 23 "Estimation of unplanned deforestation in the baseline scenario" and Baseline and case of the project. xls "Table15" worksheet
Justification of choice of data or description of measurement methods and procedures applied	Document "Estimation of unplanned deforestation in the baseline scenario" was developed based on Module: VMD0007 Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP) 2.0 version, as required the VCS VM0007 REDD Methodological Modules (REDD-MF) version 1.0, with which the project was approved. It was prepared by the technical team of the Project Executing and was concluded in 2011. It has a validity of 10 years, according to described in the VCS-PDD.
Purpose of the data	Determination of baseline scenario (AFOLU projects only) • Calculation of baseline emissions.
Comments	-

Data / Parameter	CF
Data unit	t C ⁻¹ t d.m.
Description	Carbon fraction of dry matter
Source of data	Default value 0.50 t C ⁻¹ t d.m. is from literature "Pearson, T; Walker, S; Brown, S. 2005. Sourcebook for Land use, Land-use Change and forestry Projects. Winrock international. EEUU. 57 p."
Value applied	0.5

Justification of choice of data or description of measurement methods and procedures applied	-
Purpose of the data	Determination of baseline scenario (AFOLU projects only) • Calculation of baseline emissions. • Calculation of project emissions. • Calculation of leakage.
Comments	The Carbon of dry matter has been used to determine the "carbon due to logging in the baseline scenario", which for the purposes of our project will be equal to the "net GHG emissions of leakage due to market effects" as detailed in Annex 25 " Estimation of leakage due to market effects" of VCS -PDD. The value of "net GHG emissions of leakage due to market effects" is zero since the leakage due effect market percentage represents, respect to net profit of the project, less than 5% (calculated for the project baseline) as detailed in the "leak due to market effect xls" spreadsheet and "Calculation of leakage due to market effect" worksheet.

Data / Parameter	$f_j(X, Y)$
Data unit	t d.m. tree ⁻¹
Description	Allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees
Source of data	The resulting data comes from aboveground biomass of living trees inventory
Value applied	The values applied are in the Project Document-PD.
Justification of choice of data or description of measurement methods and procedures applied	Feitas <i>et al.</i> Research Institute of the Peruvian Amazon. 2006. Environmental Services Storage and Carbon Sequestration Ecosystem Aguajal in the Pacaya Samiria National Reserve - Loreto. Technical Document. N° 29. Iquitos, Perú. 65 p. PASA, A. s.f. Small holders' Contribution on Climate Change Mitigation and Water Quality: The Case of the CBFM Project in Midwestern Leyte, Department of Agroforestry, College of Forestry and Natural Resources Visayas State University Philippines. 12 p. Pearson <i>et al.</i> 2005. Sourcebook for Land use, Land-use Change and forestry Projects. Winrock international. EEUU. 57 p. WINROCK INTERNATIONAL. 2006. Carbon Storage in the Los Amigos conservation concession, Madre de Dios, Perú. Winrock International. Massachusetts, USA. 27 p.

Purpose of the data	Determination of baseline scenario (AFOLU projects only) • Calculation of baseline emissions. • Calculation of project emissions.
Comments	

Data / Parameter	R
Data unit	t root d.m. t ⁻¹ shoot d.m.
Description	Root to shoot ratio appropriate to species or forest type / biome.
Source of data	The resulting data comes from aboveground biomass of living trees inventory.
Value applied	0.37
Justification of choice of data or description of measurement methods and procedures applied	Cairns et al. 1997 is a widely accepted peer reviewed scientific publication. Cairns, M. A., S. Brown, E. H. Helmer, and G. A. Baumgardner. 1997. Root biomass allocation in the world's upland forests. <i>Oecologia</i> 111, 1-11. IPCC. 2006 INV GLs AFOLU Chapter 4 Table 4.4.
Purpose of the data	Calculation of baseline emissions Calculate project emissions
Comments	-

Data / Parameter	COMFi
Data unit	Dimensionless
Description	Combustion factor for stratum <i>i</i> (vegetation type)
Source of data	Default values in Table 2.6 of IPCC, 2006 (Annex 2) of Project Development Design (PDD).
Value applied	0.5
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of the data	Calculating emissions baseline Used to determine GHG emissions from biomass burning
Comments	-

Data / Parameter	G gi
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Data unit	Dimensionless
Description	Combustion emissions factor for <i>i</i> stratum and <i>g</i> gas - source of data
Source of data	Defaults can be found in Volume 4, Chapter 2, of the IPCC 2006 Inventory Guidelines in table 2.5 (see Annex 2: emission factors for various types of burning for CH ₄ and N ₂ O).
Value applied	6.80 for CH ₄ and 0,20 for N ₂ O in tropical forest
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of the data	Calculating emissions baseline Used to determine GHG emissions from biomass burning
Comments	-

Data / Parameter	$C_{AB,tree,i}$
Data unit	t CO ₂ -e ha ⁻¹
Description	Carbon stock in aboveground biomass in trees in the project case in stratum <i>i</i>
Source of data	The resulting data comes from aboveground biomass of living trees inventory
Value applied	The values applied are in the Project Document-PD.
Justification of choice of data or description of measurement methods and procedures applied	The inventory made for the carbon stock determination was exploratory type with temporary sample plots. As a base was used the stratification and variability of each stratum, which is the principle design of the optimal fixation. The sample plots were circular and concentrically nested.
Purpose of the data	Calculating emissions baseline Calculate project emissions
Comments	-

Data / Parameter	$C_{BB,tree,i}$
Data unit	t CO ₂ -e ha ⁻¹
Description	Carbon stock in belowground biomass in trees in the project case in stratum <i>i</i>
Source of data	The resulting data comes from aboveground biomass of living trees inventory

Value applied	The values applied are in the Project Document-PD.
Justification of choice of data or description of measurement methods and procedures applied	Allometric equation for predicting root biomass density as a function of aboveground biomass density.
Purpose of the data	Calculating emissions baseline Calculate project emissions
Comments	-

3.1.2 Data and Parameters Monitored

Data / Parameter	Forest cover monitoring map for the project area.
Data unit	Ha
Description	Map showing the location of forest areas within the project area at the end of every monitoring period. If there were deforested areas within the project area, the comparison with the base map has to show the deforested areas in every monitoring period.
Source of data	Landsat 8 - OLI images. GPS points taken in the case of field verifications.
Description of measurement methods and procedures to be applied	Image interpretation done using geographic information systems (GIS).
Frequency of monitoring/recording	Annual
Value monitored	541,463.86
Monitoring equipment	Computer (desktop/laptop) with an i7 processor and 6 GB of RAM memory. Software: ENVI 5.1 and Arc GIS 10.1 GPS Garmin Navigator
QA/QC procedures to be applied	The map was be validated through visual interpretation of satellite images of high resolution (RapidEye images with 6.5 meter spatial resolution and Landsat Panchromatic Pansharping images, with 15 m spatial resolution). The precision calculation was conducted through a confusion matrix. Minimum precision of the map will be of 90%, according to the specified in the M-MON module. The elaboration of the map will be done according to the Standard Operational Procedure elaborated for this purpose. See appendix 3.

Purpose of the data	Estimating project emissions
Calculation method	The selected image of the previous year serves as a reference, which is updated with the new "non-forest" areas generated by the software and by the knowledge the remote sensing analyst has of the area; thus, the forest area is defined for this monitoring period. The accuracy of the map is calculated by comparing it with the field data.
Comments	-

Data / Parameter	Forest cover monitoring map for the leakage belt.
Data unit	Ha
Description	Map showing the location of forest areas within the leakage belt age belt at the end of every monitoring period.
Source of data	Landsat 8 - OLI images. GPS points taken in the case of field verifications.
Description of measurement methods and procedures to be applied	Image interpretation done using geographical information systems.
Frequency of monitoring/recording	Annual
Value monitored	189,948.23
Monitoring equipment	Computer (desktop/laptop) with an i7 processor and 6 GB of RAM memory. Software: ENVI 5.1 and Arc GIS 10.1 GPS Garmin Oregon600
QA/QC procedures to be applied	The map was be validated through visual interpretation of satellite images of high resolution (RapidEye images with 6.5 meter spatial resolution and Landsat Panchromatic Pansharpening images, with 15 m spatial resolution). The precision calculation was conducted through a confusion matrix. Minimum precision of the map will be of 90%, according to the specified in the M-MON module. The elaboration of the map will be done according to the Standard Operational Procedure elaborated for this purpose. See Appendix 3.
Purpose of the data	Estimating leakage
Calculation method	The selected image of the previous year serves as a reference, which is updated with the new "non-forest" areas generated by the software and by the knowledge the remote sensing analyst has of the area; thus, the forest area is defined for this monitoring period. The accuracy of the map is calculated by comparing it with the

	field data.
Comments	-

Data / Parameter	$A_{DefPA,i,u,t}$
Data unit	Ha
Description	Area of recorded deforestation in the project area in stratum i converted to land use u at time t
Source of data	Landsat 8 Landsat 8 - OLI images.
Description of measurement methods and procedures to be applied	Image interpretation done using geographical information systems.
Frequency of monitoring/recording	Annual
Value monitored	144.54
Monitoring equipment	Computer (desktop/laptop) with an i7 processor and 6 GB of RAM memory. Software Arc GIS 10.1
QA/QC procedures to be applied	The map was be validated through visual interpretation of satellite images of high resolution (RapidEye images with 6.5 meter spatial resolution and Landsat Panchromatic Pansharping images, with 15 m spatial resolution). The precision calculation was conducted through a confusion matrix. Minimum precision of the map will be of 90%, according to the specified in the M-MON module. The elaboration of the map will be done according to the Standard Operational Procedure elaborated for this purpose. See appendix 3.
Purpose of the data	Calculation of project emissions
Calculation method	The selected image of the previous year serves as a reference, which is updated with the new "non-forest" areas generated by the software and by the knowledge the remote sensing analyst has of the area; thus, the deforested area is defined for this monitoring period. The accuracy of the map is calculated by comparing it with the field data.
Comments	-

Data / Parameter	$A_{DefLB,i,u,t}$
Data unit	Ha
Description	Area of recorded deforestation in the leakage belt in stratum i converted to land use u at time t

Source of data	Landsat 8 - OLI images.
Description of measurement methods and procedures to be applied	Image interpretation through the use of geographic information systems (GIS).
Frequency of monitoring/recording	Annual
Value monitored	2,212.71
Monitoring equipment	Computer (desktop/laptop) with an i7 processor and 6 GB of RAM memory. Software Arc GIS 10.1
QA/QC procedures to be applied	The map was be validated through visual interpretation of satellite images of high resolution (Rapideye). The precision calculation and commission and omission mistakes was conducted through a confusion matrix Minimum precision of the map will be of 90%, according to the specified in the M-MON module. The elaboration of the map will be done according to the Standard Operational Procedure elaborated for this purpose. See appendix 3.
Purpose of the data	Estimating project emissions
Calculation method	The selected image of the previous year serves as a reference, which is updated with the new "non-forest" areas generated by the software and by the knowledge the remote sensing analyst has of the area; thus, the deforested area is defined for this monitoring period. The accuracy of the map is calculated by comparing it with the field data.
Comments	

Data / Parameter	<i>ADegW_i</i>
Data unit	Ha
Description	Area potentially impacted by degradation processes in stratum i
Source of data	Reports from the rangers of the TAMBNR and BSNP regarding illegal extraction of wood. Location map of the physical components of the project area.
Description of measurement methods and procedures to be applied	Delimitation of the potential area subject to forest degradation based on the expertise of the rangers (see the participatory workshop memory on Annex 2 of the corresponding section).
Frequency of monitoring/recording	Quinquennial
Value monitored	15,072.36 ha

Monitoring equipment	Computer (desktop/laptop) with an i7 processor and 6 GB of RAM memory. Software Arc GIS 10.1
QA/QC procedures to be applied	Participatory workshop performed with the rangers to validate the preliminary delineation of the potential area subject to forest degradation.
Purpose of the data	Estimating project emissions
Calculation method	Using the UTM coordinates of the points of interventions performed by the rangers during the monitoring period and their knowledge of the area and of degradation activities, the area of the critical sectors within the project area was determined. See appendix 3.
Comments	-

Data / Parameter	$ADistPA,q,i,t$
Data unit	Ha
Description	Area impacted by natural disturbance in the project stratum i converted to natural disturbance stratum q at time t ; ha
Source of data	Image interpretation by software using geographic information systems. GPS points taken in the case of checks in the field.
Description of measurement methods and procedures to be applied	Computer (desktop/laptop) with i7 processor and 6 GB of RAM memory. Software Arc GIS 9.3.1
Frequency of monitoring/recording	Annual
Value monitored	0
Monitoring equipment	Computadora (desktop/portátil) con procesador i7 con 6 GB de memoria RAM. Software Arc GIS 9.3.1 GPS Garmin Oregon600
QA/QC procedures to be applied	Georeferenced photographic record of the disturbance
Purpose of the data	Calculation of project emissions
Calculation method	It will refer to the classified image of the previous year, which will be updated with new areas of "non-forest" generated by the software and knowledge in the area of remote sensing analyst. Field will be verified and recorded disturbance characteristics in a format.
Comments	-

Data / Parameter	$CDegW,i,t$
------------------	-------------

Data unit	t CO ₂ -e
Description	Biomass carbon of trees cut and removed through illegal logging and fuelwood and charcoal extraction degradation process from plots measured in stratum <i>i</i> at time <i>t</i>
Source of data	Field measurements
Description of measurement methods and procedures to be applied	Field measurements according to the procedure described in M-MON module, v2.1.
Frequency of monitoring/recording	Every five years
Value monitored	0
Monitoring equipment	Caliper
QA/QC procedures to be applied	The gathering of information on the field will be done according to the Standard Operational Procedure elaborated for this purpose. See appendix 3.
Purpose of the data	Estimating project emissions
Calculation method	Allometric equations used to calculate aerial biomass (Brown, 1997, as quoted by Pearson <i>et al.</i> , 2005) and underground biomass (Source: Cairns <i>et al.</i> , 1997, as quoted by IPCC, 2003).
Comments	-

Data / Parameter	<i>Aburn,i,t</i>
Data unit	Ha
Description	Total of burnt areas within the project area for the monitoring period
Source of data	Landsat 8 images. GPS points taken in the case of field verifications.
Description of measurement methods and procedures to be applied	Image interpretation through the use of geographic information systems (GIS)
Frequency of monitoring/recording	Annual
Value monitored	18.49
Monitoring equipment	Computer (desktop/laptop) with an i7 processor and 6 GB of RAM memory. Software ENVI 5.1 and Arc GIS 10.1 GPS Garmin Navigator
QA/QC procedures to be applied	The map will be validated on the field through the sampling of 10% of the total analyzed area; the classes on the map must correspond to the ones on the field. Minimum precision of the map will be of 90%. The elaboration of the map will be done according to the Standard Operational Procedure elaborated for this purpose. See appendix 3.

Purpose of the data	Estimating project emissions
Calculation method	The Landsat 8 images were analyzed by their spectral firms, color shades and shapes; subsequently, training samples were obtained from the image and the maximum likelihood algorithm was applied, extracting areas of interest. Finally, a post-classification was made to eliminate the isolated pixels in the area.
Comments	-

Data / Parameter	AP_i
Data unit	Ha
Description	Total area of the degradation sampling plots in i stratum
Source of data	Field measurements
Description of measurement methods and procedures to be applied	Systematic random sampling, covering at least 3% of the potential area subject to degradation.
Frequency of monitoring/recording	Every five years
Value monitored	392 ha sampled through a total of 98 000m of 40m wide transects, distributed systematically in the potential area subject to degradation.
Monitoring equipment	Computer (desktop/laptop) with an i7 processor and 6 GB of RAM memory. GPS Garmin Navigator
QA/QC procedures to be applied	The gathering of information on the field will be done according to the Standard Operational Procedure elaborated for this purpose. See appendix 3.
Purpose of the data	Estimating project emissions
Calculation method	Cabinet processing of the information gathered on the field using geographic information systems (GIS).
Comments	-

Data / Parameter	$TOTFOR$
Data unit	Ha
Description	Total available national forest area
Source of data	Official data, peer reviewed publications, remotely sensed imagery (coarse scale imagery is appropriate) or cadastral maps and other verifiable sources
Description of measurement methods and procedures to be applied	Not applicable

Frequency of monitoring/recording	Must be monitored at least every 5 years or if verification occurs on a frequency of less than every 5 years examination must occur prior to any verification event
Value monitored	1,799,515
Monitoring equipment	-
QA/QC procedures to be applied	It's considered the forest area available for unplanned deforestation corresponding to area of Madre de Dios, due to the spatial characteristics of accessibility of the region. More details are in Annex 24 of VCS-PDD
Purpose of the data	Calculation of leakage emissions
Calculation method	-
Comments	-

Data / Parameter	<i>PROTFOR</i>
Data unit	Ha
Description	Total area of fully protected forests nationally.
Source of data	Official data, peer reviewed publications and other verifiable sources.
Description of measurement methods and procedures to be applied	Not applicable
Frequency of monitoring/recording	Must be monitored at least every 5 years or if verification occurs on a frequency of less than every 5 years examination must occur prior to any verification event.
Value monitored	138,532
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	Calculation of leakage emissions
Calculation method	-
Comments	-

Data / Parameter	<i>MANFOR</i>
Data unit	Ha
Description	Total area of forests under active management nationally
Source of data	Official data, peer reviewed publications and other verifiable sources
Description of measurement methods	

and procedures to be applied	Not applicable
Frequency of monitoring/recording	Must be monitored at least every 5 years or if verification occurs on a frequency of less than every 5 years examination must occur prior to any verification event.
Value monitored	1,043,273
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	Calculation of leakage emissions
Calculation method	-
Comments	-

Data / Parameter	<i>PROPIMM</i>
Data unit	Proportion
Description	Estimated proportion of baseline deforestation caused by immigrating population
Source of data	Calculated based on official data the INEI 2007.
Description of measurement methods and procedures to be applied	Estimated as proportion of the area deforested in the past 5 years by population that migrated into the Leakage Belt and project area in the past 5 years.
Frequency of monitoring/recording	Must be monitored at least every 5 years or if verification occurs on a frequency of less than every 5 years examination must occur prior to any verification event.
Value monitored	0.187
Monitoring equipment	-
QA/QC procedures to be applied	It's established based on official information provided by INEI, considering the persons performing activities of agriculture and mining in the influence area. More details are in Annex 24 of VCS-PDD
Purpose of the data	Calculation of leakage emissions
Calculation method	-
Comments	

Data / Parameter	<i>PROPRES</i>
Data unit	Proportion
Description	Estimated proportion of baseline deforestation caused by population that has been resident for ≥5 years

Source of data	Calculated based on official data the INEI 2007.
Description of measurement methods and procedures to be applied	Estimated as proportion of the area deforested in the past 5 years by population resident in the Leakage Belt and project area for ≥ 5 years (all areas within 2km of the boundaries of the project area and the leakage belt shall be considered here).
Frequency of monitoring/recording	Must be monitored at least every 5 years or if verification occurs on a frequency of less than every 5 years examination must occur prior to any verification event.
Value monitored	0.813
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	Calculation of leakage emissions
Calculation method	-
Comments	-

3.1.3 Monitoring Plan

The monitoring purpose is to obtain the necessary information in order to estimate the amount of avoided emissions during the crediting period, evaluate the effectiveness of the project activities and collect all the information required to ensure the realization of the project's emissions reduction targets.

The monitoring plan is directed to the following activities that need to be monitored:

- Baseline revision
 - Monitoring of actual carbon stock changes and greenhouse gas emissions
 - Monitoring of leakage carbon stock changes and greenhouse gas emissions
 - Estimation of *ex-post* net carbon stock changes and greenhouse gas emissions
- a. Monitoring activities include the use of remote sensors and in-situ inspections. The combination of both data sources gives as a result the required calculations and estimates to determine whether the project is being developed in accordance to the VCS-PD.

For the monitoring of the areas subject to deforestation and forest degradation and associated emissions, the VCS VMD0015 module "Methods for GHG emissions and removals monitoring" (M-MON) version 2.1 will be used; likewise, the report of leakages caused by the project due to activity displacement will be prepared according to the VCS VMD0010 module "Emissions estimate for activity displacement due to avoided unplanned deforestation" (LK-ASU) version 1.0. As for the estimate of GHG other than CO₂ produced by burning biomass, the VCS VMD0013 module "Greenhouse gases emissions estimate for burning biomass" (E-BB) version 1.0 will be used. The remaining carbon stored in long-lasting wood products reservoir, as a result of logging activities, will be calculated using the VCS VMD0005 module "Estimate of the carbon content in long-lasting wood products" (CP- W) version 1.1; and finally, the "Tool for testing the significance of GHG emissions from A/R CDM project activities" (T -SIG) will be used in order to evaluate if it is correct to rule out emission sources, leakage sources and long-lasting wood products reservoir.

- b. It is conservatively considered that the carbon stored in the aerial and underground biomass reservoirs keeps constant, so it will not be monitored. Likewise, the secondary forest growth (carbon increment) is omitted in a conservative way, considering, however, the mosaic of secondary forest and agriculture as a single category, due to the complications in differentiating secondary forests from areas with agricultural management (by presenting similar visual and spectral characteristics) on the pixel size of the images to be used. It is necessary to point out that, in many occasions, forest regeneration is impeded (as in the case of areas affected by mining or those invaded by aggressive and competitive exotic).

Monitoring the changes in land use, based on Landsat 8 – OLI satellite images, will be performed annually, involving all the changes in forest cover. The deforested area (in hectares) is calculated for the project area and leakage belt. Also, once the deforestation map is generated, validation was given through the visual interpretation employing high- resolution satellite images like RapidEye images with 6.5 meter spatial resolution and Landsat Panchromatic Pansharpening with 15 m spatial resolution.

On the other hand, it has been used the spectral vegetation indices like a tool for identification and determination of burned areas, specifically the index of normalised burning ratio (NBR). In addition, once the map of burning was generated, validation occurred through field verification and visual interpretation by used of RapidEye satellite images, with 6.5 meters of spatial resolution and Landsat Panchromatic Image pansharpening with 15 meter of spatial resolution.

Spatial information that may be provided by government entities will be updated annually.

- c. All the monitoring activities will be implemented using Standard Operational Procedures (SOP) elaborated by the project team. The staff will be permanently trained to ensure the quality of the data.
- d. The Group Assurance and Quality Control program schedules auditing visits to verify the compliance of the SOPs, choosing random processes to ensure their correct implementation.
- e. Monitoring data is stored and processes in the cities of Puerto Maldonado and Lima following the procedure described in the See appendix 4.
- f. Monitoring is performed by a professional monitoring team that will be found in the cities of Lima and Puerto Maldonado, in coordination with the headship of Tambopata National Reserve and Bahuaja-Sonene National Park. The monitoring team answers to the Ecosystem Services Area of AIDER coordinator, with an office in Lima.

In-situ monitoring will be in charge of the professional monitoring team in Madre de Dios, with the cooperation of the Rangers of the Protected Natural Areas (within the project area) and their extensive knowledge, the ones who receive training through training workshops to fulfill these tasks.

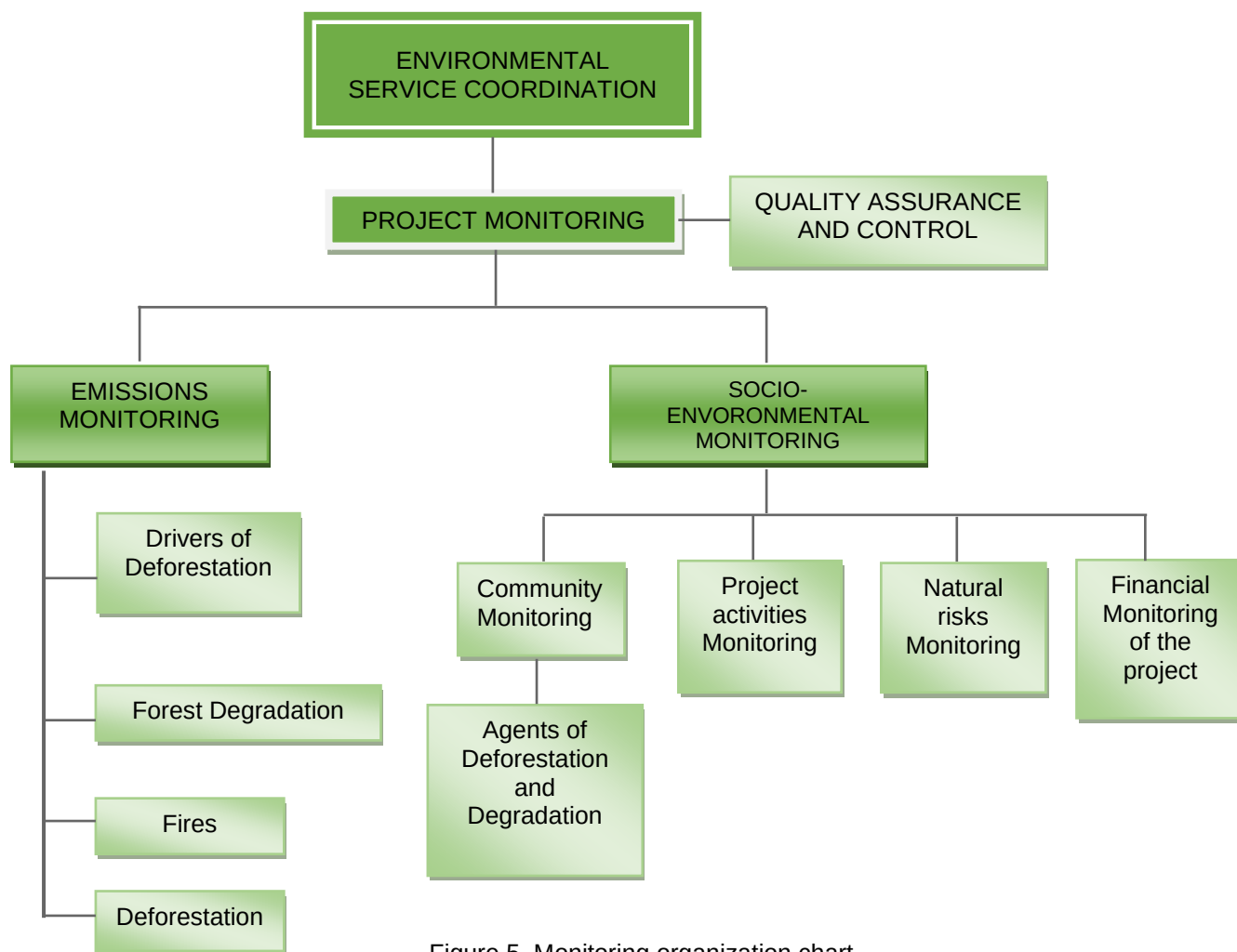


Figure 5. Monitoring organization chart

- **Baseline Review**

The reference scenario will be reviewed every 10 years. The deforestation rate will be updated for the reference region, the project area and the leakage belt, and the same will be done for the drivers of deforestation. Also, the information of the stored carbon will be verified by evaluating 10% of the plots in every stratum to determine the reference scenario. Using the updated information, the deforestation model will be adapted for the project area and the leakage belt in the reference scenario, projecting the deforested areas once again and calculating the carbon emissions in the reference scenario for the subsequent period.

- **Monitoring of actual carbon stock changes and greenhouse gas emissions**

Monitoring is performed using geographic software to process and interpret satellite images, complementing them with field verifications; the parameters subject to monitoring are specified

on section 3.1.2.

- **Monitoring of leakage carbon stock changes and greenhouse gas emissions**

Relevant parameters for monitoring of leakage caused by activities shifting are found in section 3.1.2. Deforested areas at leakage belt are being monitored, trying, as much as possible, to cross information from ground- truth data with information of social monitoring at the different populations (according to Climate, Community & Biodiversity standards), to confirm that leakages are, effectively, attributable to the project activity.

- Monitoring of measures to avoid deforestation and reduce risk of leakage: the implementation of the Strategy to Reduce Emissions from Deforestation and Forest Degradation in Tambopata National Reserve (RNTAMB) and Bahuaja-Sonene National Park (PNBS) - Madre de Dios area is annually monitored; in this management document the project activities described on section 1.8 of PD have been developed, through measurement of its targets and indicators and supported by information obtained in community monitoring. Emissions that could result from project activities are considered insignificant, due to the selected technology level (see section 1.7 of PD) and the selected emissions sources (see section 2.3 of PD).

- **Estimation of ex-post net carbon stock changes and greenhouse gas emissions**

The estimation of net ex-post changes in carbon stocks will be conducted according methodology REDDMF. Calculations are detailed in the "REDD project emissions (period 2015-2017).xls" (Appendix 3). The following enumerates the procedure steps according to the specified in the M-MON module, v2.1.

STEP 1. Selection and analysis of land use change and land cover change data sources

The complete procedure is found in Appendix 3 of section 3.1.2.

At the end of the monitoring period:

- Forest cover maps for the project area and leakage belt were elaborated.
- The area of the forest and non-forest cover within the project area and leakage belt were obtained.

Table 9. Forest and non-forest cover area within the project area and leakage belt

Category	Forest cover (ha)	Non-forest cover (ha)
Project area	541,463.86	144.54
Leakage belt	189,948.23	2,212.71

STEP 2. Interpretation and analysis

Monitoring deforestation

The development of this step consisted in the estimation of the emissions produced due to deforestation within the project area and leakage belt for the period (2017-2018), running from

July 1, 2017 to December 31, 2018. The estimate was developed following the applicability of the VMD0015 M-MON module, v2.1.

Emissions produced due to deforestation

$$\Delta C_{P,DefPA,i,t} = \sum_{u=1} (A_{DefPA,u,i,t} * \Delta C_{pools,P,Def,u,i,t}) \quad \text{(M-MON Equation 3)}$$

Where:

$\Delta C_{P,DefPA,i,t}$ = net changes in carbon stocks as a result of deforestation in the case of the project, in the project area, i stratum in t time; tCO₂-e.
 $A_{DefPA,u,i,t}$ = registered deforestation in the project area, i stratum converted into u land use in t time; ha.
 $\Delta C_{pools,P,Def,u,i,t}$ = net changes in carbon stocks in all reservoirs in the case of the project, in u land use, i stratum and t time; t CO₂-e ha⁻¹.
u = 1, 2, 3,... U post-deforestation land uses
i = 1, 2, 3,... M stratum
t = 1, 2, 3,... t* years since the implementation of the REDD project

Table 10. Net changes in carbon stocks in the project area (July 2017 – December 2017)

Strata	$A_{DefPA,u,i,t}$	$\Delta C_{pools,P,Def,u,i,t}$	$\Delta C_{P,DefPA,i,t}$
Mixed Aguajal	-	267.59	-
Alluvial floodplain	20.00	356.39	7,128.56
Strong High Hill	-	541.69	-
Soft High Hill	-	474.63	-
Strong Low Hill	-	628.41	-
Soft Low Hill	-	803.60	-
High Terrace	-	474.93	-
Low Terrace	32.28	486.71	15,712.99
Strong Dissected Terrace	0.90	487.22	440.69
Soft Dissected Terrace	11.9	377.53	4,503.40
	□□□□□		27,785.65

Table 11. Net changes in carbon stocks in the project area (January 2018 – June 2018)

Strata	$A_{DefPA,u,i,t}$	$\Delta C_{pools,P,Def,u,i,t}$	$\Delta C_{P,DefPA,i,t}$
Mixed Aguajal	-	267.59	-
Alluvial floodplain	20.00	356.39	7,128.56
Strong High Hill	-	541.69	-
Soft High Hill	-	474.63	-
Strong Low Hill	-	628.41	-
Soft Low Hill	-	803.60	-
High Terrace	-	474.93	-
Low Terrace	32.28	486.71	15,712.99

Strong Dissected Terrace	0.90	487.22	440.69
Soft Dissected Terrace	11.93	377.53	4,503.40
	□□□□□		27,785.65

Table 12. Net changes in carbon stocks in the project area (July 2018 – December 2018)

Estratos	$A_{DefPA,u,i,t}$	$\square C_{pools,P,Def,u,i,t}$	$\square CP_{DefPA,i,t}$
Mixed Aguajal	-	267.59	-
Alluvial floodplain	3.75	356.39	1,337.12
Strong High Hill	-	541.69	-
Soft High Hill	-	474.63	-
Strong Low Hill	-	628.41	-
Soft Low Hill	-	803.60	-
High Terrace	-	474.93	-
Low Terrace	0.10	486.71	49.37
Strong Dissected Terrace	4.41	487.22	2,149.39
Soft Dissected Terrace	6.03	377.53	2,277.99
Total	6.03		2,277.99

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equations 3 and 4” sheet.

$$\Delta C_{P,DefLB,i,t} = \sum_{u=1} (A_{DefLB,u,i,t} * \Delta C_{pols,P,Def,u,i,t}) \quad \text{(M-MON Equation 4)}$$

$\Delta C_{P,DefLB,i,t}$ = net changes in carbon stocks as a result of deforestation in the case of the project, in the project area and leakage belt, i stratum in t time; tCO₂-e.

$A_{DefLB,u,i,t}$ = registered deforestation area in the leakage belt area, i stratum converted into u land use in t time; ha.

$\Delta C_{pols,P,Def,u,i,t}$ = net changes in carbon stocks in all reservoirs in the case of the project, in u land use, i stratum and t time; t CO₂-e ha⁻¹

u = 1, 2, 3,... U post-deforestation land uses

i = 1, 2, 3,... M stratum

t = 1, 2, 3,... t* years since the implementation of the REDD project

Table 13. Net changes in carbon stocks in the leakage belt (July 2017 – December 2017)

Strata	$A_{DefLB,u,i,t}$	$\square C_{pools,P,Def,u,i,t}$	$\square CP_{DefLB,i,t}$
Alluvial floodplain	394.42	356.39	140,565.88
Strong High Hill	71.61	496.71	35,571.15
Soft High Hill	6.79	429.65	2,915.80
Strong Low Hill	8.85	583.43	5,161.70
Soft Low Hill	0.69	758.62	520.04

High Terrace	148.30	429.95	63,761.40
Low Terrace	1,202.91	486.71	585,466.59
Strong Dissected Terrace	106.17	487.22	51,729.47
Soft Dissected Terrace	272.98	377.53	103,056.33
Total	□□□□□□□□□□□□		988,748.35

Table 14. Net changes in carbon stocks in the leakage belt (January 2018 – June 2018)

Strata	ADefPA,u ,i,t	□C pools, P, Def ,u,i,t	□CP, DefPA,i,t
Alluvial floodplain	394.42	356.39	140,565.88
Strong High Hill	71.61	496.71	35,571.15
Soft High Hill	6.79	429.65	2,915.80
Strong Low Hill	8.85	583.43	5,161.70
Soft Low Hill	0.69	758.62	520.04
High Terrace	148.30	429.95	63,761.40
Low Terrace	1,202.91	486.71	585,466.59
Strong Dissected Terrace	106.17	487.22	51,729.47
Soft Dissected Terrace	272.98	377.53	103,056.33
Total	2,212.71	-	988,748.35

Table 15. Net changes in carbon stock in the leakage belt (July 2018 – December 2018)

Estratos	ADefLB,u ,i,t	□C pools, P, Def ,u,i,t	□CP, DefLB,i,t
Alluvial floodplain	95.07	356.39	33,879.97
Strong High Hill	27.36	496.71	13,587.90
Soft High Hill	10.24	429.65	4,401.03
Strong Low Hill	11.74	583.43	6,849.16
Soft Low Hill	18.28	758.62	13,866.19
High Terrace	37.20	429.95	15,992.17
Low Terrace	465.40	486.71	226,514.13
Strong Dissected Terrace	143.04	487.22	69,690.79
Soft Dissected Terrace	236.15	377.53	89,151.40
Total	1,044.46		473,932.73

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equations 3 y 4” sheet.

Changes in carbon content due to deforestation

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

(M-MON Equation 5)

Where:

$\Delta C_{pools,Def,u,i,t}$ =

net changes in carbon stocks in all reservoirs as a result of deforestation in the case of the project, in u land use, i stratum and t time; t CO₂-e ha⁻¹.

$C_{BSL,i}$ =

carbon stocks in all reservoirs for the baseline scenario, i stratum; t CO₂-e ha⁻¹.

$C_{P,post,u,i}$ =

post-deforestation carbon stocks in all reservoirs, u land use, i stratum; t CO₂-e ha⁻¹.

$C_{WP,i}$ =

sequestered carbon in wooden products extracted from i stratum; tCO₂-e ha⁻¹

u = 1, 2, 3,...

U post-deforestation land use

i = 1, 2, 3,...

M stratum

t = 1, 2, 3,...

t* years since the implementation of the REDD project

Table 16. Net changes in carbon stocks for the project area, per stratum

Strata	C_BSL,i (tCO ₂ -e/ha)	C_P,post,i (tCO ₂ -e/ha)	C_wp,i	ΔC_pools,Def,u,i,t (CO ₂ -e)/ha
Mixed Aguajal	267.59	-	0	267.59
Alluvial floodplain	401.37	44.98	0	356.39
Strong High Hill	541.69	-	0	541.69
Soft High Hill	474.63	-	0	474.63
Strong Low Hill	628.41	-	0	628.41
Soft Low Hill	803.60	-	0	803.60
High Terrace	474.93	-	0	474.93
Low Terrace	531.69	44.98	0	486.71
Strong Dissected Terrace	532.20	44.98	0	487.22
Soft Dissected Terrace	422.51	44.98	0	377.53

(*) Sequestered carbon for the wooden products is cero, as said reservoir has been considered as not significant in the PD.

Table 17. Net changes in carbon stocks for the leakage belt, per stratum

Strata	C_BSL,i (tCO ₂ -e/ha)	C_P,post,i (tCO ₂ -e/ha)	C_wp,i	ΔC_pools,Def,u,i,t (CO ₂ -e)/ha
Alluvial floodplain	401.37	44.98	0	356.39
Strong High Hill	541.69	44.98	0	496.71
Soft High Hill	474.63	44.98	0	429.65
Strong Low Hill	628.41	44.98	0	583.43
Soft Low Hill	803.60	44.98	0	758.62
High Terrace	474.93	44.98	0	429.95
Low Terrace	531.69	44.98	0	486.71
Strong Dissected Terrace	532.20	44.98	0	487.22
Soft Dissected Terrace	422.51	44.98	0	377.53

(*) Sequestered carbon for the wooden products is zero, as said reservoirs have been considered as not significant in the PD.

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equation 5” worksheet.

Post-deforestation carbon stocks

$$C_{post,u,i} = C_{AB_tree,i} + C_{BB_tree,i} + C_{AB_nom-tree,i} + C_{BB_nom-tree,i} + C_{DW,i} + C_{LI,i} + C_{SOC,PD-BSL,i}$$

(M-MON Equation 6)

Where:

- $C_{post,u,i}$ = post-deforestation carbon stocks in all reservoirs, u land use, i stratum; tCO₂-e ha⁻¹.
- $C_{AB_tree,i}$ = carbon stocks in aerial tree biomass in i stratum; tCO₂-e ha⁻¹.
- $C_{BB_tree,i}$ = carbon stocks in underground tree biomass in i stratum; tCO₂-e ha⁻¹.
- $C_{AB_nom-tree,i}$ = carbon stocks in aerial other vegetation biomass in i stratum; tCO₂-e ha⁻¹.
- $C_{BB_nom-tree,i}$ = carbon stocks in underground other vegetation biomass in i stratum; tCO₂-e ha⁻¹.
- $C_{DW,i}$ = carbon stocks in dead wood in i stratum; tCO₂-e ha⁻¹.
- $C_{LI,i}$ = carbon stocks in dead leaves in i stratum; tCO₂-e ha⁻¹.
- $C_{SOC,PD-BSL,i}$ = post-deforestation average carbon content in the organic carbon in the soil, i stratum; t CO₂-e ha⁻¹.
- u = 1, 2, 3,... U post-deforestation land uses
- i = 1, 2, 3,... M “with project” scenario strata

Within the project area, deforestation and subsequent land use change is aimed at developing agricultural activities; on the northwestern corner of the project area, deforestation due to mining is also registered, but for calculation purposes, it is not considered in the post-deforestation carbon for the mining stratum (which is zero) to have conservative results.

Agricultural activity:

$$C_{post,u,i} = C_{AB_tree,i} + C_{BB_tree,i} + C_{AB_nom-tree,i} + C_{BB_nom-tree,i} + C_{DW,i} + C_{LI,i} + C_{SOC,PD-BSL,i}$$

$$C_{post,u,i} = 31.19 + 13.79 + 0 + 0 + 0 + 0 + 0$$

$$C_{post,u,i} = 44.98 \text{ tCO}_2\text{-e}$$

For further detail see "Post-deforestation.xls" spreadsheet and "post-deforestation index" worksheet.

Monitoring forest degradation

✓ Degradation through extraction of trees for illegal timber

For the specific case of REDD + project, it has replaced sampling limited field by systematizing reports or reports of patrollings special that are periodically made by the rangers of both ANPs, with this an evaluation area was identified and made field work. This work allowed us to refine the area potentially subject to degradation ($ADegW, i$).

Control and surveillance to which it is subjected the entire project area by be protected natural areas, allows the continuous updating of illegal activities found by: checkpoints, reference areas, sectors and geographical coordinates.

The methodological process the degradation monitoring is developed in Appendix 3, in section 3.1.2.

✓ Monitoring degradation due to selective logging of forest management areas possessing a FSC certificate

Does not apply because there is no FSC forest management areas within the project area, as these operations are incompatible with the objectives of the Protected Natural Areas found within the project area, according to the Project Description.

Monitoring areas undergoing natural disturbance

- Legal base

In Peru there is a system for natural disasters management. The National Disaster Risk System – SINAGERD was created with Law No. 29664. Article 1 mentions that it is an inter-institutional, synergistic, decentralized and participatory system, which aims to identify and reduce hazard associated risks or minimize their effects, as well as prevent the generation of new risks by establishing principles, policy guidelines, components, processes or instruments of the Disaster Risk Management.

Article 9 specifies that the National Institute of Civil Defense - INDECI is an integral part of SINAGERD. Article 13 defines the functions of INDECI, which are to develop, coordinate and facilitate the formulation and implementation of the National Plan for Disaster Risk Management.

By Supreme Decree No. 059-2001-PCM, Chapter IV, Article 57, it is established that INDECI is the responsible entity in charge of the programming, gathering and processing of statistical

Civil Defense information; it also provides permanent, timely and up to date computer services and communications system of Civil Defense.

Monitoring areas undergoing carbon stock enhancement

Carbon stock enhancement due to forest re-growth has been omitted in a conservative way as specified on the project description.

Monitoring project emissions

The areas burned during monitoring period have been delineated, in order to calculate resulting emissions produced by fires, according to procedure indicated in module E-BB; burned areas mapping procedure can be found in annex 3 in section 3.1.2.

$$B_{i,t} = (C_{AB_tree,i,t} + C_{DWit} + C_{LI,I,t}) * \frac{12}{44} * \left(\frac{1}{CF}\right) \quad \text{(Equation 2 de E-BB)}$$

Where:

$B_{i,t}$ = Average aboveground biomass stock before burning for stratum i, time t; tonnes d. m. ha⁻¹

$C_{AB_tree,i,t}$ = Mean aboveground biomass carbon stock in stratum i at time t; t CO₂-e ha⁻¹ (estimated using the CP-AB)

C_{DWit} = Carbon stock in dead wood for stratum i, at time t; t CO₂-e ha⁻¹ (estimated using CP-D)

$C_{LI,I,t}$ = Mean carbon stock in litter for stratum i, at time t; t CO₂-e ha⁻¹ (estimated using CP-L)

$\frac{12}{44}$ = Inverse ratio of molecular weight of CO₂ to carbon, t CO₂-e t C⁻¹

CF = Carbon fraction of biomass; t C t⁻¹ d.m. (default carbon fraction of biomass is 0.47 tC t⁻¹ d.m. (see also section III))

i = 1, 2, 3 ...M strata

t = 1, 2, 3, ... t* years elapsed since the start of the REDD project activity

Only there were identified areas burned in the stratum of soft dissected terrace. The area appears in the following table:

Table 18. Average aboveground biomass stock before burning for stratum

Years	Strata	C_(AB_(tree,i,t))	C_Dwit	C_(LI,I,T)	B_(i,t)
Jul2017 - jun2018	Alluvial floodplain	401.37	0	0	232.90
Jul - Dic 2018		401.37	0	0	232.90
Jul2017 - jun2018	Strong Dissected Terrace	532.20	0	0	308.82
Jul - Dic 2018		532.20	0	0	308.82
Jul2017 - jun2018	Soft Dissected Terrace	422.51	0	0	245.17
Jul - Dic 2018		422.51	0	0	245.17

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equation - burned” worksheet.

$$E_{BiomassBurn,i,t} = \sum_{g=1}^G (((A_{bum,i,t} * B_{i,t} * COMF_i * G_{g,i}) * 10^{-3}) * GWP_g)$$

(Equation 1 de E-BB)

Where:

$E_{BiomassBurn,i,t}$ = Greenhouse emissions due to biomass burning as part of deforestation activities in stratum i in year t; tCO₂-e of each GHG (CO₂, CH₄, N₂O)

$A_{bum,i,t}$ = Area burnt for stratum i at time t; ha

$B_{i,t}$ = Average aboveground biomass stock before burning stratum i, time t; tonnes d. m. ha⁻¹

$COMF_i$ = Combustion factor for stratum i; dimensionless (see annex 1 for default values as derived from Table 2.6 of IPCC, 2006)

$G_{g,i}$ = Emission factor for stratum i for gas g; kg t⁻¹ dry matter burnt (see section III and annex 2 for default values as derived from Table 2.5 of IPCC, 2006)

GWP_g = Global warming potential for gas g; t CO₂/t gas g (default values from IPCC SAR: CO₂ = 1; CH₄ = 21; N₂O = 310)

g = 1, 2, 3 ... G greenhouse gases (to include carbon dioxide, methane and nitrous oxide)

i = 1, 2, 3 ... M strata

t = 1, 2, 3, ... t* years elapsed since the start of the REDD project activity

Table 19. Emissions of GHG due to the burned biomass for the period July 2017 – December 2017

Period	Estratum	A _(bum,i,t)	B _(i,t)	COMF _i	G _{g,i}	GWP _g	E _{BiomassBurn,i,t}
July – December 2017	Alluvial floodplain	1.78	232.90	0.5	6.80	25	35.14
					0.2	298	12.32
	Soft Dissected Terrace	4.28	245.17	0.5	6.80	25	89.09
					0.2	298	31.23
							167.78

Table 20. Emissions of GHG due to the burned biomass for the period January 2018 – June 2018

Period	Estratum	A _(bum,i,t)	B _(i,t)	COMF _i	G _{g,i}	GWP _g	E _{BiomassBurn,i,t}
January - June 2018	Alluvial floodplain	1.78	232.90	0.5	6.80	25	35.14
					0.2	298	12.32
	Soft Dissected Terrace	4.28	245.17	0.5	6.80	25	89.09
					0.2	298	31.23

167.78

Table 21. Emissions of GHG due to the burned biomass for the period July 2018 – December 2018

Period	Estratos	A_(bum,i,t)	B_(i,t)	COMF_I	G_g,i	GWP_g	E_BiomassBurn,i,t
Julio - Diciembre 2018	Strong Dissected Terrace	2.77	308.82	0.5	6.80	25	72.71
					0.2	298	25.49
	Soft Dissected Terrace	3.62	245.17	0.5	6.80	25	75.44
					0.2	298	26.45
							101.89

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equation - burned” worksheet.

$$GHG_{p,E,i,t} = E_{FC,i,t} + E_{BiomassBurn,i,t} + N_2O_{direct-N,i,t}$$

(Equation 30 de M-MON)

Where:

$GHG_{p,E,i,t}$ = Greenhouse gas emissions as a result of deforestation activities within the project area in the project case in stratum i in year t; t CO₂-e

$E_{FC,i,t}$ = Emission from fossil fuel combustion in stratum i within the project area in year t; t CO₂-e

$E_{BiomassBurn,i,t}$ = Non-CO₂ emissions due to biomass burning in stratum i in year t; t CO₂-e

$N_2O_{direct-N,i,t}$ = Direct N₂O emission as a result of nitrogen application on the alternative land use in stratum i within the project area in year t; t CO₂-e

i = 1, 2, 3 ...M strata

t = 1, 2, 3 ...t* years elapsed since the start of the REDD VCS project activity

Table 22. Emission GEI from activities of the project

Period	$E_{FC,i,t}$	$E_{BiomassBurn,i,t}$	$N_2O_{direct-N,i,t}$	$GHG_{p,E,i,t}$
July – December 2017	0	167.78	0	167.78
January – June 2018	0	167.78	0	167.78
July – December 2018	0	101.89	0	101.89

The emission by burning of fossil fuels and application of fertilizers is considered to be insignificant, in agreement to the explained in the section 2.3 of the description of the project, for what for effects of the calculation they are equal to zero.

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equation - burned” worksheet.

STEP 3. DOCUMENTATION

The methodological procedures used in steps 1-2 were documented. The following information will be provided:

- a. Data sources and pre-processing: Type, resolution, source and acquisition date of the remotely sensed data (and other data) used; corrections performed (geometric, radiometric); projection and parameters used to geo-reference the images; error estimate of the geometric correction; software and software version used to perform tasks; etc.
- b. Data classification: Definition of the classes and categories; classification approach and classification algorithms; coordinates and description of the ground-truth data collected for training purposes; ancillary data used in the classification, if any; software and software version used to perform the classification; additional spatial data and analysis used for post-classification analysis, including class subdivisions using non-spectral criteria, if any; etc.
- c. Classification accuracy assessment: accuracy assessment technique used; coordinates and description of the ground-truth data collected for classification accuracy assessment; and final classification accuracy assessment.
- d. Changes in data sources and pre-processing / data classification (if this is determined by the technical team): If in subsequent periods changes will be made to the original data or use of data:
 - Each change and its justification will be explained and recorded; and
 - When data from new satellites are used documentation will follow “a” to “c” above.

3.1.4 Dissemination of Monitoring Plan and Results (CL3.2)

The results of the Monitoring Plan will be socialized in the project communities by the end of the third quarter of the year (end of September), to this date the Verification process should be finished and is when AIDER presents its quarterly report to SERNANP.

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions

Net emissions for the reference scenario and monitoring period of July 01, 2017 to December 31, 2018 are of 1'087,840.0 tCO₂-e, according to the specified calculations in the Project Description.-

3.2.2 Project Emissions

Emissions produced due to the project's activities have been considered insignificant according to the justification given in section 2.3 of the Project Description.

Net emissions calculation

$$\Delta C_P = \sum_{t=1}^{t^*} \sum_{i=1}^M (\Delta C_{P,DefPA,i,t} + \Delta C_{P,Deg,i,t} + \Delta C_{P,DistPA,i,t} + GHG_{P-E,i,t} - \Delta C_{P,Enh,i,t}) \quad (\text{M-MON Equation 1})$$

Where:

ΔC_P = Net GHG emissions within the project area under the “with project” scenario, tCO₂-e.

$\Delta C_{P,DefPA,i,t}$ = Net change in carbon stocks as a result of deforestation in the case of the project, within the project area, *i* stratum and *t* time; t CO₂-e ha⁻¹.

$\Delta C_{P,Deg,i,t}$ = Net change in carbon stocks as a result of degradation in the case of the project, within the project area, *i* stratum and *t* time; t CO₂-e.

$\Delta C_{P,DistPA,i,t}$ = Net change in carbon stocks as a result of natural disturbances in the case of the project, within the project area, *i* stratum and *t* time; t CO₂-e.

$GHG_{P-E,i,t}$ = GHG emissions as a result of deforestation and degradation in the case of the project, within the project area, *i* stratum, *t* time; t CO₂-e.

$\Delta C_{P,Enh,i,t}$ = Net change in carbon stocks as a result of the growth of the forest and carbon sequestration during the project for areas that are expected to be deforested in the baseline, *i* stratum and *t* time; tCO₂-e.

i = 1, 2, 3,...M stratum.

t = 1, 2, 3,... *t*^{*} years since the implementation of the REDD project.

Table 23. Net GHG emissions within the project area under the “with project” scenario

Period	Net changes in the carbon stocks due to deforestation (tCO ₂ -e) $\Delta C_{P,DefPA,it}$	Net changes in the carbon stocks due to degradation (tCO ₂ -e) $\Delta C_{P,Deg,it}$	Net changes in the carbon stocks due to natural disturbances (tCO ₂ -e) $\Delta C_{P,DistPA,it}$	GHG emissions due to project activities (tCO ₂ -e) $GHG_{P-E,it}$	Net changes in the carbon stocks due to forest growth and carbon sequestration (tCO ₂ -e) $\Delta C_{P,Enh,it}$	GHG emissions within the project area (tCO ₂ -e) ΔC_P
July – December 2017	27,785.65	6,834.98	0	167.78	0	34,620.62
January – June 2018	27,785.65	6,834.98	0	167.78	0	34,620.62
July – December 2018	2,277.99	6,834.98	0	101.89	0	9,112.97

Emissions produced due to forest degradation were 20,504.93 for the period 2017-2018 in the project area. For further details is reached annex 3 of the section 3.1.2, where is described the degradation monitoring according to the methodology.

Areas under natural disturbances have not been registered during the monitoring period 2017-2018, so this factor is equal to zero; further details are in step 2, "Monitoring of areas under natural disturbances" and maps the natural disturbances of districts Tambopata and Inambari for period 2017-2018.

The emissions of fires is 437.45 tCO₂-e, these are considered insignificant for representing less than 5% of the net benefits of the project for the 2017 - 2018 period, so they have not been considered in the final calculation (see “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equations 1-2” and “significance” worksheets).

Increases of carbon are omitted conservatively, according to the specifications in the project description.

The sum total of net GHG emissions within the project area is 78,354.22 tCO₂ result of deforestation in the project area.

For the leakage belt the net greenhouse gas emissions in the project case is equal to the sum of stock changes due to deforestation in the leakage belt:

$$\Delta C_{P,LB} = \sum_{t=1}^t \sum_{i=1}^M \Delta C_{P,DefLB,it} \quad \text{(M-MON Equation 2)}$$

Where:

$\Delta C_{P,LB}$ = Net GHG emissions in the leakage belt in the case of the project; t CO₂-e.

$\Delta C_{P,DefLB,i,t}$ = Net change in carbon stocks as a result of deforestation in the case of the project, in the leakage belt, i stratum and t time; t CO₂-e.

i = 1, 2, 3,...M strata in the “with project” scenario.

t = 1, 2, 3,... t^* years since the implementation of the REDD project.

Table 24. Net GHG emissions in the leakage belt in the case of the project

Period	Net GHG emissions in the leakage belt (tCO ₂ -e) $\Delta C_{P, LB}$
July – December 2017	988,748.35
January – June 2018	988,748.35
July – December 2018	473,932.73

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “Equations 1-2-M-MON” worksheet

3.2.3 Leakage

Emissions calculation due to deforestation displacement from the project area to the leakage belt

$$\Delta C_{LK-ASU-LB} = \Delta C_{P, LB} - \Delta C_{BSL, LK, unplanned} \quad \text{(LK-ASU Equation 1)}$$

Where:

$\Delta C_{LK-ASU-LB}$ = Net CO₂ emissions due to unplanned deforestation displaced from the project area to the leakage belt; t CO₂-e.

$\Delta C_{P, LB}$ = Net GHG emissions within the leakage belt in the “with project” scenario; tCO₂-e.

$\Delta C_{BSL, LK, unplanned}$ = Net CO₂ emissions in the baseline scenario due to unplanned deforestation in the leakage belt; t CO₂-e.

Table 25. Net CO₂ emissions due to unplanned deforestation displaced from the project area to the leakage belt

Years	Net emissions within the leakage belt (tCO ₂ -e) $\Delta C_{P, LB}$	Net emissions in the reference scenario due to deforestation in the leakage belt (tCO ₂ -e) $\Delta C_{BSL, LK, unplanned}$	Net due to unplanned deforestation displaced from the project area to the leakage belt (tCO ₂ -e) $\Delta C_{LK-ASU-LB}$
July – December 2017	988,748.35	1,748,758.9	-760,010.55
January – June 2018	988,748.35	1,748,758.9	-760,010.55
July – December 2018	473,932.73	1,721,165.4	-1,247,232.66

If $\Delta CLK-ASU-LB$ is <0 then $\Delta CLK-ASU-LB$ will be established as 0 (to prevent a positive leak).

$\Delta CLK-ASU-LB$	0
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Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “LK-ASU ecuación 1” worksheet.

Ex-post estimate of the total deforested area due to immigrant agents

Ex post, the ratio of the total area deforested by immigrant agents in the “with project” scenario will be determined from the same ratio calculated with baseline data. It is assumed that the proportional area deforested by immigrant agents in baseline and “with project” scenarios remains the same.

$$A_{LK-IMM,t} = PROP_{IMM} * A_{BSL,PA,unplanned,t} \quad \text{(LK-ASU Equation 7)}$$

Where:

$A_{LK-IMM,t}$ = Total deforested area due to immigrant agents in the baseline and “with project” scenarios in t time; ha.

$PROP_{IMM}$ = Ratio of the deforested area due to immigrant agents in the leakage belt and project area; ratio.

$A_{BSL,PA,unplanned,t}$ = Expected area for unplanned deforestation baseline in the project area on t time; ha.

t = 1, 2, 3...t* years since the implementation of the REDD VCS project.

Table 26. Total deforested area due to immigrant agents in the reference scenario and “with project” scenario.

Years	Ratio of deforested area due to immigrant agents in the leakage belt and project area $PROP_{IMM}$	Expected area for unplanned deforestation baseline in the project area (ha) $A_{BSL,PA,unplanned,t}$	Total deforested area due to immigrant agents in the baseline and “with project” scenarios (ha) $A_{LK-IMM,t}$
July – December 2017	0.187	735.85	137.60
January – June 2018	0.187	735.85	137.60
July – December 2018	0.187	925.25	173.02

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “LK-ASU Equation 7” worksheet.

Calculation of the deforested area due to immigrants in the project area and leakage belt

$$A_{LK-ACT-IMM,t} = PROP_{IMM} * (\sum_{i=1}^M A_{DefPA,i,t} + A_{DefLB,i,t}) \quad \text{(LK-ASU Equation 8)}$$

Where:

$A_{LK-ACT-IMM,t}$ = Deforested area due to immigrants in the project area and leakage belt under the “with project” scenario in t time; ha.

$PROP_{IMM}$ = Ratio of deforested area due to immigrants in the project area and leakage belt; ratio.

$A_{DefPA,i,t}$ = Deforested area registered for the project area under the “with project” scenario in i stratum and t time; ha.

$A_{DefLB,i,t}$ = Deforested area registered for the leakage belt under the “with project” scenario in i stratum and t time; ha.

$i =$ 1, 2, 3,...M stratum for the “with project” scenario.

$t =$ 1, 2, 3...t* years since the implementation of the REDD VCS project.

Table 27. Deforested area due to immigrants in the project area and leakage belt

Years	Ratio of deforested area due to immigrants in the project area and leakage belt $PROP_{IMM}$	Deforested area registered for the project area (ha) ¹⁴ $A_{DefPA,i,t}$	Deforested area registered for the leakage belt (ha) ¹⁵ $A_{DefLB,i,t}$	Deforested area due to immigrants in the project area and leakage belt (ha) $A_{LK-ACT-IMM,t}$
July – December 2017	0.187	65.12	2,212.71	425.95
January – June 2018	0.187	65.12	2,212.71	425.95
July – December 2018	0.187	6.03	1,044.46	196.44

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “LK-ASU Equation 8” worksheet.

Calculation of the deforested area due to immigrants outside of the project area and leakage belt

$$A_{LK-OLB,t} = A_{LK-IMM,t} - A_{LK-ACT-IMM,t} \quad \text{(LK-ASU Equation 9)}$$

Where:

$A_{LK-OLB,t}$ = Deforested area due to immigrants outside of the project area and leakage belt under the “with project” scenario in t time; ha.

$A_{LK-IMM,t}$ = Total deforested area due to immigrant agents in the baseline and “with project” scenarios in t time; ha.

$ALK-ACT-IMM,t$ = Deforested area due to immigrants in the project area and leakage belt under the “with project” scenario in t time; ha

$t = 1, 2, 3 \dots t^*$ years since the implementation of the REDD VCS project

¹⁴ Source: Appendix 3

¹⁵ Source: Appendix 3

Table 28. Deforested area due to immigrants outside of the project area and leakage belt

Period	Total deforested area due to immigrants in the baseline and “with project” scenarios (ha) $A_{LK-IMM,t}$	Deforested area due to immigrants in the project area and leakage belt under the “with project” scenario (ha) $A_{LK-ACT-IMM,t}$	Deforested area due to immigrants outside of the project area and leakage belt (ha) $A_{LK-OLB,t}$
July – December 2017	137.60	425.95	-288.35
January – June 2018	137.60	425.95	-288.35
July – December 2018	173.02	196.44	-23.42

Determining if there have been leaks outside of the leakage belt

If: $A_{LK-OLB,t} \leq 0 \rightarrow$ there have been no leaks outside of the leakage belt.

If: $A_{LK-OLB,t} > 0 \rightarrow$ there have been leaks outside of the leakage belt.

If there have been no leaks outside of the leakage belt:

$$\Delta C_{LK-ASU,OLB} = 0 \quad \text{(LK-ASU Equation 10)}$$

Where:

$\Delta C_{LK-ASU,OLB}$ = Sum of the changes in carbon stocks and GHG emissions due to unplanned deforestation displacement outside of the leakage belt; t CO₂-e.

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “LK-ASU Equation 9 y 10” worksheet.

Emissions from Leakage prevention activities

Not applicable because not activities were implemented leakage prevention, emitting emissions from biomass burning and fertilizer usage.

Total leakage estimate due to displacement of unplanned deforestation (LK-ASU STEP 6)

$$\Delta C_{LK-AS,unplanned} = \Delta C_{LK-ASU-LB} + \Delta C_{LK-ASU-OLB} + GHG_{LK,E} \quad \text{(LK-ASU Equation 13)}$$

$\Delta C_{LK-AS,unplanned}$ = Net GHG emissions due to leaks for displacement of activities for projects preventing unplanned deforestation; t CO₂-e

$\Delta C_{LK-ASU-LB}$ = Net CO₂ emissions due to unplanned deforestation displaced from the project area to the leakage belt; t CO₂-e.

$\Delta C_{LK-ASU-OLB}$ = Net CO₂ emissions due to unplanned deforestation displaced outside of the leakage belt; t CO₂-e.

$GHG_{LK,E}$ = GHG emissions from leaks of activities to prevent deforestation; t CO₂-e.

Table 29. Net GHG emissions due to leaks for displacement of activities.

Period	Emissions due to deforestation displacement from the project area to the leakage belt $\Delta C_{LK-ASU-LB}$	Emissions due to deforestation outside of the leakage belt $\Delta C_{LK-ASU-OLB}$	GHG emissions from activities that prevent deforestation (*) $GHG_{LK,E}$	Net GHG emissions due to leaks related to displacement of activities (t CO ₂ -e) $\Delta C_{LK-AS,unplanned}$
July – December 2017	0	0	0	0
January – June 2018	0	0	0	0
July – December 2018	0	0	0	0

(*) As the activities of the project will not produce significant emissions, this parameter is equal to zero.

Calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “LK-ASU Equation 13” worksheet.

Calculation of net emissions due to leaks

$$\Delta C_{LK} = \Delta C_{LK-AS-planned} + \Delta C_{LK-AS-unplanned} + \Delta C_{LK-AS,des rad-FW/C} + \Delta C_{LK-ME} \quad (\text{REDD-MF Equation 3})$$

ΔC_{LK} = Net GHG emissions due to leaks; t CO₂-e

$\Delta C_{LK-AS-planned}$ = Net GHG emissions due to leaks from displacement of activities for projects preventing planned deforestation; t CO₂-e (from LK-ASP) Note: this parameter is equal to zero for not presenting planned deforestation (Not apply).

$\Delta C_{LK-AS-unplanned}$ = Net GHG emissions due to leaks from displacement of activities for projects preventing unplanned deforestation; t CO₂-e (from LK-ASU).

$\Delta C_{LK-AS,des rad-FW/C}$ = Net GHG emissions due to leaks from displacement of activities for degradation caused by fuel wood extraction; t CO₂-e (from LK-DFW). Note: this parameter is equal to zero for not presenting a significant firewood and coal extraction

ΔC_{LK-ME} = Net GHG emissions due to market effect leaks; t CO₂-e (from LK-ME). Note: As these leaks have been considered not significant in the PD, this parameter is equal to zero.

Table 30. Net GHG emissions due to leaks

Period	Emissions due to leaks for AUD projects $\Delta C_{LK-AS-unplanned}$	Emissions due to degradation leaks (coal and firewood extraction) $\Delta C_{LK-AS,des rad-FW/C}$	Emissions due to market effect leaks (*) ΔC_{LK-ME}	Net GHG emissions due to leaks (tCO ₂ -e) ΔC_{LK}
July – December 2017	0	-	0	0
January – June 2018	0	-	0	0
July – December 2018	0	-	0	0

(*) Considered zero according to the justification given in the Project Description

Emissions produced due to leaks have been considered equal to zero, according to the procedure of the methodology (calculations are detailed in the “REDD project emissions (period 2017-2018).xls” spreadsheet and “REDD-MF Equation 3” worksheet).

3.2.4 Net GHG Emission Reductions and Removals

$$C_{REDD,t} = \Delta C_{BSL} - \Delta C_P - \Delta C_{LK} \quad (\text{REDD-MF Equation 1})$$

$C_{REDD,t}$ = Net total GHG emissions reduction in t time; tCO₂-e

ΔC_{BSL} = Net GHG emissions in the baseline scenario; t CO₂-e

ΔC_P = Net GHG emissions within the project area in the “with project” scenario; tCO₂-e (from M-MON)

ΔC_{LK} = Net GHG emissions due to leaks; t CO₂-e

Table 31. Net GHG Emission Reductions and Removals for July 2017 – December 2018 vintage

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
July – December 2017	334,650.8	34,621	-	300,030
January – June 2018	334,650.8	34,621	-	300,030
July – December 2018	418,538.4	9,113	-	409,425
Total		78,354	-	1,009,486

The amount of Voluntary Carbon Units (VCUs) can be seen in Table 31. According to the AFOLU Non-permanence Risk Tool (VCS Version 3) has been subtracted a 13% to the total net emissions reductions generated, which is the credits reservation for non-permanence risk. The calculation of buffer credits can be found in the See appendix 5.

Table 32. Voluntary Carbon Units

Year	Net GHG emissions reduction (tCO ₂ -e)	AFOLU pooled buffer account (13%)	Voluntary Carbon Units
July – December 2017	300,030.2	39,004	261,026
January – June 2018	300,030.2	39,004	261,026
July – December 2018	409,425.4	53,225	356,200
Total	1,009,485.8	131,233	878,253

3.3 Optional Criterion: Climate Change Adaptation Benefits

3.3.1 Activities and/or Processes Implemented for Adaptation (GL1.4)

According to what was mentioned in the PDD, to reduce the vulnerability of crop yields, agroforestry systems have been developed with a predominance of polycultures, decreasing the susceptibility to pests and diseases to which they could be prone if they were monocultures, chords to the reality of the region, considering the following:

- Sowing in soils with good drainage and adequate topography to avoid puddles
- Location of the plots in areas with little risk of fires, free of weeds or far from pastures to avoid the aggressive continuity of the fire
- Non-use of agrochemicals, such as pesticides, herbicides and chemical fertilizers prohibited by organic agriculture
- An adequate distribution of shade and forest trees during the establishment of the agroforestry system to protect against variations in extreme temperatures and strong winds.
- In this way, we seek to establish agroforestry systems adapted to the effects of climate change and that generate positive impacts on the quality of life of the population involved, and be biological micro-corridors in the buffer zone and the ANP.
- In addition, a monitoring system with trap cameras was implemented in the cocoa plots.

In addition, there is a procedure established for the incorporation of beneficiaries in the project activities, particularly in the agroforestry component, which consists of an admissibility format, which specifies the criteria considered. To admit beneficiaries of the project (such as that the property should not be in a flood area due to river overflows and are well-drained soils), and a georeferencing format through which the location of the plots that specify the criteria considered for admit beneficiaries. Through this registration system, those that could be more vulnerable to the effects of climate change are identified. In addition, the georeferenced plots are entered into an internal control system called Minka, by which the management of the plot is comprehensively monitored and what is happening in them is recorded.

To the end of this vintage, December 2018, considering all the procedure mentioned the project had 339 beneficiaries involved in the agroforestry project (that are part of the COOPASER), them with the technical team implemented 1304.85 hectares (1'449,688 plants), where 854.34 ha are grafted, also had 464.96 ha of *Inga edulis* installed and 6582 trees of different forestry species (to have more detail see Appendix 1). In this areas, also were installed camera traps to determine the use of the agroforestry

systems areas by the wildlife, land mammals, and to recommend the installation for a biological corridor between the areas for wildlife; this activities are made as part of the biological monitoring activities to determine diversity and relative abundance of mammals in agroforestry systems (Appendix 15).

To involve the beneficiaries more with forest conservation, in October 2017 they have signed an agreement conservation with the Tambopata National Reserve as an strategy to strengthen the conservation of the Tambopata National Reserve and its buffer zone, it seeks the involvement of the population established in the scope of the ANP and its buffer zone in the gradual recovery of forest cover, as well as protecting primary forests and the components of the biological diversity of the protected natural area, in order to recover and maintain the ecosystem services of the reserve (Appendix 16).

During this vintage, the implementation of agroforestry systems continued to be one of the alternatives promoted as a mechanism to adapt to climate change. Thus, as part of the implementation of sustainable productive activities for producers and / or native communities that settle in the buffer zone of the RNTAMB; Work continued on the implementation of agroforestry plots based on the cultivation of organic chuncho cocoa for export, as well as the strengthening of the Cooperativa Agraria de Servicios Múltiples Tambopata Candamo.

To strengthen the members of the COOPASER were made workshops about technical, attitudinal and organizational issues (See appendix 1). The technical team of AIDER carried out, on a continuous and permanent basis, different activities: Personalized technical assistance to members, verification of grafting areas, mobilization of grafting personnel, monitoring of the plots established for pruning and fertilization, monitoring of plantations in production for the collection of cocoa, as well as support in the work of gathering the COOPASER.

Although it is true that organic certification of cocoa has not yet been achieved, significant advances have been made that contribute significantly to its achievement, such as the creation of the Internal Control System (SIC), whose purpose is to clearly publicize the rules and standards on which the organic / fair trade program of the cooperative is based.

For the identification of any risk to the benefits for climate, community and biodiversity of the project, resulting for the likely impacts of climate change, the following actions have been developed:

- Implementation of cocoa agroforestry systems.- As a sustainable productive activity, located in areas of reduced risk that are less likely to be affected by phenomena generated by climate change.
- Monitoring of Pampas del Heath.- Since 2010 to understand the behavior and dynamics of the flora and fauna of the area in order to establish, in the future, a management plan according to the results of monitoring and scientific research and expert opinions that you may have.

The other activities proposed in the PDD in order to prevent possible impacts resulting from climate change will be implemented and developed to the extent that the project's REDD strategy is executed.

Other activities carried out were the implementation of activities to contribute to the native communities strengthening, the activities were made according the needs of each community, and most of them were support their activities, making workshops or meetings for information (Appendix 1).

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CM1.1)

The activities implemented for the period 2017 - 2018 are described below:

a) Association of agricultural producers

Progress was made with the activities and requirements that this certification establishes, an internal inspection process was carried out to 140 producers who started the process of conversion to organic and, at the end of the year, an external inspection was carried out by ECOCERT, where they were inspected 12 producers out of 140 in total. At the end of this process, observations were obtained that must be corrected for the first month of the following quarter.

Other of the activities carried out are, the support in the sustainable management of the lands of the ZA involved in the project, were developed jointly with the producers, 50 Plans of Sustainable Integral Chakras; it supported the strengthening of organic and fair trade certification programs of COOPASER, through training workshops; before which, to date, COOPASER maintains the Fair Trade Certification.

b) Chestnut families

Training was provided to Brazil nut harvesters of the two ANP regarding the study of the effect and degradation of forests in the chestnut reproduction system.

c) Native Communities

There are hunting and fishing records made by the native communities in the two ANPs. Likewise, they have been trained in strengthening the participatory management of the two ANPs.

It has continued with the support of the Palma Real native community, within this support is the provision of fuel and money for the development of their activities. The committee of artisans has also been supported.

Support was given to the handicraft and tourism committees of the Palma Real native community, through the provision of provisions, lodging, fuel for their movements between the community and the city of Puerto Maldonado, among others.

For the update of the Master Plan, at the request of the monitoring commission and the head of the RNTAMB, an activity has been incorporated to update it, which consisted in supporting the organization and development of workshops with the native communities of Infierno, Sonene and Palma Real for the collection of information of the population of said communities and include their needs within the Master Plan, which have been made with the use of the budget foreseen for the control and surveillance activities. A total of 4 workshops-meetings were held, 2 in the Palma Real native community, 1 in the Sonene native community and 1 in the native community Infierno.

d) Tour operators

In monitoring reports on tourist trails in Sandoval, Cocococha and Tambopata. A greater impact is reported in Sandoval in the width gauge indicators, depth and also the increase in the volume of garbage. It is necessary to start a study of the impact of tourists on the tourist trails in Sandoval, in the rainy season have greater impact on the transit of tourists. Likewise, it is important to correlate wildlife records: guides, park rangers and CA-AIDER, with the number of tourists that enter the lakes of Sandoval and Cococha.

The guides of Tourism have a wide knowledge in the identification of the Amazonian fauna and are in constant entrance to the Tambopata National Reserve, under this premise a file was implemented for the data collection of the conservation objects and some animals of difficult registration, in order to feed the Integrated Monitoring System - SMI.

The places where the guides take the data are: Lake Sandoval, Lake Cocococha, Middle Tambopata, Chuncho and Colorado, areas with a high income of tourists; The Guides receive the cards at the Surveillance and Control Post Sandoval, La Torre and Malinowsky to fill out their records during their stay in the area and then these chips are returned in the same PVC, then send it to the headquarters and this get it to AIDER, where it is systematized in an Excel and the information is analyzed.

According to data from the RNTAMB by the end of 2018 it is estimated that 52,215 foreign tourists and 9673 national tourists entered, making a total of 62088 tourists, this figure has been increasing every year, the most visited areas being the Tambopata area (13183 tourists), Alto Tambopata (9256 tourists) and Sandoval (39615 tourists), inside these areas there are transects installed, to evaluate large and medium mammals, hunting and tourist birds, where it was possible to see that the animals are tolerant to the presence of the evaluator and therefore tourism, this is good because this tells us that in these tourist areas there are no illegal activities where the fauna is conserved and with it the forests; On the other hand it was possible to see that during the monitoring in key Collpas the tourists do not comply with the norms of behavior, in the same way in the lakes Sandoval and Cocococha, being the clothes and the noise of the tourists that are impacting on the fauna, for it is recommended to enforce the rules of conduct established in the site plans of each tourist attraction, prohibiting the use of colorful dress

4.1.2 Net Positive Community Well-Being Impacts (CM1.1)

According to what was described in the previous section, the impacts of the activities carried out during the verification period have been in favor of the populations and communities that benefit from the project, as long as they meet the objectives of the standard.

In this sense, the activities related to the strengthening of the governance of resources, the organizational strengthening, the development of sustainable productive activities and the increase of control and surveillance will generate positive impacts on the actors inside and outside the project site.

4.1.3 Protection of High Conservation Values (CM1.2)

In the Native Communities with which the project works, the zoning of their territories has been carried out. They identify some resources considered as High Conservation Values: the aguajales and the areas of timber forest use.

In the case of Sonene and Palma Real, zoning maps have identified areas of great importance for the wellbeing of families, because they represent strategic places for the extraction of food inputs, such as the fruit of the aguaje and animals that can hunt. Palma Real identified as an AVC the stream from which they extract water for consumption.

With regard to the important places for the Ese Eja culture, this vintage the support has continued for the promotion of ecotourism as a sustainable economic activity in the territory of the Palma Real Native Community.

In 2014, he initiated the project "Reduction of Deforestation and Promotion of Sustainable Development in Madre de Dios", implemented in the buffer zone of the Tambopata National Reserve and the Bahuaja Sonene-MDD National Park, specifically in the Puerto Maldonado Cuzco roadway. , from km. 1 to km. 83. Its objective is the implementation of 4,000 ha of agroforestry plots, with cocoa as the main crop and the creation of a cooperative that will be in charge of exporting the product. This project will directly benefit 1,100 farmers and, indirectly, 4,300 families. At the end of this period, the project has 358 farmers and 1250.8 has been implemented. Likewise, the cooperative has been created and by the end of this period the construction of the cocoa benefit plant has been completed.

As can be seen, the project has never restricted the pre-existing use rights within the project area, such as its right to hunting, fishing and chestnut extraction, but rather, it is favoring economic development and the promotion of culture.

4.2 Offsite Stakeholder Impacts

4.2.1 Mitigation of Negative Impacts on Other Stakeholders (CM2.2)

The mitigation of negative impacts on off-site actors is mainly based on strengthening the governance of resources, organizational strengthening and the implementation of sustainable productive activities.

4.2.2 Net Impacts on Other Stakeholders (CM2.3)

As described in the previous verification report, positive impacts have been obtained for the benefit of other actors, in addition to the beneficiary CCNN, in relation to:

- ✓ Installation of 80 nurseries, having conducted until the end of the quarter a total of 330 nurseries in the field with cocoa plants. And, in the second and third quarters, 2 central nurseries were kept in production, with the objective of serving farmers interested in increasing the area of their plantations, as well as farmers who did not have the necessary conditions to install nurseries and produce plants in their farms.
- ✓ During 2018, the implementation of cocoa agroforestry systems continued, in degraded lands caused by agriculture and / or livestock, which are located in the buffer zone and zone of influence of the RNTAMB, consolidating and reaching 1304.85 It has a definitive field, as well as to involve 339 farmers, who have received a technological package where the training and technical assistance on pruning, pest control, harvesting, post-harvesting, grafting, among others, is immersed. to receive tools and equipment for their field activities.
- ✓ Strengthening the Cooperativa de Servicios Múltiples Tambopata Candamo (COOPASER), through training in cooperativism, fair trade, and reinforcement of technical training in grafting, pruning, etc. (See section 2.3.3..)

4.3 Community Impact Monitoring

4.3.1 Community Monitoring Plan Development (CM3.3)

The community monitoring plan was developed and approved in the validation of the PDD and is currently being implemented in all verifications. The results of this plan can be found in the following section.

4.3.2 Community Monitoring Plan Results (CM3.1, CM3.2, GL2.5)

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
GOVERNANCE	# of boards of directors improve and strengthen their relationships between their representatives and with local authorities.	AIDER	Annual	Palma Real, Infierno, Sonene	Management committees, reports of meetings and agreements.	1	2	Palma Real has been a continuous beneficiary of support to the CoG for the development of its activities and active participation in local and regional activities. (ANNEX S.E. 20) Palma Real has managed to improve its relations with the Municipality and with FENAMAD. It has participated in the economics contest of MINAM-CAF. Support for the organizational strengthening of the Native Federation of the Madre de Dios River and Tributaries (FENAMAD): In the second quarter, vouchers for fuel and water were delivered for the development of their activities. (Annex S.E.-29). The members of the CoG were supported to hold their assembly in the month of July. In this assembly the problem that has been affecting the ANP was seen, such as illegal mining, coca cultivation, among others. Also, interest groups reported on their progress. (Annex S.E.-22)
				COOPASER	Report of meetings and agreements.	7	10	The cooperative had meetings of ordinary and extraordinary session of the administrative council and in general assembly of COOPASER. (ANNEX S.E. 21) COOPASER participated in the signing of the conservation agreement with the Headquarters of the RNTAMB, where the Director of Management of ANP, the Executive Director of AIDER, the General Manager of ALTHELIA and the President of the CoG of the RNTAMB also participated. (ANNEX S.E. 25).

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Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								The Board of Directors of COOPASER met on 3 occasions last quarter, the topics were the new contract between AIDER-COOPASER and its incidents in the cooperative and the project: • 1st meeting on July 6, 2018, with the theme of discussing the Investment Recognition and repaying AIDER for the amounts invested (Annex S.E. - 02). • The 2nd meeting was on July 13, 2018, the related topics were participation of COOPASER to agricultural events, modify the social status, modification of the internal regulations and issues related to the areas integrated to the project (Annex S.E. - 02). • The 3rd meeting held on September 13, 2018 has the central participation of the surveillance area, presenting the elements to be modified and the adjustments of the contract established between AIDER and COOPASER (Annex S. E. - 02). Organizational structure of COOPASER, has been modified due to the adhesion of the technical assistance team to the organization chart of the cooperative was modified, respecting in this way the statutes of the cooperative. This measure was taken to strengthen the cooperative and for a better understanding of the flows of actions that influence the following areas: production, administration, marketing and quality control, all these areas will be under the responsibility of the general management of COOPASER (Annex SE-02).

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Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								They also met to see the roles and functions of the cooperative's organs. In the second quarter an assembly was held with the COOPASER partners, in which the members of the council and the committees were renewed. (Annex S.E.-03). COOPASER is participating in the various activities organized by the regional and municipal government. It is consolidating itself as one of the most significant experiences in cooperativism in the region.
	# of boards of directors participate in organizational strengthening workshops.	AIDER	Annual	Palma Real, Infierno, Sonene	Review of the reports of the activities carried out	1	2	During these years, meetings have been held with Palma Real's board of directors and support has been given on tourism (ANNEX S.E. 26). Support for the organizational strengthening of the Native Federation of the Madre de Dios River and Tributaries (FENAMAD): In the second quarter, vouchers for fuel and water were given for the development of their activities (Annex S.E.-29). Promotion of Rural Community Tourism in the buffer zone of the RNTAMB. With the purpose of strengthening the organizational framework of the Palma Real native community, logistical support was provided and the different requests were attended, mainly for the displacement between the community and the city of Puerto Maldonado, among others (Annex S.E.-25). In some quarters, due to the support given to the

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Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								community, the president of the community, Mr. Cesar Yojaje, presented reports on the activities carried out. (Annex S.E.-26). Support to the organizational strengthening of the Native Hell Community. In the second quarter, the community was supported with the delivery of food, according to the application submitted, for the realization of its activities (Annex S.E.-30).
				COOPASER	Review of the reports of the workshops and project activities	10		Teamwork workshops were held for the purpose of developing leadership skills and abilities. (ANNEX S.E. 24) COOPASER and its board of directors developed organizational strengthening activities to strengthen management capacity and institutional empowerment. (ANNEX S.E. 03) The renewed board of directors of COOPASER participates in the workshop "Governance: Roles and Functions of the cooperative's bodies." (ANNEX S.E. 03) COOPASER participates in the activity "Organizational Strengthening and Social Projection of COOPASER" (ANNEX S.E. 03) To strengthen the activities developed in the first phase, Training Workshops were held in the parcels chosen in the 7 sectors with the active participation of COOPASER's partners,

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Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								directors and executive staff; and, technical staff of AIDER (Annex S.E.-01). In the organizational aspect, COOPASER has 343 partners working in the field, 288 of whom are with all their full documentation admitted and 272 registered in the MINKA (Annex S.E.-01). At the end of the bridge year or the strengthening of the achievements reached, there are 339 registered members accepted in the Council session, having updated the corresponding information, in MINKA there are 288 member producers duly regularized and the rest are still in process for updating their documentation (Annex SE-01). 400 farmers legally engaged and trained for the plantation, maintenance and harvesting of all agroforestry species (Annex S.E.-01). 4 training workshops for members or leaders of the cooperative were organized and held in the 4th year of the Project (Annex S.E.-09).

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	# workshops for the preparation and implementation of the Life Plan.	AIDER	Annual	Infierno, Palma Real, Sonene	Workshops for the preparation and implementation of the Life Plan.	0	4	The members of the community, with the objective of strengthening their community, requested the support of AIDER to update their community's Life Plan and to monitor wildlife; for which meetings were held for the coordination of said activities. (Annex 31) Subsequently, two workshops were held with the objective of knowing the information that the community had and compiling information for the Life Plan and for training in wildlife monitoring issues (Annex S.E.-32).
	# of boards of directors receive training in document archiving methodology.	AIDER	Annual	Palma Real, Infierno, Sonene	Review of training course reports on project activities	0	2	Promotion of sustainable productive initiatives with local populations. Two workshops were held in order to know the information that the community had and collect information for the Life Plan and to conduct training in wildlife monitoring issues. (Annex S.E.-32) Support was given to the community of Palma Real, the president of the community, Mr. Cesar Yojaje, presented reports on the activities carried out. (Annex S.E.-26)
				COOPASER	Review of training course reports on project activities	4	10	COOPASER and its board of directors developed organizational strengthening activities to strengthen management capacity and institutional empowerment. (ANNEX S.E. 03). The stage of socialization of norms of organic production was advanced with those producers of high risk in compliance with the norms. The signing of the moral commitment of organic production between

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Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								PRODUCOR - COOPASER (Annex S. E. - 09) was ratified. In the period from January to March a new year of work between ECOTIERRA-AIDER-COOPASER was concretized through the signing of an addendum to continue the activities in 2018 (Annex S. E. - 09). Preparation and manual socialization and benefit protocol post-Harvest for plant. 8-INF-BENEFIT CACAO PLANTA-T2-2018. 8-1-Cocoa Storage Register 2017-2018 (Annex S. E. - 09). COOPASER is strengthening its capacities through monthly workshops and meetings. AIDER team has coordinated and worked with the partners identified in the first quarter, from whom information was obtained to prepare the documents for each one. These documents serve as a planning tool, which identifies and summarizes the activities that should be developed in an integral and sustainable farm in order to guide, guide and improve the production system, land use, plantations and the environment to the farmer. Information is available from 50 partners (Annex S.E.-07) Preparation and manual socialization and benefit protocol post-Harvest for plant, manual or benefit protocol in plant, was developed by the management team of Ecotierra, this version is updated and improved every year, this version updated and

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Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								socialized with the technical team AIDER and the plant manager (Annex SE-09).
	# of boards of directors are duly registered in Public Registries.	AIDER	Annual	Infierno, Palma Real, Sonene	Meeting with the board of directors	0	0	The registration of the new boards of Infierno, Palma Real and Sonene has been motivated and facilitated.
				COOPASER	Meeting with the board of directors	0	2	The registration of the new COOPASER boards of directors has been motivated and facilitated. There is a registry of legal entities for the appointment of the cooperative's board of directors to the SUNARP institution, updated in February 2018 (Annex S.E.-02). Ecotierra will continue to provide the Minka cooperative and continuous records until the end of January 2019 (Annex S.E.-09).
	# of boards of directors make decisions in a participatory and democratic manner.	AIDER	Annual	Palma Real, Infierno, Sonene	Participatory workshop with the assembly	0	1	The application of the communal statute has contributed to the decision-making process in the Palma Real Community.
				COOPASER	Participatory workshop with the assembly	1	1	Meeting of the session with the board of directors, electoral committee, vigilance council and educational committee. The application of the statute of the cooperative has contributed to the decision-making process in the COOPASER cooperative.
	# of boards of directors receive business training.	AIDER	Annual	COOPASER	Meeting with boards of directors, review of	7	7	The members' training has been carried out related to cocoa cacao, organic certification, fair trade, among others, such as financial health and new market niches (ANNEX S.E. 03 and 29).

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
					project reports			During 2018, the technical team, continuously and permanently, has been carrying out different activities such as: Personalized technical assistance to the partners, verification of areas for grafting, mobilization of grafting personnel, monitoring of the plots established for the work of pruning and fertilization and monitoring of plantations in production for the collection of cocoa. The board of directors and the supervisory board have been trained by our AGRITERRA de Holanda during May and June in the city of Lima (ANNEX S.E. 03). They have been trained in: - Basic financial management for agricultural cooperatives. - Strategic financial management for agricultural cooperatives. - Strengthening the operation of the surveillance council. Post-harvest training and physical quality control in cocoa beans, the first part of this training took place in April 2018 and was aimed at the technical team. The second part of this training was given in October 2018, having identified as an objective to strengthen the capacities at the level of cacao tasting to the technical team of COOPASER. See document 4 INFORMACIONES VF. (Annex S.E.-02). During the first quarter the programming of the

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								training workshops for the partners was carried out, the selection of the COOPASER delegates was made, as well as the preparation for the external audit. (Annex S.E: -33) In the first trimester module I was developed, where 4 subjects were discussed: Cooperativism as an alternative of participative development, Grafting (Management of the pattern and grafts), Pruning (objective, type of pruning and time) and fertilization (forms and doses) (Annex S.E 04). In the second quarter, module II was developed, where topics were dealt with: Integrated Pest Control, Harvest and Management of Residues and Benefits of cocoa and procedures. (Annex S.E.-06) The theoretical-practical course of "Production of organic fertilizers for the cultivation of cocoa for organic certification purposes" was carried out, where 19 farmers, 4 park rangers, 4 professionals from SERFOR-CAF and 5 professionals from AIDER participated (Annex SE-42). 50 farm plans were developed, today called Sustainable Integral Chacras. These documents serve as a planning tool, which identifies and summarizes the activities that should be developed in an integral and sustainable farm in order to guide, guide and improve the production system, land use, plantations and the environment to the farmer. There is information from 50 partners (Annex S.E.-07).

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	# of boards of directors incorporate women in their government team.	AIDER	Annual	Infierno, Palma Real, Sonene	Workshop with the board of directors	0	2	Infierno and Palma Real.
				COOPASER	Workshop with the board of directors	0	1	Of the total partners for the fourth quarter, 288 are active members of COOPASER, of which 211 are men and 77 women (Annex S.E.-02). The directors elected by the council and committee are 13 partners, among them there is a woman who is part of the team (Annex S.E.-03).
	# of assemblies make decisions democratically about the development of their life plans.	AIDER	Annual	Infierno, Palma Real, Sonene	Participative workshops	0	2	The members of the community, with the objective of strengthening their community, requested the support of AIDER to update their community's Life Plan and to monitor wildlife; for which meetings were held for the coordination of said activities. (Annex 31) Subsequently, 2 workshops were held with the objective of knowing the information that the community had and compiling information for the Life Plan and for training in wildlife monitoring issues. (Annex S.E.-32)

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	# of assemblies are strengthened organizationally.	AIDER	Annual	Infierno, Palma Real, Sonene	Participative workshops	1	2	Palma Real actively participates in local and regional activities. (ANNEX S.E. 20). It can see more participation in Infierno, Palma Real and Sonene. Support to the organizational strengthening of the Native Hell Community. In the second quarter, the community was supported with the delivery of food, according to the request submitted, for the realization of its activities. (Annex S.E.-30). In order to strengthen the organizational framework of the Palma Real native community, logistical support was provided and the different requests were attended, mainly for the displacement between the community and the city of Puerto Maldonado, among others. (Annex S.E.-25). In some quarters, due to the support given to the community, the president of the community, Mr. Cesar Yojaje, presented reports on the activities carried out. (Annex S.E.-26).

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
				COOPASER	Participative workshops	1	2	It can see more participation in COOPASER. 400 farmers legally engaged and trained for the plantation, maintenance and harvesting of all agroforestry species (Annex S.E.-01). In the organizational aspect, COOPASER has 343 partners working in the field, 288 of which are with all their complete documentation admitted and 272 registered in the MINKA (Annex S.E.-01).
				Infierno, Palma Real, Sonene	Participative workshops	1	2	Promotion of community rural tourism. The native community of Palma Real participated in the tourist pier of the city of Puerto Maldonado (ANNEX S.E. 20, 26 and 27) Ecotourism in Palma Real. Promotion of Rural Community Tourism in the buffer zone of the RNTAMB. In order to strengthen the organizational framework of the Palma Real native community, logistical support was provided and the different requests were attended, mainly for the displacement between the community and the city of Puerto Maldonado, among others. (Annex S.E.-25). In some quarters, due to the support given to the community, the president of the community, Mr. Cesar Yojaje, presented reports on the activities carried out. (Annex S.E.-26)
	# of assemblies democratically decide on the incursion in new	AIDER	Annual	COOPASER	Participative workshops	1	3	Challenges at the cooperative level. (ANNEX S.E. 03) Cocoa transformation in COOPASER.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	productive activities.							50 farm plans were developed, today called Sustainable Integral Chacras. These documents serve as a planning tool, which identifies and summarizes the activities that should be developed in an integral and sustainable farm in order to guide, guide and improve the production system, land use, plantations and the environment to the farmer. There is information from 50 partners (Annex S.E.-07). Coopaser received the Brontonville school, who were doing cultural exchange with COOPASER partners (Exhibit S.E.-09). Cultural exchange -activities in the field of producers, in this quarter we received the visit of the CEGEP TEDHFORD - Canada high school group, following the tradition of cultural exchange, promotion of cooperative life, the students were directed to the Mount Sinai community. It should be noted that this activity has for the first time as an additional income for the cooperative, the institution is interested in continuing its activities with the cooperative (Annex S.E.-09).
	# of boards of directors update statutes of their communities.	AIDER	Annual	Infierno, Palma Real, Sonene	Meeting with the board of directors and review of your document	0	1	Palma Real is reviewing its statutes.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
				COOPASER	Meeting with the board of directors and review of your document	1	1	We sought to reinforce, encourage, give a coaching in the understanding of roles, functions, socialize and improve knowledge and understanding of internal Statutes and Regulations. (ANNEX S.E. 03) The cooperative is reviewing its statutes.
	# of boards of directors promote the development or revision of the life plan of their communities	AIDER	Annual	Infierno, Palma Real, Sonene	Meeting with the board of directors and review of your document	1	1	Palma Real is developing and reviewing it and then implementing it.
	# of committees are created to improve the management of the productive activities of the community	AIDER	Annual	Infierno, Palma Real, Sonene	Review of community documents	1	1	Palma Real is implementing forest oversight in its community.
	# of boards of directors participate in coordination meetings in the Management Committee of the RNTAMB and the PNBS Management Committee	AIDER	Annual	Infierno, Palma Real, Sonene.	Meeting with the Management Committee of the RNTAMB	1	2	Work meetings were held and successfully completed with the members of Palma Real, Infierno and Sonene native communities in order to improve the representativeness and participation of the members of the management committee. (ANNEX S.E. 18) Palma Real mainly due to the process of updating the Tambopata Reserve Master Plan. During the fourth quarter, the management committee was supported in holding the meeting of the Executive Committee of the Park Management Committee at the San Antonio Control and

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								Surveillance Post on December 15 and 16; In this meeting, the different activities that were carried out to date were reported, such as control and surveillance activities in the park, tourism, monitoring, among others (Annex S.E.-43). During the year 2018, the RNTAMB management committee was logistically supported to carry out its activities in order to ensure its operation and operation (Annex S.E.-23). Also, the Chairman of the Management Committee, Mr. Víctor Zambrano, sent us his reports on the activities carried out by the Committee each quarter of the year (Annex S.E. 24).
				COOPASER	Meeting with the Management Committee of the RNTAMB	1	1	The conservation agreement between the RNTAMB and the COOPASER was signed. (ANNEX S.E. 25). COOPASER for the process of updating the Tambopata Reserve Master Plan.
ECONOMIC	# of committees receive training in resource management	AIDER	Annual	Infierno, Palma Real, Sonene.	Participation in training workshops and review of reports on project activities	0	0	It has not been reported for this period.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
				COOPASER	Participation in training workshops and review of reports on project activities	0	2	The workshop " management of chestnut nurseries (Bertholletia excelsa) – Madre de Dios", carried out was beneficial for both park rangers and chestnuts participants, since this teaches them that it is not expensive to implement a nursery and the germination of seed chestnut (Annex SE - 18). In October 2018, the theoretical-practical course of "Production of organic fertilizers for the cultivation of cocoa for organic certification purposes" was held, where there were 4 park rangers, 19 farmers, 4 professionals from SERFOR-CAF and 5 professionals. of AIDER (Annex SE-42).
	# of committees that participate in workshops on product processing	AIDER	Annual	Infierno, Palma Real, Sonene.	Review of project reports	0	0	It has not been reported for this period.
				COOPASER	Review of project reports	0	1	2018 In the second quarter, module II was developed, where topics were dealt with: Integrated Pest Control, Harvesting and Management of Residues and Benefits of Cocoa and Procedures (Annex S.E.-06).
	# of committees participate in workshops on market research	AIDER	Annual	Infierno, Palma Real, Sonene	Review of project reports	0	0	
				COOPASER	Review of project reports	1	1	Within the ECOTIERRA report, the cooperative's financial and management health was evaluated, and

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								it proposed an action plan for the empowerment of the member with the cooperative. COOPASER in coordination with Aider also establishes fixed collection days, as well as the route to follow to obtain cocoa, currently the route and collection points are established according to the increase in production. It is also established by the value chain specialist the quality parameters at the physical and sensorial level in order to evaluate the cocoa that is being produced in the cooperative and to record the evolution of quality to identify potential customers according to the characteristics obtained in the analyzes (Annex SE - 02).

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	# of family producers have been benefited with new sustainable productive activities.	AIDER	Annual	COOPASER	Review of project activity reports and visit to plots	344	339	COOPASER, the project has 344 partners committed to its participation in the agroforestry activity that has cocoa cultivation as the main means of the system. (ANNEX S.E. 01) The Tambopata Candamo Multiple Services Cooperative has 400 farmers legally engaged and trained to plant, maintain and harvest all agroforestry species (Annex S.E.-01). At the end of the bridge year or the strengthening of the achieved achievements, there are 339 registered members accepted in the Council session, having updated the corresponding information, in MINKA there are 288 duly regularized member producers and the rest are still in process for updating your documentation (Annex SE-01).
	# families that are trained in the productive chain process	AIDER	Annual	Infierno, Palma Real, Sonene, COOPASER	Meeting with boards of directors, review of workshop reports on project activities	344	288	Of the total partners for the fourth quarter, 288 are active members of COOPASER, of which 211 are men and 77 are women. Likewise, there are a total of 51 producers waiting, as non-active members due to the lack of regularization of their documents. In addition, 19 partners withdrew despite being admitted (Annex S.E.-02).

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	# of families that receive new income for sustainable productive activities	AIDER	Annual	Infierno, Palma Real, Sonene	Workshop with boards of directors	0	1	Promotion of Rural Community Tourism in the buffer zone of the RNTAMB. In order to strengthen the organizational framework of the Palma Real native community, logistical support was provided and the different requests were attended, mainly for the displacement between the community and the city of Puerto Maldonado, among others. (Annex S.E.-25).
				COOPASER				There are some who have already started the return process with the delivery of their production according to the project strategy, contributing one sol for each kilogram of dry grain obtained with a conversion factor of 0.33, that is, for every 100 kilos of cocoa. in slime 33 kilos of dry grain will be obtained (Annex SE - 01). There is still no income report for agroforestry activities (cocoa).
	# of boards of directors receive training on new technologies	AIDER	Annual	Infierno, Palma Real, Sonene, COOPASER	Workshops with associations	2	2	Strengthen the capabilities of the technical team of AIDER, of the personnel in charge of the COOPASER plant, on issues of selection, fermentation, drying and quality control of cocoa. (ANNEX S.E. 03) Technical assistance in the harvest of the first hectares of agroforestry systems in Tambopata. (ANNEX S.E. 32) Post harvest training and physical quality control in cocoa beans, the first part of this training took place

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
								in April 2018 and was aimed at the technical team. The second part of this training was given in October 2018, having identified as an objective to strengthen the capacities at the level of cacao tasting to the technical team of COOPASER. See document 4 INFORMACIONES VF. (Annex S.E.-02).
	# of chestnut producing families that have been trained to add value to their raw materials	AIDER	Annual	ASCART	Review of project activity reports	0	0	It has not been reported for this period.
	# of boards of directors receive training on sustainable alternative productive activities	AIDER	Annual	Infierno, Palma Real, Sonene	Review of project activity reports	0	0	It has not been reported for this period.
				COOPASER	Review of project activity reports	0	1	50 cooperative producers benefiting from 50 farm plans, today called Sustainable Integral Chacras. These documents serve as a planning tool, which identifies and summarizes the activities that should be developed in an integral and sustainable farm in order to guide, guide and improve the production system, land use, plantations and the environment to the farmer. There is information from 50 partners (Annex S.E.-07).
	# of tourism companies committed to training families that have initiatives	AIDER	Annual	Bajo y medio Tambopata	Meeting with charge of tourism theme in project	1	1	Alliance with Condor Travel, who will seek financing for the tourism issue in the community of Palma Real. (ANNEX S.E. 26) Condor Travel is working with Palma Real.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	related to tourism				Landscapes			
	# of initiatives perceived better income for the promotion of tourism activity within the project area	AIDER	Annual	Bajo y medio Tambopata, Infierno	Meeting with charge of tourism theme in project Landscapes	0	0	It has not been reported for this period.
ENVIRONMENTAL	# of committees participate in awareness workshops on climate change	AIDER	Annual	Infierno, Palma Real, Sonene,	Participation in the workshops and review of project reports	7	7	This has been done with all the assemblies, including the committees of the three communities. Palma Real: wood, fishing. Sonene: wood. 3 islas: wood, agriculture, mining.
	# of boards of directors participate in training workshops in REDD+	AIDER	Annual	Infierno, Palma Real, Sonene	Review of workshop reports made by project activities	0	0	It has not been reported for this period.
				COOPASER	Review of workshop reports made by project activities	1	1	It has not been reported for this period.
	# of assemblies	AIDER	Annual	Infierno, Palma Real,	Participatory workshop	4	4	Since 2013, work has been done with the assemblies and the subject of climate change has been

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	aware of climate change and its consequences			Sonene				deepened.
				COOPASER	Participatory workshop	4	4	Since 2013, work has been done with the assemblies and the subject of climate change has been deepened.
	# of boards of directors implement burn control in their communities	AIDER	Annual	Infierno, Palma Real, Sonene	Meeting with the board of directors	0	1	
				COOPASER	Meeting with the board of directors	1	1	A manual on fire prevention and management has been distributed to the partners.
	% of families committed to the sustainable management of chestnut	AIDER	Annual	Palma Real, Sonene, Loero, Jorge Chávez, Nueva América, Las Mercedes, etc.	Participatory workshop	20	20	A lot of work is being done to raise awareness about the development of this activity and its importance at the regional, national and global levels. 20% of the population has chestnut as a main economic activity.
Gender	# of boards of directors promote the development of sustainable productive activities in their communities, within the framework of gender equality	AIDER	Annual	Infierno, Palma Real, Sonene,	Meeting with the board of directors and review of productive activities report	3	3	The three communities.
				COOPASER	Meeting with the board of directors and review of	0	4	COOPASER Also, 93 women were trained in issues of agroforestry systems with Cocoa, members of COOPASER

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
					productive activities report			
	# of committees conformed of men and women	AIDER	Annual	Infierno, Palma Real, Sonene	Meeting with the committees	3	3	Infierno, Palma Real, Sonene.
				COOPASER	Meeting with the committees	1	1	COOPASER
	# of women officially recognized as leaders in their communities	AIDER	Annual	Infierno, Palma Real, Sonene	Participation in workshops and review of reports on project activities	3	3	Nina (Palma Real)
				COOPASER	Participation in workshops and review of reports on project activities	1	1	They include a woman in the COOPASER board.
	% of women are aware of the importance of women's contribution in the context of climate change	AIDER	Annual	Infierno, Palma Real, Sonene	Participatory workshops	0	0	There is no report for the period. However, awareness is being promoted through the workshops held with the assemblies and directives.
				COOPASER	Participatory workshops	0	0	Awareness is being promoted through the workshops held with the assemblies and directives.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	# of women participate in decisions for the distribution of benefits	AIDER	Annual	COOPASER	# of women participate in decisions for the distribution of benefits	0	0	There is still no benefit report. But the process of distribution of benefits in COOPASER is already becoming more conscious.
	# of women exercises roles that were previously recognized as only for men	AIDER	Annual	Infierno, Palma Real, Sonene	Workshop with women of the community	0	0	It has not been reported for the period.
				COOPASER	Workshops where women producers of the cooperative participate	0	0	It has not been reported for the period.
Social	% of population with access to basic services	AIDER	Annual	Infierno, Palma Real, Sonene	Surveys, meetings	50	50	Palma Real Community has managed to have drinking water and build a small dam. (There is no evidence)
	# of communities with enough water for all	AIDER	Annual	Infierno, Palma Real, Sonene	Surveys, meetings	1	1	Infierno, Sonene and Palma Real do not have this service and the water they consume has not been treated. The partners of COOPASER have their scattered plots and most of them do not have drinking water.
	# of communities has water fit for human consumption	AIDER	Annual	Infierno, Palma Real, Sonene	Surveys, meetings	1	1	Infierno Community

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD								
Objective of Monitoring: compile and generate information that allows to permanently guide the actions of management and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	Indicator	Entity in charge	Frequency	Places of action and / or sampling	Methodology	Jul-17	Dic-18	Observaciones
	Decrease in diseases and parasites caused by water consumption	AIDER	Annual	Infierno, Palma Real, Sonene	Surveys, meetings	0	0	It has not been reported for the period.
	% of the population with access to basic education	AIDER	Annual	Infierno, Palma Real, Sonene	Surveys, meetings	95	95	The levels are maintained, because there has not been a project that contributes to improving access to the education system, regardless of the pregnancy problems (mainly) that forces girls and boys to stop studying to work. Review the other reports from which number the percentage comes out. (There is no evidence)
	% of the population improves their health	AIDER	Annual	Infierno, Palma Real, Sonene	Surveys, meetings	0	0	This indicator is under evaluation, because the project has no major impact.
	# of families have improved their homes	AIDER	Annual	Infierno, Palma Real, Sonene	Surveys, meetings	0	0	This indicator is being evaluated. It should be done every 5 years, according to the income and results of the project.

4.3.3 Dissemination of Monitoring Plan and Results (CM3.3)

The results of the Community Monitoring Plan will be socialized in the project communities by the end of the third quarter of the year (end of september), to this date the Verification process should be finished and is when AIDER presents its quarterly report to SERNANP. The results of this process will be informed in the next monitoring report.

4.4 Optional Criterion: Exceptional Community Benefits

The project is not seeking Gold Level for exceptional community benefits.
In the PDD was applied only to the gold level criteria of climate and biodiversity.

4.4.1 Barriers to benefits (GL2.3)

4.4.2 Protections for Poor and More Vulnerable Households and Individuals (GL.4)

Potential negative impact	
Households or individuals affected	
Impact aversion and mitigation	

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

5.1.1 Biodiversity Changes (B1.1)

The Integrated Monitoring System (Biological and Impact Monitoring of Economic Activities) has been designed and implemented, based on the scheme proposed in the PDD, which includes the monitoring of the conservation objects of both natural protected areas and provides important information for making decisions and therefore ensuring the permanence of diversity and continuity of ecological processes within the ANP.

In addition, the avoided deforestation inside the ANP, product of the execution of the project has allowed the conservation of habitats, avoiding the fragmentation and alteration of essential ecological processes for the development of the existing species in said protected natural areas, which is evidenced in the results obtained in the Integrated Monitoring System. (See appendix 7)

Also, within the agroforestry plots, with the objective of monitoring terrestrial mammals, determine the diversity and abundance of these, as well as identify changes in the diversity and abundance of these, and determine the effectiveness of agroforestry systems such as corredores biológicos, trap cameras have been installed in different plots, some results are shown in the following table. (See full document in appendix 8).

Table 33. Results of the camera trap in the agroforestry plots

Change in biodiversity	Monitored change		Justification of the change	
Fauna	Positive	Negative	Factor that contributed to the change	Method
Nasua nasua (Achuni)	Appearance of the species in the agroforestry plots.	None	Recovered areas with agroforestry systems that serve as habitat or passage site towards adjoining PNAS (biological microcorridor).	Camera trap
Dasyprocta punctata (Añuje)	Appearance of the species in the agroforestry plots, dispersal of Bertholletia excelsa seeds in the plots.	None		Camera trap
Didelphis marsupialis (Intuto)	Appearance of the species in the agroforestry plots.	It does not have an impact on the production of cocoa and associated fruit species, but it does have an impact on the death of farmyard animals.		Camera trap
Ortalis guttata (Manacaraco)	Appearance of the species in the agroforestry plots.	None		Camera trap
Eira Barbara (Manco)	Appearance of the species in the agroforestry plots.	None		Camera trap

Change in biodiversity	Monitored change		Justification of the change	
Fauna	Positive	Negative	Factor that contributed to the change	Method
Cuniculus paca (Picuro)	Appearance of the species in the agroforestry plots.	None		Camera trap
Puma concolor (Puma)	Appearance of the species in the agroforestry plots.	None but it impacts on the livestock of some farmers and small animals.	Use of the area as a transit site to neighboring ANPs (biological microcorridor).	Camera trap
Tayassu tajacu (Sajino)	Appearance of the species in the agroforestry plots.	Affects annual crops (cassava)	Use of the area as a habitat or site of passage to adjacent ANPs (biological microcorridor).	Camera trap
Mazama americana (Venado)	Appearance of the species in the agroforestry plots.	None		Camera trap
Crypturellus soui (Perdiz chica)	Appearance of the species in the agroforestry plots.	None		Camera trap
Tayassu pecari (Huangana)	Appearance of the species in the agroforestry plots.	Affects annual crops (cassava)		Camera trap
Dasypus novemcinctus (Carachupa armadillo)	Appearance of the species in the agroforestry plots.	None		Camera trap
Sylvilagus brasiliensis (Liebre amazónica)	Appearance of the species in the agroforestry plots.	None		Camera trap
Tamandua tetradactyla (Tamandua/oso bandera)	Appearance of the species in the agroforestry plots.	None		Camera trap
Leopardus pardalis (Tigrillo)	Appearance of the species in the agroforestry plots.	None		Camera trap
Panthera onca (jaguar)	Appearance of the species in the agroforestry plots.	None in the production but it does impact on livestock and small animals	Use of the area as a transit site to neighboring ANPs (biological microcorridor)	Trap cameras and jaguar-human conflict reports.

5.1.2 High Conservation Value Protection (B1.2)

The activity of the project maintains the High Conservation Values in its area, so that the creation objectives of the ANPs are met. Through the 4 project strategies that are:

- (1) Conservation agreements: Offering concrete and periodic benefits to local people in exchange for real conservation commitments.

- (2) Promotion of productive activities: allocating financial resources, technical and commercial assistance for the promotion of sustainable productive initiatives (Agroforestry, aquaculture, low impact gold production, timber management, chestnut processing and commercialization and management and / or conservation of palm trees) among the families of the hamlets and communities settled in the buffer zone.

The agroforestry systems that are being installed in the buffer zone of the RNTAMB promote the generation of biological corridors that facilitate the movement of fauna within a larger scope than the current one. A biological monitoring system with camera traps has been designed in these areas with the purpose of obtaining information that allows guiding the management decision making within the properties and to enhance the positive impacts of the agroforestry systems in the conservation of biodiversity, as well as mitigate the risks.

- (3) Surveillance and control: Improving existing control posts, building new control posts, providing technical support to community monitoring committees, as well as carrying out workshops / training courses for park rangers.
- (4) Forest Governance: Performing inter-institutional agreements and competences that allow a better governance of the resources of the project area, as well as providing advice to SERNANP, Management Committees, regional forestry authority and local governments in the fulfillment of their functions. promotion and supervision of sustainable forest management.

Likewise, there are 3 cases in which the management of High Conservation Values is involved:

- a) Tourism: It is the objective of the ANP and the project to avoid the deterioration of landscapes and species, which constitute the attractions and the reason that the area of the project has a tourist influx. The project contributes to implement the documents of management of the tourist activity, determining its impacts, to then monitor the changes and determine acceptable limits, making an adaptive management of this activity, one of the activities that is carried out is the care of the collpa Chuncho in which AIDER participates actively together with SERNANP and with the technical assistance of the Guacamayo project. (Appendix 10)
- b) Use of Brazil nuts: Since 2009 there is a management plan that provides the guidelines for an adequate management, determining the impacts that result from the chestnut harvesting activities. Likewise, points have been identified for monitoring by means of sampling plots, and there are counters to estimate the hunting during the harvest period and, as for the research activity, there is an agreement with researchers who direct the SUSTAIN project in order to know the status of the species, natural regeneration and its phenology within the ANP and in its buffer zone. These activities contribute to the maintenance of ecosystems and fauna present in chestnuts of the ANP.
- c) Pampas del Heath: a vigorous natural succession is reported, perhaps accelerated by the management carried out by natives of the native communities of Palma Real and, mainly, of Sonene. Indicators of ecosystem quality will be determined through the monitoring of areas, dispersing species, among others, that will later allow proposing a management system to ensure the integrity and permanence of the pampas. (Appendix 11)

For all the above, the project does not generate negative impacts on the High Conservation Values, which is why the National Service of Protected Natural Areas (SERNANP) developed the brand "*Aliados por la conservacion*", which is in the process of being granted to the COOPASER, so that it can be used in the products that its partners (farmers) sell.

5.1.3 Invasive Species (B1.3)

The non-native species that the project has installed in the agroforestry plots are the following:

- Kudzu (*Pueraria phaseoloides*): It is a species used as a cover crop, green manure, erosion control and as a forage plant according to studies carried out in Ecuador. The species has the capacity to set 207 kg of N ha / year; this means that it fixes the atmospheric nitrogen with what the legume benefits, and therefore the crop (Romero-Rojas 2009). This species fulfills an important role in the nutrient cycle of the soil with what benefits the crops (Fujisaka *et al.*, 2000). It is considered for this reason that *P. phaseoloides* is a suitable plant to improve the productivity of the small farmers' crops using this plant in the crop rotation in order to increase the fertility of the soils mainly in compacted soils by cattle for control of weeds and pastures. The antecedents of this species were considered in crops of the region and no damage or affection was registered to the native flora.
- Mucuna (*Stylobium deeringianum*): Has the potential to fix atmospheric nitrogen through a symbiotic relationship with Rhizobium bacteria present in the roots of the plant, in a usable form that is stored in the leaves, branches and seeds. This nitrogen can be taken in advantage of by the crops that are sown in association with the mucuna, for this reason it receives the name of bean compost. It has been reported that the mucuna contributes about 150 kg of N ha / year to the soil. In addition, the large amount of organic matter that makes the soil more loose and deep. Its large production of foliage covers the soil and keeps it moist, thus keeping water available for more time for crops very useful aspect mainly in areas of low precipitation and high temperatures. The soils of the Amazon rainforest generally present two major problems, their low fertility and the abundance of many weeds that compete with crops, so many think that fire is the only way to eliminate weeds and prepare the soil for a future sowing, which is wrong because the soil is left bare without any protection, one of the ways to help nature in the solution of these two problems is the application of green cover and fertilizer such as this species. The antecedents of this species were considered in crops of the region and no damage or affection was registered to the native flora.
- Fruit species such as pineapple (*Ananas comosus*) and citrus (*Citrus jambhiri* Lush, *Citrus maximus* and *Citrus sinensis*): These species are already adapted to the environment of Madre de Dios and are not invasive, they have a market and their management is known; these species adapt perfectly to the agroforestry systems in the Amazon, for which no adverse effects are expected. Likewise, the use of these fruit species in agroforestry plots of small producers is propitious, which are also the antithesis of monoculture, thus reducing risks such as pests and diseases.

Therefore, it can be deduced that none of the aforementioned species used in the project affect the native flora of the ANP or the buffer zone, based on the background before the project was implemented and during the first four years of the project. There is no negative record of these species in the agroforestry plots and, on the contrary, it should be noted that these species provide both ecological and economic benefits to farmers.

5.1.4 Impacts of Non-native Species (B1.4)

Species	Kudzu - <i>Pueraria phaseoloides</i>
Justification of Use	Is already adapted to the environment of Madre de Dios and are not invasive, it have a market and its management is known; this specie adapt perfectly to the agroforestry systems in the Amazon, for which no adverse effects are expected. Likewise, the fact of use it in agroforestry plots of small producers, which are also the antithesis of monoculture, reduces the risk of pests and diseases. This specie serves as a cover crop, provides organic matter to the soil, fixed nitrogen in the soil, prevents soil erosion, and helps control weeds and grasses such as brachiaria
Adverse Effect	There were no adverse effects on agroforestry plots or in the region.

Species	Mucuna - <i>Stylobium deeringianum</i>
Justification of Use	Is already adapted to the environment of Madre de Dios and are not invasive, it have a market and its management is known; this specie adapt perfectly to the agroforestry systems in the Amazon, for which no adverse effects are expected. Likewise, the fact of use it in agroforestry plots of small producers, which are also the antithesis of monoculture, reduces the risk of pests and diseases. This specie serves as a cover crop, provides organic matter to the soil, fixed nitrogen in the soil, prevents soil erosion, and helps control weeds and grasses such as brachiaria
Adverse Effect	There were no adverse effects on agroforestry plots or in the region.

Species	Citrus <i>Citrus jambhiri</i> Lush, <i>Citrus máxima</i> y <i>Citrus sinensis</i> (limón rugoso, toronja y naranja)
Justification of Use	Is already adapted to the environment of Madre de Dios and are not invasive, it have a market and its management is known; this specie adapt perfectly to the agroforestry systems in the Amazon, for which no adverse effects are expected. Likewise, the fact of use it in agroforestry plots of small producers, which are also the antithesis of monoculture, reduces the risk of pests and diseases. In addition, it generates income for farmers and serves as food for the families of farmers in the project.
Adverse Effect	There were no adverse effects on agroforestry plots or in the region.

Species	<i>Ananas comosus</i> (Piña)
Justification of Use	It generates income for farmers and serves as food for the families of farmers in the project.
Adverse Effect	There were no adverse effects on agroforestry plots or in the region.

5.1.5 GMO Exclusion (B1.5)

The objective of the REDD + project is to reduce deforestation and forest degradation, not involving forest or other plantations as a mean to generate verifiable GHG removals. Likewise, the activities proposed by the project are based on the management of local biodiversity (timber and non-timber forest management) and on already validated production systems (agroforestry and aquaculture), not considering the use of Genetically Modified Organisms under any circumstances. It would be counterproductive to violate the Moratorium Law (Law N ° 29811) promulgated on December 9, 2011, which establishes a moratorium on the entry and production of Living Modified Organisms in the national territory for a period of 10 years (2021).

5.2 Offsite Biodiversity Impacts

5.2.1 Negative Offsite Biodiversity Impact Mitigation (B2.2)

Within the framework of the REDD + strategy, two activities are carried out, these seek to minimize the pressure of resource within both PNAs and in their buffer zones, which are:

- (1) Sustainable economic activities: In order to avoid the displacement of activities such as illegal hunting, deforestation and burning to the buffer zone of the RNTAMB, it has promoted the implementation of sustainable productive activities. Where the project "Reduction of deforestation and promotion of sustainable development in Madre de Dios" has been implemented, the project has installed 1250 hectares of agroforestry systems with fine aroma cocoa, recovering areas that they had been seriously degraded by shifting cultivation and livestock to transform them into biological microcorredores that attract the surrounding fauna that serves as seed dispersers for the recovery in the area of forest species (Appendix 8). At the same time, the 287 farmers that are part of the project have created their own agrarian cooperative (MULTIPLE SERVICES AGRARIAN COOPERATIVE - COOPASER) which signed a conservation agreement with SERNANP as they serve as a living barrier against the constant threat of being invaded by illegal miners and loggers thus avoiding the passage of these threats towards the ANP.
- (2) Strengthening of the control and surveillance system: SERNANP has been supported by the hiring of park rangers and the maintenance and implementation of the surveillance and control posts (PVC) within the ANP for a better patrol work by the of the park rangers in front of certain illegal activities that could be given to the interior of the ANP.

Both activities implemented and executed by AIDER help to maintain biological diversity within the ANP and in its buffer zone, however, outside of our area of action, conservation strategies are scarce, allowing deforestation, fragmentation, hunting, mining and other activities affect the natural habitats and in turn the biodiversity they contain. For all this we can say that the work done by the project has a positive impact on the maintenance of biodiversity in controlled areas.

5.2.2 Net Offsite Biodiversity Benefits (B2.3)

According to what was mentioned in the PDD, the activities carried out within the framework of the RED+ strategy, such as sustainable economic activities and the strengthening of the control and surveillance system, executed both inside the ANP and outside it (part of the ZA) help to maintain habitats that harbor biodiversity. Outside our area of action, conservation strategies are scarce, allowing deforestation, fragmentation, hunting, mining and other activities to affect natural habitats and in turn the biodiversity they contain. Therefore, we can say that the work carried out by the project has a positive impact on the maintenance of biodiversity in controlled areas. However, illegal and informal mining are very frequent threats in the ZA and with possible impacts in the same ANP (See appendix 9).

5.3 Biodiversity Impact Monitoring

5.3.1 Biodiversity Monitoring Plan Development (B3.3)

Not applicable

5.3.2 Biodiversity Monitoring Results (B3.1, B3.2)

Due to the Partial Administration Contract that AIDER has in the Project area, there is an Integral Comprehensive Monitoring System (SMI) that contemplates the biodiversity monitoring plan (Jaguar, River wolf, Maquisapa, Huangana, large macaws, among others) and human activities present in the ANP (hunting, fishing, tourism, mining, among others). It is a management document of the Tambopata National Reserve and the Bahuaja Sonene National Park, within the framework of the Administration Contract, and is part of the agreement between AIDER and Wildlife Conservation Society (WCS). This System was approved by the SERNANP by Resolution of the head of the Tambopata National Reserve No. 009-2013-SERNANP-JEF. Review (SMI-AIDER-2013 and Resolution No. 009-2013-SERNANP-JEF), finally we have a reference document to implement the actions of the CA: <http://www.tambopata-bahuaja.info/publicaciones.html>

Based on this system, the biodiversity monitoring plan has been prepared, which is published on the CCB website: <http://www.climate-standards.org/?s=tambopata> so that it can be reviewed by everyone that is interested

While it is true that the results presented in this report correspond to the comprehensive monitoring system of the RNTAMB and the PNBS in the period of 2017, this includes all the information referred to in the monitoring plan published on the website, as well as additional information which is considered important for long-term biodiversity monitoring. It should also be noted that the comprehensive monitoring system is a dynamic model and is adapting to the expected results and needs of the ANP, so that activities are implemented or modified to respond to a greater number of indicators depending on, as It

has been mentioned above, the objectives of the RNTAMB and the PNBS. In this sense, some indicators of the monitoring plan will be modified to the extent that they are considered to respond better to the objectives expected in the project, in accordance with the comprehensive monitoring system. The contents of Table 31, are described in the SMI-2017 report (See appendix 7) and the information available for 2018.

Table 34. Conservation objects and indicators during the period 27 and 2018

Objeto of conservation	Indicator	2014	2015	2016	2017	2018	Responsible	Methodology
Jaguar (<i>Panthera onca</i>)	# of individuals sighted and signs found per year Abundance: # of ind. avist./km	50	5	12	17	30	SERNANP	Direct counting in routine patrols
					6	33	Tour operators / guides	Wildlife sighting guide by guides
		29	30	28	59	42	AIDER	Linear transects
	Density: # of jaguars / 100km ²	0.001	0.002	0.052	0.02*	AD ¹⁶	AIDER	Linear transects - Relative abundance
	Distribution area	-	-	-	19±25 ind/100km ²		AIDER/RFE/SD	Trap cameras
	# of individuals sighted and signs found per year	9/9	9/9	7/9	9/9*	9/9	RNTAMB/AIDER	Patrolling and linear transects
Giant Otter (<i>Pteronura brasiliensis</i>)	Distribution: # of bodies of water with presence of river wolf	7 (de 9)	7(de 13)	11(de 13)	6(de 13)*	11 (de 13)	SZF with support from AIDER	Population census of river wolf
	# of individuals sighted by cocha per year	Sandoval: 6	Sandoval: 7	Sandoval: 6	Sandoval: 9	Sandoval:8	SZF with support from AIDER	Direct count
		Tres Chimbadas: 5	Tres Chimbadas: 2	Tres Chimbadas: 6	Tres Chimbadas: 8	Tres Chimbadas:5		
		Cocococha: 7	Cocococha: 5	Cocococha: 7	Cocococha: 6	Río Chuncho: 8		
						Cocococha:9		
	# of signs of presence per year per cocha	Sandoval: 16	Sandoval: 12	Sandoval: 6 Tres Chimbadas: 6 Cocococha: 7	Sandoval: 9	Sandoval: 10	SZF with support from AIDER	Direct count
		Tres Chimbadas: 8	Tres Chimbadas: 2		Tres Chimbadas: 8 Cocococha: 6	Tres Chimbadas: 5 Cocococha: 9		
		Cocococha: 11	Cocococha: 11		Heath: 36	Heath: 36		
	# of pups per year per cocha	Sandoval: 0	Not reported	Not reported	Sandoval: 0	Sandoval: 2	SZF with support from AIDER	Direct count
		Tres Chimbadas: 0			Tres Chimbadas: 0	Tres Chimbadas: 0		

¹⁶ AD= Analizado datos del indicador para el periodo 2018.

Objeto of conservation	Indicator	2014	2015	2016	2017	2018	Responsible	Methodology
		Cocococha: 0			Cocococha: 0	Río Chuncho: 3		
					Heath: 02	Cocococha: 2		
						Heath: 02		
	# of individuals in the groups sighted in Lake Sandoval	6	7	6	9	8	SZF with support from AIDER	Direct count
	# sightings (groups, individuals and signs) in patrols	33	6	5+	28	AD	RNTAMB	Patrullajes - Direct count
Black-faced Spider monkey (<i>Ateles chamek</i>)	# of sampling locations with maquisapa sighting / year	2 (8)	3 (9)	2 (7)	7 (9)	8(11)	RNTAMB/AIDER	Routine patrols and linear transects
	# of groups of maquisapa sighted	0	3	1	4	8(11)	RNTAMB	Patrullajes - Direct group counting
	# of individuals per average group per year	0	7.3	3	5.5	3.5	RNTAMB	Patrullajes - Direct counting of individuals
	Abundance: # of groups sighted / km of transect sampled per year	0.006	0.03	0.004	0.05	AD	AIDER	Linear transects - Relative abundance
		-	-	-	0.45±0.57	AD	AIDER	Linear transects - Relative abundance (Ind / 10km)
	Abundance: # average of individuals / group	3.5	4.3	3	5.6	3.1	AIDER	Linear transects - Relative abundance
	Density: # of individuals / km2 by location per year	-	-	-	-	AD	AIDER	Linear transects - Distance program
Harpy Eagle and crested Eagle (<i>Harpia harpyja</i> & <i>Morphnus guianensis</i>).	# of eagle nests found per year	-	-	-	-	-	RNTAMB, chestnut trees, others	Direct count of nests (active and inactive)
	# of sightings of individuals of harpy eagle and crested eagle per year	6	1	3*	5	5	RNTAMB	Patrullajes - Direct counting. Tourist guides
		1	2	2	1	2	AIDER	Linear transects

Objeto de conservación	Indicador	2014	2015	2016	2017	2018	Responsable	Metodología
Macaws (<i>Primolius couloni</i> -PRCO, <i>Ara ararauna</i> -ARAR, <i>A. macao</i> -ARMA y <i>A. chloropterus</i> -ARCH)	Distribution area: # of localities with sighting of macaws (<i>P. couloni</i> and <i>A. spp.</i>)	8 (de 8)	9 (de 9)	8 (de 8)	PRCO (5/10) ARAR (10/10) ARCH (10/10) ARMA (10/10)	PRCO (6/16) ARAR (16/16) ARCH (16/16) ARMA (16/16)	AIDER	Linear transects
	# average number of individuals sighted in key clay licks per year	PRCO: 3.36	PRCO: 2.02	PRCO: 0	Chuncho: ARCH: 46.8 ARAR: 37.4 ARMA: 51.7 PRCO: 2.1	Chuncho: ARCH: 139.4 ARAR: 116.2 ARMA: 108.1 PRCO: 4.5	Monitoring of Collpas CA * / Proyecto Guacamayo	Direct counting Include in large Ara count
		ARAR: 3.23	ARAR: 3.48	ARAR: 11	Heath: ARCH= 105.4 ARAR= 1.2 ARMA= 0.2 PRCO= 0	Heath: ARCH= 113.9 ARAR= 1.3 ARMA= 0 PRCO= 0		
		ARCH: 3.23	ARCH: 3.84	ARCH: 66.25	Sandoval: ARCH: 0 ARAR: 53.1 ARMA: 1.2 PRCO: 0	Sandoval: ARCH=0.3 ARAR= 66.4 ARMA= 2 PRCO= 0		
		ARMA: 3.3	ARMA: 3.94	ARMA: 8.83	Collpa Colorado: Pendiente por reportar.	Collpa Colorado: Pendiente por reportar.		
	# of individuals sighted per year	ARAR: 2247	ARAR: 366	ARAR: 132	ARAR: 625	ARAR: 1051 (Prom.: 4.7)	CA-AIDER SERNANP	Patrullajes - Direct count
		ARMA: 670	ARMA: 114	ARMA: 106	ARMA: 294	ARMA: 436 (Pr: 4.1)		
		ARCH: 1341	ARCH: 116	ARCH: 795	ARCH: 399	ARCH: 515 (Pr: 3.5)		
		PRCO: 22	PRCO: 30	PRCO: 0	PRCO: 0	PRCO: 29 (Pr: 0.9)		

Objeto of conservation	Indicator	2014	2015	2016	2017	2018	Responsible	Methodology
	Annual record of the presence of macaws (P. couloni)	180	-	-	PRCO: 18 ind/5 registros	PRCO: 30 ind/9 registros. ARAS GRANDES: 1634 ind/22 registros.	Operators that are within the RNTAMB (at least) RFE, Sandoval, Explorer's Inn and Inkatererra.	Presence record. Include other Ara
	Abundance: # average of individuals per point per year	Similar a # promedio de individuos avistados en las collpas clave por año	Similar a # promedio de individuos avistados en las collpas clave por año	Similar a # promedio de individuos avistados en las collpas clave por año	Similar a # promedio de individuos avistados en las collpas clave por año	ARAR = 3.5 ARCH = 0.7 ARMA = 1.3 PRCO = 0.2 Para la collpa Colorado no se cuenta con información	AIDER Proyecto Guacamayo	For 2018, the abundance index is shown in 10 km traveled, with a confidence interval of 95%. Counting points
Alluvial, hilly and terrace forests	Degradation: # tons of carbon released by degradation	2013-2014 (0 tons co2 -e)	2014-2015 (0 tons co2 -e)	2015-2016 (6842 tons co2 -e)	2016-2017 (6842 tons co2 -e)	2017-2018 (13670 tons co2 -e)	AIDER	Remote perception and field validation
	# of hectares deforested annually by type of forest	2013 - 14 mixed aguajal: 0 alluvial flood: 0 High hill strong: 0 Soft high hill: 0 hill low strong: 0 soft low hill high terrace: 0 low terrace: 0 terrace dissected strong: 0 Soft dissected terrace: 5.2	2014-15 mixed aguajal: 0 alluvial flood: 0 High hill strong: 0 Soft high hill: 0 hill low strong: 0 soft low hill high terrace: 0 low terrace: 0 terrace dissected strong: 0 terrace dissected strong: 0.3	2015 -16 Mixed aguajal: 0.07 Low terrace 347.5 Soft dissected terrace: 23.9 High terrace: 1.02 Terrace dissected strong: 1.10 Tropical savannah: 0.37 Flooding alluvial: 99.6 Lagoons: 9.7 Rivers: 75.5 Agricultural activity / Secondary forest: 12.5 Total: 571.18	2016-2017 Mixed aguajal: 0 Low terrace: 54.06 Soft dissected terrace: 1.24 High terrace: 0 Terrace dissected strong: 0 tropical savannah: 0 Floodplain: 48.42 Lagoons: 0.0 Rivers: 15.92 Agricultural activity / Forest secu *: 0.21 Total: 119.85	2017-2018 AD	AIDER	Remote perception and field validation

Objeto of conservation	Indicator	2014	2015	2016	2017	2018	Responsible	Methodology
		Total: 5.2	Soft dissected terrace: 19.5 Total: 32.3					
Castañal	# of dead trees reported annually within the terraced forest	-	-	-	56 ¹⁷	AD	RNTAMB Castañeros	Direct observations and report to park rangers
	# of chestnut-producing trees killed per year	-	-	-	26	AD	a. RNTAMB b. Castañeros (ASCART 1 y 2)	a. Inspection, every time there is a complaint. b. Report to the park ranger
Pampas del Heath	Annual area: # of ha of pampas.	4261.86	4226.56	5374.09	4459.39	5,373.30	AIDER	Remote perception ans SIG
	# heat sources from unplanned burnings per year.	0	0	-	22	6	AIDER	Remote perception ans SIG
	# of ha of pampas traced back to the year.	-70.56	198.83	859.09	-65.76	119.28	AIDER	Remote perception ans SIG
Collpas	# collpas in activity affected by some human activity (tourism, agriculture, land use, etc.)	4	4	4	4	4	AIDER with support from the Guacamayo Project	Direct observation - Characterization of each lick
		(Chuncho, Heath, Sandoval y Colorado)	(Chuncho, Heath, Sandoval y Colorado)	(Chuncho, Heath, Sandoval y Colorado)	(Chuncho, Heath, Sandoval y Colorado)	(Chuncho, Heath, Sandoval y Colorado)		

¹⁷ Registro de árboles caídos según los informes de Zafra de los castañeros 2017.

Objeto of conservation	Indicator	2014	2015	2016	2017	2018	Responsible	Methodology
		Wealth: 21 Individuals: 134 Simpson_1-D: 0.8604 Shannon_H: 2,442	Wealth: 21 Individuals: 150 Simpson_1-D: 0.8889 Shannon_H: 2.577	Wealth: 21 Individuals: 9195 Simpson_1-D: 0.882 Shannon_H: 2.377	Wealth: 18 Chuncho: 18 Heath: 22 Sandoval: 14 Total: 24 Individuals: 93.87 Chuncho: 140.72 Sandoval: 105.76 Total: 336 Simpson_1-D: 0.88 Heath: 0.85 Sandoval: 0.56 Total: 0.88 Shannon_H: 2.30 Chuncho: 2.21 Sandoval: 1.3 Total: 2.48	Wealth: 16 Chuncho: 19 Heath: 15 Sandoval: 23 Total: 347 Individuals: 378.5 Chuncho: 425.7 Sandoval: 263.9 Total: 347 Simpson_1-D: 0.85 Heath: 0.85 Sandoval: 0.66 Total: 0.90 Shannon_H: 2.13 Chuncho: 2.14 Sandoval: 1.54 Total: 2.55	CA-AIDER * / Guacamayo Project (information for Colorado collpa not included)	Direct count of large Ara in clay licks and record of other birds present in the area.
	Presence / absence of mammals in key clay licks annually	Not reported	Not reported	Tapir en collpa chuncho	Tapir en collpa chuncho	Not reported	Guacamayo Project	Registration of the presence of mammals, noting species sighted
	Presence / absence of human activities in collpas found per year	Chuncho: Tourism Heath: Tourism Sandoval: Tourism Colorado: Tourism	Chuncho: Tourism Heath: Tourism Sandoval: Tourism Colorado: Tourism	Chuncho: Tourism Heath: Tourism Sandoval: Tourism Colorado: Tourism	Chuncho: Tourism Heath: Tourism Sandoval: Tourism Colorado: Tourism	Chuncho: Tourism Heath: Tourism Sandoval: Tourism Colorado: Tourism	AIDER with support from Proyecto Guacamayo, RNTAMB	Record of presence of human activity, noting type of activity
Castaña	# of chestnut- producing trees killed per year	-	-	Trees with tag: 64 Trees without tags: 22	- 26	AD	RNTAMB y Castañeros	a. Inspection, every time there is a complaint. b. Report

Objeto of conservation	Indicator	2014	2015	2016	2017	2018	Responsible	Methodology
								to the park ranger
	# of seedlings (10cm - 10m tall) chestnut per ha	-	- 10	377(*) -	95	AD	AIDER	Zafra Report (castañeros)
	Annual chestnut production reported in PVC	334568 kg/cascara	346688 kg/cascara	117580 kg/cascara	25670.0 kg/pelado	135250 kg/pelado	RNTAMB	Registro en PVC
		4460.91 barrica	4622.5 barrica	5879 barrica	1283.5 barrica	6762.5 barrica		
	Abundance: # of individuals of añuje sighted for each km walked by location per year	San Antonio: 0	San Antonio: 0.02	San Antonio:0.15	Jorge Chávez:0.22	AD	AIDER	Linear transects - Relative abundance
		Huisene: 0.13	Huisene: 0.05	Huisene:0.24	Huisene:0.23	AD		
		Briolo: 0.13	Briolo: 0.06	Sandoval:0.24	Sandoval 0.20	AD		
		Sandoval: 0.09	Sandoval: 0.05	Briolo:0.17 Jorge	San Antonio 0.13	AD		
		Jorge Chávez: It was not evaluated	Jorge Chávez: 0.03	Chávez:0.77	Briolo 0.10	AD		
	Density: # of individuals per km2 per location per year	5.2573 ind/km ²	19.673 ind/km ²	13.202 ind/km ²	8.9 ind/km ²	AD	AIDER	Linear transects - Distance
Huangana (Tayassu pecari)	# of herds sighted per year	34	15	17	11	2	RNTAMB/AIDER	Patrolling / linear transects - Direct count
		-	-	-	-	13	RNTAMB/guías	Fauna sighting success sheet by tourist guides
	# of sampling locations with huangana sighting per year	8 (de 8)	9 (de 9)	8 (de 9)	1 (de 10)	8 (de 13)	AIDER	Linear transects

Objeto of conservation	Indicator	2014	2015	2016	2017	2018	Responsible	Methodology
	Abundance: # of groups sighted per km transect sampled per year	0.02 groups/km	0.02 groups/km	0.083 groups/km	0.001 groups/km	AD	AIDER	Linear transects
	Abundance: # of ind. Sighted per km transect sampled per year	0.44 ind./km	0.38 ind./km	0.083 ind/km	0.05 ind/km	AD	AIDER	Linear transects
	# average of individuals per group	26.75 ind./group	23.5 ind./group	-	26 ind/group	AD	AIDER	Linear transects
	Density: # of individuals per km2 per location per year	-	169.19 ind/km ²	Detections are <30 obs and Distance can not be estimated	Detections are <30 obs and Distance can not be estimated	AD	AIDER	Linear transects - Distance
	# of huanganas hunted per year	37	21	211	13	7	RNTAMB	Registration of hunting and fishing from PVC
Wetlands, rivers and aguajales	# of bodies of water with presence of river wolf	7 de 9	7 de 13	11(de 13)	6(de 13)*	11 (de 13)	SZF with support from AIDER	Population census.
	# of individuals (adults and offspring) sighted per year by cocha	Sandoval: 6 Tres Chimbadass: 5 Cocococha: 7	Sandoval: 7 Tres Chimbadass: 2 Cocococha: 5	Sandoval: 6 Tres Chimbadass: 6 Cocococha: 7	Sandoval: 6 Tres Chimbadass: 6 Cocococha: 7 Heath:	Sandoval: 6 Tres Chimbadass: 6 Cocococha: 7 Heath:	SZF with support from AIDER	Direct count

5.3.3 Monitoring Plan and Results Dissemination (B3.3)

The following activities were carried out:

- VII Symposium on biological research and monitoring in natural protected areas and conservation corridors: Within the framework of the activities programmed for the XVIII Anniversary of the Tambopata National Reserve, the seventh edition of the aforementioned Symposium was held, the same one that was carried out days 04, 05 and 06 of September 2018, developed in the central auditorium of the National Amazonian University of Madre de Dios - UNAMAD. The event, had four themes: 1) Tourism and research 2) Resource management and sustainable production 3) Mining, restoration and clean technologies and 4) Environmental law, attendance at the event amounted to 244 people among university students and professionals from different disciplines that were interested in knowing results of investigations that are being carried out within ANP and biological corridors at regional and national level, described in appendix 12.

In the Biological monitoring lines, the following presentations were presented:

- Administration Contract of the RNTAMB and the PNBS in Madre de Dios: Myth or Reality by MSc. Jaime Nalvarte - AIDER.
- Importance of the river wolf (*Pteronura brasiliensis*) in the Natural Protected Areas of southeastern Peru by Blgo. Joel Mendoza - FZS.
- Environmental characterization of areas degraded by illegal mining in the Tambopata National Reserve, Malinowski Sector - Madre de Dios-2017, by Blgo. Ernesto Fernández Gamarra - SERNANP / UNSAAC.
- Comparative study between spider monkeys (*Ateles chamek*) of free life and reintroduced in Madre de Dios-Peru, by Blgo. Raúl Bello Santa Cruz - Kawsay Biological Station.
- Diversity of mammals and birds in the Tambopata National Reserve and the Bahuaja Sonene National Park: five years of monitoring of species under conservation, by M.Sc. Juan Carlos Lara - AIDER.
- Red Novels and Scarlet Secrets "Discoveries and Conservation of the Scarlet Macaw (*Ara macao*) in Tambopata, Peru" by Blgo. Lauren Bazley, Texas A & M University.
- Climate change and the western Amazon: reservoir or net carbon emitter?, by Lic. Fabian Limonchi - Pontificia Universidad Católica del Perú.
- Results of the monitoring of psittacines in two clay licks in the RNTAMB and the PNBS from 2015 to 2017, by Lic. Yohamir Casanca - AIDER.
- ANP, State Commitment for the Conservation of Biodiversity, by Ing. David Aranibal Huaquisto - PNBS.
- Arboreal frugivores and the dispersal of seeds of forest species in three forests with low terraces, Tambopata - Madre de Dios, by Bch. Edwin Jurado - UNAMAD.
- Presence of mercury in bats in areas with different land uses in Madre de Dios, Peru. By PhD. Farah Carrasco Rueda - School of Natural Resources and Environment.
- XI Peruvian Ornithological Congress: I participate as an exhibitor Lic. Yohamir Casanca Leon, with the theme "The Impact of Tourism on the Collpeo Activity of the Psittacids in the Collpa de Chunchu de Tambopata", an event held in Iquitos, on the days July 23-28, 2018. This scientific event, considered one of the most important in our country, invites national and international researchers to present and discuss the latest advances in ornithological research.
- National Congress of Biology Students - XIX CONEBIOL Puno: At the invitation of the head of the Bahuaja Sonene National Park, a keynote presentation was presented entitled "Co-Management Model of the Administration Contract in the Tambopata National Reserve and the Bahuaja

National Park Sonene "by Juan Carlos Lara, presented on September 3 of this year in the city of Puno.

- Congreso I Congress of Scientific Research in Natural Protected Areas: Event held on the campus of the National Agrarian University La Molina, from September 26 to September 28, two oral presentations were presented, by CA-AIDER the presentation was presented "Diversity of mammals and birds in the Tambopata National Reserve and the Bahuaja Sonene National Park: five years of monitoring of species under conservation ", presented by the person in charge of the area of biological monitoring M.Sc. Juan Carlos Lara In addition, an upcoming event III Congress of Protected Areas of Latin America and the Caribbean was announced at the event, where it is opportune to participate and present the progress and achievements of the CA with the two ANPs.
- I Chestnut Symposium: On November 7, 2018, as part of the Forest Week, the "First Symposium on Chestnut Research" was held, with the aim of disseminating the results obtained in the studies carried out recently. in the region by different research organizations and also share the research methods used. The event was held in the amphitheater of the National Amazonic University of Madre de Dios - UNAMAD, and was organized by the SUSTAIN, IIAP and UNAMAD Project. Likewise, it was supported by SERNANP, AIDER, PROFONANPE, ACCA and other institutions involved in the subject. It is worth mentioning that AIDER specialists gave two presentations, Juan Carlos Lara, made his oral presentation on "Experiences in monitoring and evaluation of chestnut in the Tambopata National Reserve: utilization, production, regeneration and density of añujes. In the same way, Sandra Ancassi, presented her panel with the theme "Availability of Fruits for the Regeneration of Castañeras Concessions of the Tambopata National Reserve".

6 ADDITIONAL PROJECT IMPLEMENTATION INFORMATION

There is no additional information

7 EXCEPTIONAL BIODIVERSITY BENEFITS

In the RNTAMB wildlife-human conflict of the species Jaguar (*Panthera onca*), river wolf (*Pteronura brasiliensis*), maquisapa (*Ateles chamek*) and huangana (*Tayassu pecari*) are species that in the past have suffered hunting pressure . That is why these species are behavioral sensitive to human presence. Within the RNTAMB and the PNBS, the presence of these species is permanently monitored, with a control and surveillance program established by the SERNANP and there are monitoring programs to monitor their populations. All this within the framework of the Administration Contract on the components of research and biological monitoring conducted by AIDER on these protected areas.

Below, the data obtained for these species is presented during the framework of the comprehensive monitoring system 2017 and 2018:

Vulnerability: Critically Endangered (CR) and Endangered (EN) Species - presence of at least one individual

- Jaguar (*Panthera onca*):** 4 indicators were reported for the 2017-2018 monitoring. Given the inherent difficulty of evaluating this species, the normally low density with which it occupies the landscape and the effects that population and habitat degradation may have on the species, our

minimal assessment of the population decline could be a significant underestimate (Quigley et al, 2017).

Number of individuals sighted and signs found per year: The results of the SMI show that, the number of sightings and indications found during 2017 through monitoring has increased with respect to previous years, the registration methodology for the present conservation object includes: Linear transect monitoring in 10 areas of PVC, patrols by park rangers and success of wildlife sightings by guides. In figure 18, they register with greater records of traces in the areas La Torre, Azul, Malinowski (field Collpa Chuncho and Ocho Gallinas), Correntada, Jorge Chávez, Pamahuaca, San Antonio, Collpa Colorado-TRC, and with less registry Briolo, Huisene and Otorongo).

The indicator of abundance for jaguar in transects with direct observation is very low <0.02 ind./jaguar sighted by the total effort in km traveled in 2017, however, the detection of traces (tracks, feces, hairs, etc.). increased for the year 2017, with park ranger records and guides. The reports of detections by tourist guides are more likely to observe the TRC, Collpa Colorado, Collpa Chuncho, Malinowski (Ocho Gallinas) and La Torre highways along the Tambopata river. In 2017, three transects were implemented in the field of PVC Pamahuaca, providing new records for this area. Where a 28% probability of detecting jaguar is determined with direct observation (most likely in the CRT sectors, areas of the Colorado-Chuncho Collpa, followed by the Malinowski-La Torre area). Likewise, an 84% probability of detecting by traces (traces) in the linear transects implemented by the CA-AIDER will be determined.

Abundance and Density: In November / 2016 a second level of permanent monitoring with trap cameras implemented by the project known as "AmazonCam Tambopata" or "Long-term monitoring of arboreal and terrestrial mammals in the RNTAMB and the Bahuaja-Sonene National Park was prevented. camera traps and remote microphones "implemented by Rainforest Expeditions SAC and the San Diego Zoo Global and CA-AIDER. For the period 2017-2018 after approximately 18 months of monitoring, we have obtained the first results with respect to the population of jaguars in the marked area. The population is estimated at a range of 19 ± 25 jaguars according to the area of study, this range is due to the fact that in some monitoring stations with cameras one of them was absent, making it impossible to definitively identify the individual. Taking into account the area in which it is being monitored, these data constitute one of the highest jaguar densities for its entire range of distribution if we exclude the Brazilian Pantanal. Likewise, with an analysis of presence and absence, jaguar prey species are reported and make use of the ecosystem.

Distribution area: According to the distribution map of the IUCN (Red List), the jaguar is distributed throughout the region of Madre de Dios and jaguar prey is also shown in the mammalian fauna inventory as follows (latinized alphabetical order) Source: AmazonCam-Tambopata Project.

- b. Giant Otter (*Pteronura brasiliensis*):** Distribution: Number of bodies of water with presence of river wolf: The Zoological Society of Frankfurt, who leads the study of river wolves in the region, does monitoring in the RNTAMB and the PNBS year after year, however, this effort It is not always the same and in many cases the same bodies of water are not evaluated. That is why, together with AIDER, they propose to make a continuous monitoring in the same bodies of water, with the possibility of exploring others, 13 bodies of water are proposed which will be monitored annually from 2015 and readjusted in the 2016 period.

In total, there are 5 bodies of water with presence of this species during the evaluation for the period 2017, apparently they are the same as in the previous years (2012-2017), thus maintaining the distribution of the river wolf. Likewise, there is evidence of a fairly significant population in the

Heath River with a registry of 48 individuals (2016) and 36 individuals (2017) in 6 family groups, the groups are made up of 4 to 8 individuals in 19 cochas located along the Heath river.

For the indicator of the number of individuals sighted per year, four cochas with tourist activity were monitored: Sandoval, Tres Chimbadas, Cocococha and Sachavacayoc, the latter being out of monitoring since 2014-2015, all located within the RNTAMB and its ZA. For the year 2017 it is reported in # of individuals: Tres chimbadas (8), Cocococha (6) and Sandoval (9), Río Patuyacu (7) and without records in the Palma Real river. In 2017, the number of indications increased with respect to the other years, reporting a total of 80 individuals of Lobo de Río (See: SMI 2017), although the tendency is to increase considering that both burrows or camps in use as in disuse, thus increasing the number of signs year after year.

For the number of offspring per cocha per year, since 2012 it is not easy to detect the offspring in the oxbow lakes: Sandoval, Tres Chimbadas and Cocococha, however, two young are reported in the bodies of water of the Heath River. Where the probabilities are low in the monitoring dates for the offspring, there is probably a decrease in hatchlings, but the researchers do not need to reach these conclusions, since in the 2008 baseline, the same lakes had a number of 2 offspring for each one. This indicator should be taken very cautiously since it is difficult to determine when it is a young, a young individual or a new recruit and also a scientific opinion of the research group. In the RNTAMB there is 80% and 84% in the scope of the PNBS, respectively, of the oxbow evaluated there was some indication of its presence between camps and burrows.

In addition to being categorized as "Endangered" in the IUCN Red List, *Pteronura brasiliensis* is protected by Peruvian law and appears in Appendix 1 of CITES. Its distribution includes most of Peruvian protected areas located in low jungle. It is suggested: a) to continue with the study of the relationship between the giant otter and its prey, including conflicts with commercial and subsistence fishers; b) evaluate the positive and negative impacts of tourism in different habitats and implement management protocols to maximize benefits; c) improve the development of long-term research that allows monitoring the population status of the species; d) promote new monitoring in areas with potential for the presence of the species in order to define the national distribution and limitations on its distribution and e) strengthen environmental education programs in areas where there are conflicts with this species (SERFOR, 2018).

- c. **Black-faced spider monkey (*Ateles chamek*):** For the indicator of the number of localities with Maquisapa sighting per year, in 2017 it was registered in the PVC (San Antonio) with respect to 2016, as well as in the Malinowski PVC transects, reported by park rangers and tourist guides (I do not consider for the analyzes). In the previous years (2014 and 2015) the presence was reported in three PVCs (Malinowski, Azul and Otorongo), arriving to consider it as locally extinct in some areas because it did not appear in the sampling effort. The fact that two locations are reported with their presence, indicates that the species is recovering, however, the baseline of 2010 indicates that out of 18 sampled localities (mostly unmonitored localities since 2012), 7 had the presence of maquisapa .

The monitoring during the patrols carried out by the park rangers of the RNTAMB, recorded the presence of 3 groups of maquisapas in 2017, with an average of 3 individuals per group. The methodology of linear transects in permanent trails shows an abundance of AR = 0.05 individuals for each km traveled for 2016, showing a decrease with respect to 2015.

Due to the evasive behavior of most older mammal species, it was not possible to obtain enough sightings (> 40) to perform the density calculations with the DISTANCE 7.0 program (Buckland et al., 2004). In general, the records of maquisapa have been increasing since 2014, which can be interrupted since the areas of Blue PVC and Otorongo, important for the registration of this species, are being threatened by illegal mining. Deforestation in the buffer zone and in the area of

native communities, Jorge Chavez and Loero where the forest is fragmented and hunting is more frequent for this species. Deforestation in the buffer zone and in the area of native communities, Jorge Chavez and Loero where the forest is fragmented and hunting is more frequent for this species.

Vulnerable Species (VU) - presence of at least 30 individuals or 10 pairs

Categorized fauna species are listed in the project area according to their state of conservation at the national level, collated with CITES sources, Red List (IUCN), Suppression Decree 04-2014-MINAGRI and Red Book of the Endangered Wild Fauna of Peru (SERFOR 2018).

Table 35. Vulnerable species present in the project area

Scientific name	Common name	Threat status IUCN 2014	Threat status IUCN 2015-2016	Threat status IUCN 2019	Threat Supreme Decree 004-2014 ¹⁸	Red Book of the Endangered Wildlife of Peru 2018 ¹⁹	Presence in the project area	Monitoring source
<i>Tapirus terrestris</i>	Sachavaca	Vulnerable (VU)	-	Vulnerable (VU)	Nearly threatened (NT)	Nearly threatened (NT)	X	Trail monitoring record sheets / Patrolling sheets
<i>Primolius couloni</i>	Guacamayo de cabeza azul	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	X	Log files / monitoring in trails / Patrol sheets
<i>Blastocerus dichotomus</i>	Ciervo de los pantanos	Vulnerable(VU)	Vulnerable(VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X	SZF
<i>Podocnemis unifilis</i>	Taricaya	Vulnerable(VU)	Vulnerable(VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X	Patrolling sheets
<i>Geochelone denticulata</i>	Motelo	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	-	-	X	Log files / monitoring in trails / Patrol sheets
<i>Lagothrix lagotricha</i>	Mono choro	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	In danger (EN)	In danger (EN)	X	-
<i>Dinomys branickii</i>	Picuro mama /pacarana	Vulnerable (VU)	Almost threatened	Minor concern (LC)	-	Vulnerable (VU)	X	-
<i>Priodontes maximus</i>	Armadillo gigante	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X	Log records of monitoring in trails
<i>Vampyressa melissa</i>	Murciélago de orejas amarillas	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X**	-
<i>Ara militaris</i>	Guacamayo militar	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X***	-
<i>Coryphaspiza melanotis</i>	Pinzón enmascarado	Vulnerable (VU)	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X	-

¹⁸ <https://www.serfor.gob.pe/wp-content/uploads/2016/09/DS-N004-Especies-amenazadas-de-fauna-silvestre.pdf>

¹⁹ <https://www.serfor.gob.pe/wp-content/uploads/2018/10/Libro-Rojo.pdf>

* There are records of three species of Tinamus; T. major, T. tao and T. sp. Probably this undetermined species is T. osgoodi.

** Species distributed only to Pilcopata in the Manu National Park (Zamora, 2014 pers. Comm.)

*** Species restricted to the eastern slope of the Andes and isolated mountain ranges between 600 and 1500 meters above sea level. (Schulenberg et al., 2010).

Scientific name	Common name	Threat status IUCN 2014	Threat status IUCN 2015-2016	Threat status IUCN 2019	Threat Supreme Decree 004-2014 ¹⁸⁾	Red Book of the Endangered Wildlife of Peru 2018 ¹⁹⁾	Presence in the project area	Monitoring source
<i>Myrmecophaga tridactyla</i>	Oso bandera	-	Vulnerable (VU)	Vulnerable (VU)	-	Vulnerable (VU)	X	-
<i>Ateles chamek</i>	Maquisapa	-	In danger of extinction	In danger (EN)	In danger	In danger (EN)	X	Trail monitoring record sheets / Patrolling sheets
<i>Pteronura brasiliensis</i>	Lobo de Rio	-	In danger of extinction	In danger (EN)	In danger	In danger (EN)	X	Population census of river wolf / direct count
<i>Tayassu pecari</i>	Huangana	-	Vulnerable (VU)	Vulnerable (VU)	Almost threatened	Nearly threatened (NT)	X	Trail monitoring record sheets / Patrolling sheets
<i>Pionites leucogaster</i>	Chirricle	-	In danger of extinction	In danger (EN)	-	-	X	-
<i>Panthera onca</i>	Otorongo/jaguar	-	-	Nearly threatened (NT)	Almost threatened	Nearly threatened (NT)	X	Trail monitoring record sheets / Patrolling sheets
<i>Harpia harpyja</i>	Aguila arpia	-	-	Nearly threatened (NT)	-	Vulnerable (VU)	X	Trail monitoring record sheets / Patrolling sheets
<i>Atelocynius microtis</i>	Perro de orejas cortas	-	-	Nearly threatened (NT)	-	Vulnerable (VU)	X	-

Globally significant source populations - 1% of the global population on the site.

The Pampas del Heath located in the Heath River basin, on the border with Bolivia, in the Madre de Dios Region, within the PNBS. They constitute the only sample in Peru of the palm savanna ecosystem (Foster et al., 1994). In addition, it is the westernmost extension of the Llanos de Moxos, which are a series of pastures that have been subject to human management interventions for thousands of years (Brightsmith, 2010).

They are made up of forest edge grasslands (Montambault, 2002) maintained by occasional fires in the dry season. They constitute the only sample of tropical humid savanna in Peruvian soil, and represent one of the few areas of pampas existing in the world that have not been intervened by man (Brightsmith, 2011 comm.pers., Taken from AIDER, 2013).

They maintain populations of the Crin Wolf (*Chrysocyon brachyurus*) and the deer of the marshes (*Blastocerus dichotomus*), species that are part of the monitoring program installed in this ecosystem. The monitoring shows that the Crin wolf is present in the area, with apparently low population densities and few records, although these records are made every year, it is very difficult to count the number of wolves present, although we have evidence in cameras traps of its presence throughout the last years. While the deer of the marshes shows evidence of having vigorous populations, since they are abundant footprints, feces and occasional sightings.

AIDER, as executor of the Administration contract of the RNTAMB and the PNBS; since 2011, he has been monitoring the Pampas de Heath every year. This monitoring is developed with the support of strategic allies (Museum of Natural History of the National University of San Agustín de Arequipa, the Michael Owen Dillon Institute, the Fauna Forever Association). It consists of the study of fauna (birds, mammals, insects, amphibians and reptiles), flora and vegetation carried out continuously until 2015.

In addition, a scientific publication is presented in Scielo by the researcher Blgo. Cesar Medina, entitled "Mammalian diversity in the savanna from Peru, with three new additions from country" (available: <http://dx.doi.org/10.1590/0031-1049.2016.56.02>). The study summarizes endangered and / or endemic species of Pampas del Heath savannah, however, studies that reveal the diversity of mammals in the Pampas del Heath are scarce, with only three evaluations from 1977 to the I presented. Therefore, we developed surveys of mammals in three types of habitats of the Pampas del Heath (savanna, ecotonal area and forest) at the end of the year 2011. We used several recording methods for the different groups of mammals sampled, including 1) capture techniques with mist nets, snare traps, Sherman traps, Tomahawk traps and fall traps, and 2) direct detection techniques through trap cameras, mammal sightings on trails, search for traces and interviews with local people. The capture effort was 6,033 traps / night, 136 networks / night and 108 cameras / night. We recorded a total of 69 mammal species: 33 in the savannah, 33 in the ecotonal area and 38 in the forest. Sixteen species are new reports for the Pampas del Heath and three are new records for Peru (*Cryptonanus unduaviensis*, *Rhogeessa hussoni* and *Rhogeessa io*). Where in the analyzes of the sampling effort, relative density, diversity and community structure of small mammals for the three types of habitats. In addition, seven species are threatened and 24 are on CITES. The new records presented here increase the list of mammals in Peru from 538 to 541 and highlight the importance of conducting biological inventories to describe the biodiversity of remote areas, such as the Pampas del Heath (Appendix 11).

From the multi-temporal analysis and through the satellite images, an increase or gain of this ecosystem was identified and quantified, showing for 2015 and 2016, 4460.69 and 5374.09 hectares, respectively, considering a recovery of 913.4 hectares for the period 2016.

Appendix :

- Appendix 1: Activity Report
- Appendix 2: Occupational safety assesment
- Appendix 3: Data and parameters monitored
- Appendix 4: Monitored data stored
- Appendix 5: Risk report
- Appendix 6: Community monitoring plan results
- Appendix 7: Integrated Monitoring System
- Appendix 8: Camera trap report
- Appendix 9: Mining
- Appenidx 10: Guacamayo Project
- Appendix 11: Pampas del Heath
- Appendix 12: VII Symposium of biological research
- Appendix 13: FREL Submission Peru
- Appendix 14: Nesting REDD+ Environmental Ministry of Peru
- Appendix 15: Camera Trap Report
- Appendix 16: Conservation agreement COOPASER-SERNANP